Staff Report to the Zoning Administrator

Application Number: 08-0150

Applicant: Patrizia Materassi
Owner: John Draeger
APN: 062-251-01

Agenda Date: June 17, 2011
Agenda Item #: 1
Time: After 10:00 a.m.

Project Description: Proposal to recognize the construction of two horse stables, approximately 981 square feet and 1,235 square feet in size, one 788 square foot tackroom/ workshop, one 356 square foot tackroom/office barn, a 2,600 square foot non-habitable storage structure and grading of approximately 2,359 cubic yards of excavation and 7,209 cubic yards of fill. In addition, the applicant proposes to replace an unpermitted mobile home with a new 1,200 square foot manufactured home, to construct a 1,300 square foot addition to the existing 2,600 square foot storage structure, to construct a new 2,160 square foot non-habitable workshop/office, and to construct a new rail car bridge to replace an existing culvert crossing at Old Timber Road.

The proposal would also recognize the unpermitted construction of approximately 550 lineal feet of retaining walls of up to 6.5 feet in height. An additional 250 lineal feet of retaining walls of up to 4 feet in height are proposed to replace an existing system of log retaining structures. A 336 square foot manure bunker is proposed to accommodate boarding of up to 8 horses on the site.

Location: Project located on the south side of Smith Grade, approximately 1.5 miles south of the intersection with Empire Grade (831 Smith Grade).

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

Permits Required: Coastal Development Permit, Residential Development Permit, Riparian Exception
Technical Reviews: Preliminary Grading Approval; Geotechnical Report Review

Staff Recommendation:

- Certification of the Mitigated Negative Declaration completed in accordance with the California Environmental Quality Act
- Approval of Application 08-0150, based on the attached findings and conditions.

Exhibits

A. Project plans
B. Findings
C. Conditions
D. Mitigated Negative Declaration (CEQA determination) with attachments
E. Assessor's, Location, Zoning and General Plan Maps
F. Comments & Correspondence not included with the CEQA document

Parcel Information

Parcel Size:	152.5 acres
Existing Land Use - Parcel:	Residential and timber production
Existing Land Use - Surrounding:	Residential, timber production and agriculture
Project Access:	Smith Grade (county-maintained)
Planning Area:	Bonny Doon
Land Use Designation:	R-M (Mountain Residential)
Zone District:	RA (Timber Production)
Coastal Zone:	_X_ Inside ___ Outside
Appealable to Calif. Coastal Comm.	___ Yes _X_ No

Environmental Information

Geologic Hazards:	Geologic investigation prepared; no threats identified
Soils:	Soils Report completed
Fire Hazard:	Portion of site mapped; no development proposed in Critical Fire Hazard area
Slopes:	Slopes in excess of 50% in the vicinity of the riparian corridor
Env. Sen. Habitat:	Riparian Corridor associated with two perennial streams that cross the site – Smith and Cojo Creeks.
Grading:	Approximately 2,360 cubic yards of excavation and 7,200 cubic yards of fill proposed
Tree Removal:	One tree proposed to be removed to accommodate replacement bridge
Scenic:	Mapped resource; areas of development minimally visible from Smith Grade
Drainage:	Engineered drainage plans
Archeology:	Archeological site assessment performed; no resourced identified

Services Information

Urban/Rural Services Line:	__ Inside _X_ Outside
Water Supply:	Private well
Sewage Disposal:	Private septic
Fire District:	Calfire
Drainage District:	None

History

The property is developed with an existing cabin and detached garage, which were constructed in the 1940s according to Assessor's Records. In February 2000, application 00-0090 was made to construct a new single-family dwelling, a second unit, accessory structures and a replacement bridge at a culverted stream crossing (Old Timber Drive). Application 00-0090 was abandoned on June 19, 2003. Building Permit 127452 was issued on December 18, 2000 to authorize the repair of a separate bridge at Moore Ranch Road. In 2004, the County received a complaint of illegal grading along Old Timber Drive and application 04-0479 was made on October 6, 2004 to address the grading violation and to reinforce the stream bank along the Old Timber Road creek crossing. Application 04-0479 was withdrawn by the applicant and the proposed development was subsequently combined into the subject application in order to address all riparian work completed or proposed at both stream crossings on the property.

On April 15, 2005 the Planning Department posted an additional notice of violation on the property for the unpermitted construction of two horse barns, a tack room, a workshop, the installation of a mobile home, development within a riparian corridor, and grading in excess of 1,000 cubic yards for the creation of a horse arena and paddock areas.

The subject application was made on May 5, 2008 to address all known building and environmental violations on the property and to expand development on the site to include additional structural square footage.

Project Setting and Description

The subject property is a 152.5-acre site located in a sparsely developed rural area in the Bonny Doon Planning Area. The site occupies a west-facing, moderately to steeply sloping hillside and takes access from Smith Grade, a County-maintained road. The majority of the site is heavily forested and drains to Majors and Cojo Creeks, two perennial streams that cross the subject property. The development on the site is clustered in two primary areas: at the northeast (Riding Arena) and at the center of the parcel (Shop Site). The site is served by private wells and sewage disposal is accomplished via a septic system.

The site is developed with two separate private roads that take access from Smith Grade and the two roads cross Cojo Creek at different locations. Old Timber Road at the northeast corner of the lot is unpaved, provides primary access to the subject site and crosses the creek via an unpermitted, failing culvert. Moore Ranch Road to the west is a right of way that provides access to several residences southwest of the site and crosses Cojo Creek via a legally constructed bridge. Each creek crossing exhibits evidence of past drainage and erosion problems.

Vegetation on the site is characterized by Douglas fir, redwood, coast live oak, bay laurel and madrone forest, with moderate to dense underbrush. The property has historically been used for timber production and is developed with an existing cabin and garage located adjacent to the Old Timber Road stream crossing.

Parcels to the north, east and west are zoned for Timber Production (TP) and are heavily wooded with steep slopes. Properties to the south are zoned Residential Agriculture (RA) and Special Use (SU). The majority of the surrounding properties are developed with single family dwellings at low, rural densities.

Topography on the subject parcel ranges from essentially flat to slopes in excess of 1:1, with three gently sloping areas running from north to south through the central portion of the property. One of these three flatter areas, located at the center of the parcel, has been used for the unpermitted development of horse facilities, including a riding arena, paddocks, and several equestrian outbuildings. Small to medium-scale grading operations have occurred in the vicinity of the horse facilities and access roads that traverse the property. Erosion from surface water runoff is evident along the western slope of the property.

The applicant proposes to recognize the unpermitted construction of two horse stalls of approximately 981 and 1,235 square feet, one 788 square foot tackroom and workshop, one 356 square foot tackroom and office, a 2,600 square foot non-habitable storage structure and grading that includes approximately 2,359 cubic yards of excavation and 7,209 cubic yards of fill. In addition, the applicant proposes to replace an existing (unpermitted) mobile home with a 1,200 square foot permanent modular home, to construct a 1,300 square foot addition to the existing unpermitted 2,600 square foot storage structure, to construct a new 2,160 square foot non-habitable workshop/office, and to construct a new rail car bridge to replace the culvert creek crossing at old Timber Road. The proposal would also recognize the unpermitted construction of approximately 550 lineal feet of retaining walls in the vicinity of the horse arena, paddocks and tack room. The retaining walls range from 1 to 6.5 feet in height and an additional 250 lineal feet of walls are proposed to be constructed at the Shop Site to replace an existing system of log retaining structures along an outer fill wedge.

The proposal would result in two dwellings (1,968 square feet total area) and eight non-habitable structures (9,860 square feet total area).

The existing and proposed grading consists of fill at the main driveway off of Smith Grade Road, fill at the approach to the proposed rail car bridge at Old Timber Drive, a small amount of excavation for improving Old Timber Drive, with the majority of the remaining grading having already occurred to create the horse arena, paddocks and building pads at the Shop Site.

The proposed replacement bridge at Old Timber Drive is composed of 70-foot railcar girders placed on cast-in-place concrete abutments and cast-in-drilled-hole concrete piles. Six (6) 24-inch diameter piles are proposed, three on each side of the channel, and are to be constructed from the top of the stream bank.

A 336 square foot manure bunker is proposed to be constructed in the Shop Site area to accommodate up to eight horses on the site at any one time. The bunker is located approximately ¼ mile southwest of the horse facilities and residences, in the Shop Site portion of the parcel. The bunker is also more than 550 feet from the nearest stream. The manure will be hauled from the equestrian area to the bunker by tractor and removed from the project site via dump truck each week and taken to the Buena Vista Landfill for use as composting material.

No lessons, riding or other commercial activity associated with the equestrian facilities is proposed on the site.

ANALYSIS AND DISCUSSION

Zoning & General Plan Consistency

The subject property is a parcel of approximately 152.5 acres, located in the TP (Timber Production) zone district, a designation which, in addition to timber harvesting, allows a single-family dwelling, second unit, and all Commercial Agriculture uses and accessory agricultural structures. The proposed horse facilities, non-habitable accessory structures and residential structures are principal permitted uses within the TP zone district and the zoning is consistent with the site's (R-M) Mountain Residential General Plan designation. Agricultural uses are considered principal permitted uses in the TP zone district. In that the non-habitable accessory structures, constructed on the subject site, are incidental to the agricultural use on the property, they are not subject to the 1,000 square foot limitation that applies to residential accessory structures.

Local Coastal Program Consistency

The proposed development is in conformance with the County's certified Local Coastal Program, in that the structures are 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 and agricultural outbuildings of various configurations. Size and architectural styles vary widely in the area, and the design of the accessory structures and modular home is consistent with this range of styles. The proposed development is minimally visible from the County-maintained road and represents a small degree of impact given the overall size of the property and the density of the surrounding forest. 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. While the proposal includes development within a riparian corridor, conditions of project approval will ensure that the development will not significantly impact the riparian resource.

Riparian Resources/Riparian Exception

As stated previously, two perennial streams cross the project site; Majors Creek and Cojo Creek. No work is proposed in the vicinity of Majors Creek. The unpermitted culvert crossing at Old Timber Drive is proposed to be replaced with a rail car bridge. Additionally, drainage improvements are proposed in the vicinity of both stream crossings to address historic erosion and sedimentation problems that have existed in each area. Project consultants have prepared assessments of the existing stream quality conditions (Water Sampling Report, Attachment 8 of Exhibit D) as well as biotic site assessments relating to potential impacts to riparian fish and amphibian species (Aquatic Assessment and California Red-Legged Frog Site Assessment, Attachments 9 and 10, Exhibit D). The biotic assessments provide a number of recommended mitigations to ensure that the bridge replacement and drainage improvements do not negatively impact riparian resources. The recommendations have been incorporated into the project

conditions of approval and include requirements for pre-construction meetings between the biologists, Environmental Planning staff and project contractors. Additionally, a biological monitor will be present during all construction activities that occur within or adjacent to the stream channel.

Additional measures limit construction in the riparian corridor to between August 1st and October 15th and require the riparian area to be revegetated following the construction with requirements for annual documentation, management and monitoring of the progress of planting and required survival criteria for riparian species.

To mitigate impacts of nighttime lighting on the riparian habitat, a lighting plan is required to be submitted to the Planning Department for review and approval.

A Riparian Exception is required in order to allow the proposed bridge construction and drainage improvements within the riparian corridor. The proposed bridge and drainage construction will correct longstanding erosion and sedimentation problems that have negatively impacted the riparian habitat, while providing a safe creek crossing that is necessary for the economic use of the property. The implementation of the riparian revegetation and monitoring plan will help to restore and maintain a healthy riparian system following the completion of construction in the riparian corridor. Therefore, the findings can be made in support of the Riparian Exception (Exhibit B).

Timber Resources

The subject parcel is zoned for Timber Production and timber harvests have historically occurred on the site. A Forester's Report on Timber Production Zoning Issues and Timber Management Plan (Attachment 14 of Exhibit D) was prepared by the project forester. The report states that the project would not result in adverse impacts on timber production. Specifically, the review found that the areas of development contain primarily oaks with grass and herbaceous understory vegetation. A condition of project approval states that timber resource may only be harvested in accordance with California Department of Forestry timber harvest rules and regulations.

Horse Arena/Paddocks

The horse arena and paddocks were created in an area located within the front half of the subject parcel. Section 13.10.641(a)(3) of the County Code states that paddocks shall be located on the rear half of the lot, unless a Level V Use Approval is obtained. In this case, the paddock area has been established in one of two relatively flat areas of the parcel, each of which is located within the front half of the parcel. The second flat area ("Shop Site"), developed with unpermitted non-habitable structures, is the location of the proposed modular home. Locating the paddocks in close proximity to the dwelling unit is not optimal; therefore the existing graded location is preferable for the paddocks and arena.

The paddock area is minimally visible from the street or any neighboring dwellings due to the surrounding forest and topography of the parcel; therefore the paddock location is not expected to represent a nuisance to surrounding properties. The paddock area is located more than twenty (20) feet from the property line and a condition of project approval requires the replacement

mobile home to be located a minimum of forty (40) feet from the paddock area.

Currently, four horses are kept on the project site with a maximum of eight horses proposed to be accommodated. Horse access to areas near waterways is and will continue to be restricted, as horses are kept in fenced areas and not allowed to drink at the creek. As previously stated, a Manure Management Plan was prepared and submitted to Environmental Health Services (EHS) for review. A large bunker proposed to accommodate the anticipated amount of manure was also reviewed and its size and location approved by EHS. Project conditions of approval require daily cleaning of horse stalls and paddocks, with manure and bedding gathered every two days and carried to the designated storage area. The manure storage area is several hundred feet away from the proposed residence and riparian areas on the site. Horse manure would be removed from the site weekly and sent to Watsonville, where it is composted and used as fertilizer as a part of the Buena Vista Landfill Organic Material Exchange Program.

Drainage

The horse arena was constructed with a sub-drainage system that discharges to an adjacent slope. Proposed drainage improvements in this location consist of connecting the outlets to a common point of discharge, where a gabion rock dispersal installation will be constructed to dissipate the runoff. In addition, the project landscape engineer has provided a cobble swale treatment with underdrain at the arena to further protect Cojo Creek from any contaminated runoff associated with the use of the horse arena.

Old Timber Drive is constructed of gravel and base rock and includes a drainage swale along the inside edge as well as culverts to disperse stormwater runoff. A siltation basin is proposed adjacent to this roadway prior to the creek crossing to prevent silt and gravel fines from entering the creek. An asphalt berm is also proposed to be added along the area of road improvement near the intersection of Old Timber Drive and Smith Grade.

Additional drainage improvements are proposed in the vicinity of the bridge replacement, including the installation of vegetated swales adjacent to the bridge.

Drainage calculations for the proposal indicate that the post-development runoff rates would not exceed those of pre-development rates. No other water use or diversion is proposed; therefore the proposal does not result in any significant impacts to groundwater supplies or recharge capability. The overall amount of existing and/or proposed impervious coverage on the site is approximately .15 acres, which represents 0.1% of the overall site area.

Grading

The existing, unpermitted grading that is to be recognized by this proposal consists of 334 cubic yards of cut and 3,215 cubic yards of fill at the Shop Site to accommodate construction of accessory buildings and retaining walls, and 1,024 cubic yards of cut and 3,899 cubic yards of fill to create the horse arena and paddock area. Additionally, 96 cubic yards of fill are proposed at the main driveway off Smith Grade and at the approach to the proposed rail car bridge at Old Timber Road. A small amount of re-contouring is also proposed in conjunction with the cobble stone catch basin in order to correct the historic erosion and sedimentation issues in this area.

The grading at the Old Timber Road bridge approach would utilize engineered (compacted) fill, with all fill slopes to be keyed and benched into the native slopes. Some of the grading proposed along Old Timber Road would also stabilize existing erosion problems identified along the inboard side of the road.

Section 16.20.040 of the County Code specifies the appropriate level of approval required for grading in excess of 1,000 cubic yards. Specifically, all approvals for grading in excess of 1,000 cubic yards which is visible from a scenic corridor roadway, is required to be processed as a Level VI permit application. Smith Grade is listed in the General Plan as a Scenic Road; however, while a small portion of grading is proposed at the driveway off of Smith Grade, the majority of the grading occurred 500-600 feet away from the road and approximately 30 feet below the grade of the public roadway. Additionally, TP-zoned parcel is heavily forested. The horse facilities are not visible from the scenic road and do not negatively impact the associated visual resources; therefore the grading is being processed at Level V, consistent with the other component of the project.

Retaining Walls

Approximately 550 lineal feet of retaining walls in the vicinity of the horse arena, paddocks and tack room would be recognized under the subject proposal. An additional 250 lineal feet of walls are proposed to replace an existing system of log retaining structures constructed at the Shop Site, in accordance with recommendations made by the project geotechnical engineer. The new walls will protect against future instability of a fill slope behind the non-habitable accessory structures. The walls at the horse facility range from 1 to 6.5 feet in height, while the proposed walls at the Shop Site will be approximately 4 feet tall.

Design Review

The project complies with the requirements of the County Design Review Ordinance, in that the structures proposed to be recognized or constructed are not visible from Smith Grade Road. The property is heavily wooded and the distance from the roadway and the existing vegetative screening reduce the visual impact of the proposed development on surrounding land uses. The existing and proposed structures represent approximately 0.1% of the total area of the parcel and therefore do not significantly impact the natural landscape.

The design of the agricultural accessory structures and replacement mobile home is consistent with the rustic, rural context of the Santa Cruz Mountains and compatible with the design of surrounding structures in the vicinity of the subject parcel.

Environmental Review

Environmental review has been required for the proposed project per the requirements of the California Environmental Quality Act (CEQA). The project was reviewed by the County's Environmental Coordinator on April 11, 2011.

A preliminary determination to issue a Negative Declaration with Mitigations (Exhibit D) was

made on April 22, 2011. The mandatory public comment period expired on May 22, 2011, with no comments received.

The environmental review process focused on the potential impacts of the project in the areas of riparian resources, water quality, and biotic resources. The environmental review process generated mitigation measures that will reduce potential impacts from the proposed development and adequately address these issues.

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 of the Mitigated Negative Declaration completed in accordance with the California Environmental Quality Act.
- **APPROVAL** of Application Number **08-0150,** based on the attached findings and conditions.

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

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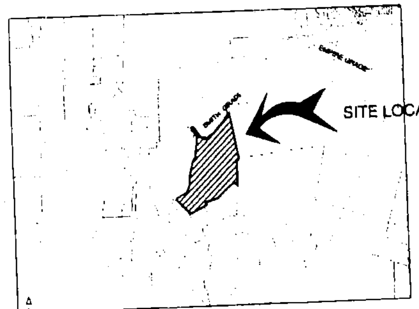
DRAEGER PROPERTY

APN: 062-251-01
831 Smith Grade
Santa Cruz County, CA



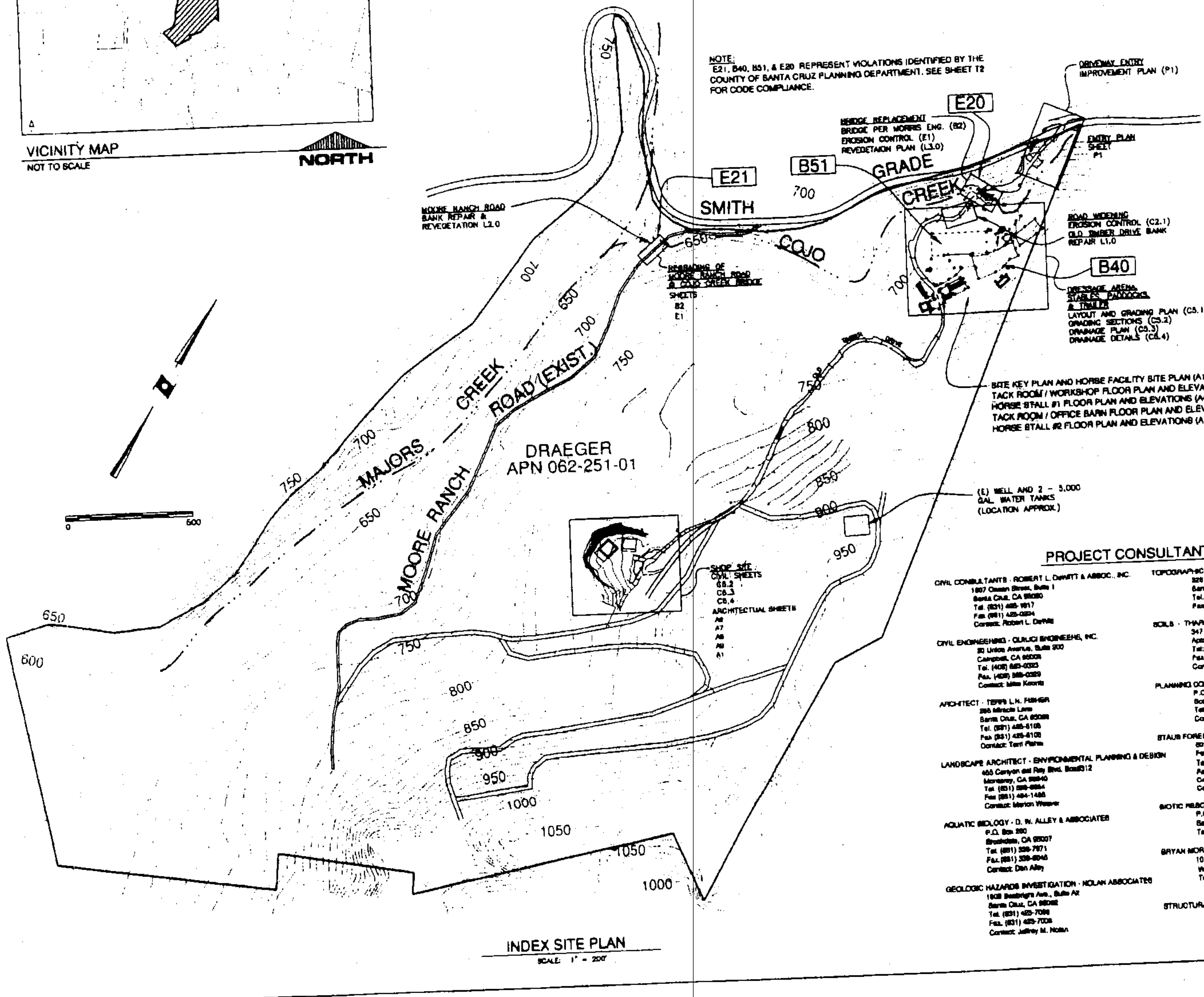
VICINITY MAP
NOT TO SCALE

NORTH

SUMMARY OF GRADING QUANTITIES:

SHEET	CUT	FILL
P1	0 CU YDS	35 CU YDS
E1	0 CU YDS	80 CU YDS
C2.1	1 CU YDS	0 CU YDS
C5.2	1,024 CU YDS	3,[illegible] CU YDS
C8.2	1,234 CU YDS	3,200 CU YDS (INTERIM GRADING)
C8.4	100 CU YDS	15 CU YDS (FINAL GRADING)
TOTAL	2,359 CU YDS	7,209 CU YDS

NET TOTAL = 4,850 CU YDS (FILL)



INDEX SITE PLAN
SCALE: 1" = 200'

PARCEL DATA:

OWNER:
John Draeger — 831 Smith Grade, Santa Cruz, CA 95060

APPLICANT'S REPRESENTATIVE:
Patrizia Materassi — SUSTAINABLE DEVELOPMENT & PLANNING, P.O. Box 66287, Scotts Valley, CA 95067, 831-334-2383

PARCEL CHARACTERISTICS:

Zoning:	TP
General Plan:	Mountain Residential
Coastal Zone:	Yes
Estimated Acreage:	152.568 AC. (County GIS)
Lot coverage:	5,390 S.F. (buildings and structures) < 0.1%

SHEET INDEX

Robert L. DeWitt & Assoc.

T1	PRELIMINARY SITE PLAN
T2	CODE COMPLIANCE DOCUMENTS
P1	DRIVEWAY ENTRY IMPROVEMENT PLAN
E1	BRIDGE REPLACEMENT EROSION CONTROL PLAN
B1	BIOLOGIST NOTES, WATER QUALITY NOTES AND DETAIL

Morris Engineering

B2	BRIDGE REPLACEMENT PLANS

Quilici Engineering

C0.2	SITE NOTES
C2.1	EROSION CONTROL AT ROAD WIDENING
C4.1	REGRADING OF MOORE RANCH ROAD AT COJO CREEK BRIDGE
C5.1	HORSE FACILITY LAYOUT AND GRADING PLAN
C5.2	HORSE FACILITY CUT AND FILL SECTIONS
C5.3	HORSE FACILITY DRAINAGE PLAN
C5.4	DETAILS AND SECTIONS
C8.1	INTERIM ESTIMATED SHOP SITE PRIOR TO FILL
C8.2	INTERIM ESTIMATED SHOP SITE PRIOR TO FILL, CUT & FILL SECTIONS
C8.3	INTERIM ESTIMATED SHOP SITE GRADING & RETAINING WALL PLAN
C8.4	FINAL EXISTING AND PROPOSED SHOP SITE CUT & FILL SECTIONS
C8.5	FINAL EXISTING AND PROPOSED SHOP SITE EROSION CONTROL AND DRAINAGE PLAN
C8.6	SHOP SITE DRAINAGE DETAILS

Terri L.N. Fisher

A1	SITE KEY PLAN AND HORSE FACILITY SITE PLAN
A2	SHOP SITE PLAN AND MANURE BUNKER LOCATION
A3	TACK ROOM / WORKSHOP FLOOR PLAN AND ELEVATIONS
A4	HORSE STALL #1 FLOOR PLAN AND ELEVATIONS
A5	TACK ROOM/OFFICE BARN FLOOR PLAN AND ELEVATIONS
A6	HORSE STALL #2 FLOOR PLAN AND ELEVATIONS
A7	PROPOSED EQUIPMENT STORAGE FLOOR PLAN
A8	PROPOSED EQUIPMENT STORAGE ELEVATIONS
A9	PROPOSED WORKSHOP / OFFICE FLOOR PLAN
A10	PROPOSED WORKSHOP / OFFICE ELEVATIONS
A11	PROPOSED MANURE BUNKER FLOOR PLAN, CROSS SECTION AND DETAILS
A12	PROPOSED MANURE BUNKER ELEVATION / ROOF PLAN

Environmental Planning & Design

L1.0	OLD TIMBER DRIVE BANK REPAIR
L1.1	SUPPORTING PHOTOGRAPHS
L2.0	MOORE RANCH ROAD BANK REPAIR & REVEGETATION
L2.1	SUPPORTING PHOTOGRAPHS

Biotic Resources Group

L3.0	BRIDGE REPLACEMENT REVEGETATION PLAN

PROJECT CONSULTANTS

CIVIL CONSULTANTS - ROBERT L. DeWITT & ASSOC., INC.
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Santa Cruz, CA 95060
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465 Canyon del Rey Blvd. Box 312
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AQUATIC BIOLOGY - D. W. ALLEY & ASSOCIATES
P.O. Box 200
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1505 Seabright Ave., Suite A2
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Contact: Jeffrey M. Nolan

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328 Harrison Avenue
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SOILS - THARP & ASSOCIATES, INC.
347 Spreckles Drive
Aptos, CA 95003
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Contact: Don Tharp

PLANNING CONSULTANT - SUSTAINABLE DEVELOPMENT & PLANNING
P.O. Box 66287
Scotts Valley, CA 95067
Tel. (831) 334-2383
Contact: APPLICANT REPRESENTATIVE Patrizia Materassi

STAUB FORESTRY AND ENVIRONMENTAL CONSULTING
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Felton, CA 95018
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Fax: (831) 335-1452
Cell: (831) 227-[illegible]
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BIOTIC RESOURCES GROUP
P.O. Box 14
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BRYAN MORI BIOLOGICAL CONSULTING SERVICES
1016 Brewington Ave.
Watsonville, CA 95076
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STRUCTURAL ENGINEER - MORRIS ENGINEERING
4801 Lorens Road
Redwood Valley, CA 95470
Tel. (707) 485-1123
Fax. (707) 4851177
Contact: Jeffrey S. Morris

TITLE SHEET
FOR THE
DRAEGER PROPERTY
PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
831 SMITH GRADE, SANTA CRUZ, CA
APN 062-251-01
SANTA CRUZ COUNTY, CALIFORNIA

Robert L. DeWitt & Associates, Inc.
Civil Engineers & Land Surveyors
1607 Ocean Street, Suite 1
Santa Cruz, California 95060
(831) 425-1617 TEL
(831) 425-0224 FAX

DESIGN:	RLD
DRAWN:	RLD
DATE:	4/21/08
DWG:	[illegible]
REVISED:	
ISSUED:	11/18/08
ISSUED:	4/6/09
ISSUED:	5/18/09
ISSUED:	7/14/09
ISSUED:	3/1/10
PROJECT:	[illegible]
SHEET:	T1 of

DRAEGER PROPERTY

APN: 062-251-01
831 Smith Grade
Santa Cruz County, CA

RED TAGS

CODE COMPLIANCE PARCEL RESEARCH REPORT
APN: 062-251-01

E21 — GRADING VIOLATION BILL HRS

B40 — ACCESS STRUCTURES W/OUT PERMIT

B51 — RETAINING WALLS W/OUT PERMIT

E20 — GRADING VIOLATION
(NOTE: THIS IS SEPARATE FROM E21 VIOLATION)
History Available: YES

1 CTALS
4 INVESTIGATIONS

E21 ROAD WIDENING AT MOORE RANCH ROAD
REGRADING OF MOORE RANCH ROAD RIGHT AFTER COJO CREEK BRIDGE C4.1
MOORE RANCH ROAD BANK REPAIR AND REVEGETAION L2.0

B40 STRUCTURES WITOUT PERMIT
SITE KEY PLAN AND HORSE FACILITY SITE PLAN A1
TACK ROOM / WORKSHOP FLOOR PLAN AND ELEVTIONS A3
HORSE STALL #1 FLOOR PLAN AND ELEVATIONS A4
TACK ROOM / BARN OFFICE FLOOR PLAN AND ELEVATIONS A5
HORSE STALL #2 FLOOR PLAN AND ELEVATIONS A6
PLEASE REFER TO GEOTECHNICAL SOILS REPORT ATTACHED
PLEASE NOTE THAT EXISTING TWO STORAGE BAYS AT THE "PROPOSED SHOP SITE" HAVE NO RED TAGS AND NO PERMITS. THEY ARE NOT RELATED TO THE HORSES.

B51 DRESSAGE ARENA
DRESSAGE ARENA, HORSE STALLS, PADDOCKS AND MOBILE HOME
LAYOUT AND GRADING C6.1
GRADING SECTIONS C6.2
DRAINAGE PLAN C6.3
DRAINAGE DETAILS C6.4
PLEASE REFER TO HYDROLOGY STUDY ATTACHED
SITE KEY PLAN AND HORSE FACILITY SITE PLAN A1
PLEASE REFER TO MANURE MANAGEMENT PLAN ATTACHED

E20 BRIDGE REPLACEMENT AT OLD TIMBER DRIVE (REFERED AS DRAEGER'S DRIVEWAY IN RED TAG DOCS.) IN RIPARIAN CORRIDOR
BRIDGE REPLACEMENT EROSION CONTROL AND DRAINAGE C3.1
BRIDGE REPLACEMENT GRADING AND SECTIONS C3.2
BRIDGE REPLACEMENT STRUCTURAL NOTES C3.3
BRIDGE REPLACEMENT PLANS AND DETAILS C3.4
CREEK FORTIFICATION PLAN C4.1
BRIDGE REPLACEMENT AND REVEGETATION PLAN L3.0
OLD TIMBER DRIVE BANK REPAIR L1.0
THIS RED TAG ALSO REFERS TO DRESSAGE ARENA. SEE SHEETS LISTED ABOVE C6.1-C6.4

STIPULATIONS

Santa Cruz County Planning Department
TOM BURNS, DIRECTOR
701 Ocean Street, Room 400
Santa Cruz, California
FAX (831) 454-2131

BEFORE THE ADMINISTRATIVE HEARING OFFICER FOR THE COUNTY OF SANTA CRUZ

In the Matter of: John E. Draeger, Trustee, Property Owner. — Case No.: STIPULATION AND ORDER

STIPULATION ITEM A:
SITE NOTES C02
HORSE FACILITY LAYOUT AND GRADING C6.1
HORSE FACILITY CUT AND FILL C6.2

STIPULATION ITEM B:
BRIDGE REPLACEMENT EROSION CONTROL AND DRAINAGE C3.1
BRIDGE REPLACEMENT GRADING AND SECTIONS C3.2
BRIDGE REPLACEMENT STRUCTURAL NOTES C3.3
BRIDGE REPLACEMENT PLANS AND DETAILS C3.4
OLD TIMBER DRIVE BANK REPAIR L-1.0

STIPULATION ITEM C:
SITE KEY PLAN AND HORSE FACILITY A1
TACK ROOM WORKSHOP FLOOR PLAN AND ELEVATIONS A3
HORSE STALL #1 FLOOR PLAN AND ELEVATIONS A4
TACK ROOM / BARN OFFICE FLOOR PLAN AND ELEVATIONS A5
HORSE STALL #2 FLOOR PLAN AND ELEVATIONS A6
SEE PLANS FOR DESCRIPTIONS OF COLORS AND MATERIALS

STIPULATION ITEM D:
SITE PLAN AND HORSE FACILITY WHERE MOBILE HOME IS LOCATED A1
SEE CATALOGUE FOR PLAN, ELEVATIONS, COLORS AND MATERIALS

DATE	ACTION REQUIRED
April 21, 2008	Pay Total Enforcement Costs in the amount of $466.80
April 21, 2008	Pay 25% of the remaining Civil Penalty in the amount of $431.00
May 21, 2008	See Paragraph 3. A, 1 & 2. Failure to comply with this deadline will result in the full civil penalty being imposed.

May 21, 2008	Submit completed applications. Failure to comply with this deadline will result in an additional 25% of the Civil Penalty in the amount of $2000.00 being imposed.
April 15, 2009	Deadline to submit an extension request
May 21, 2009	Obtain all required final inspections and approval, including clearing all holds.
May 24, 2009	Pay 75% of the Civil Penalty in the amount of $4050.00, if compliance is not met.

Dated: — John E. Draeger, Trustee, Property Owner

Ken Hart, Principal Planner, County of Santa Cruz

ORDER

Good Cause Appearing, IT IS SO ORDERED.

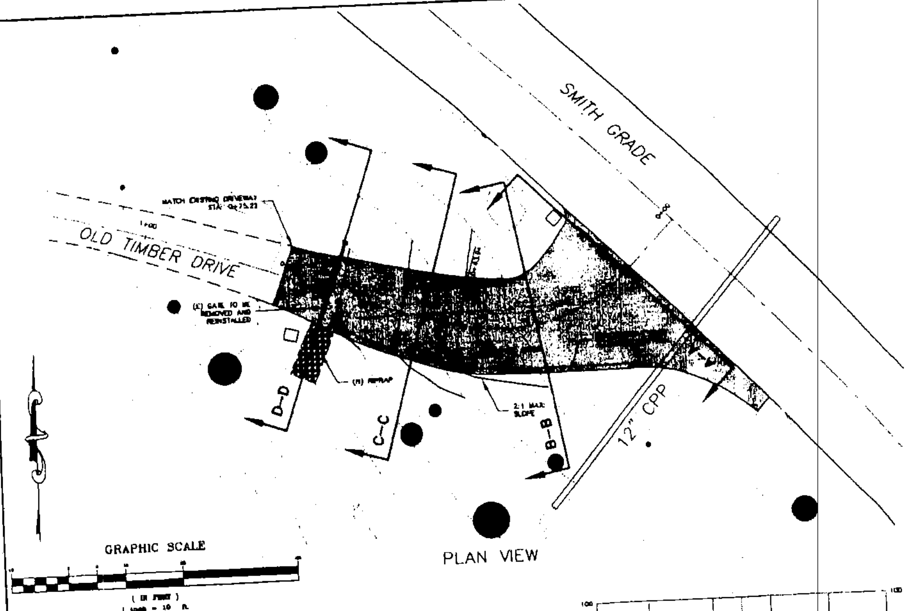
Dated: — Administrative Hearing Officer

CODE COMPLIANCE DOCUMENTS FOR THE DRAEGER PROPERTY

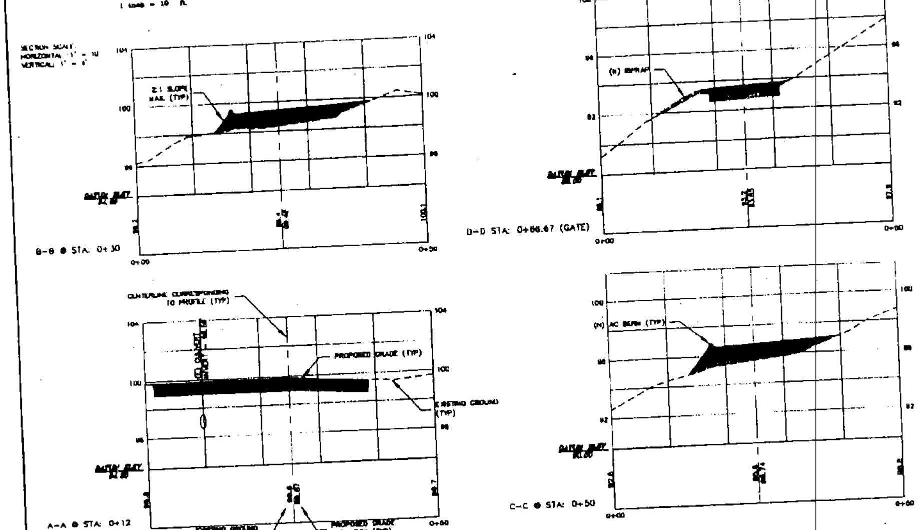
PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
831 SMITH GRADE, SANTA CRUZ, CA
APN 062-251-01
SANTA CRUZ COUNTY, CALIFORNIA

Robert L. DeWitt & Associates, Inc.
Civil Engineers & Land Surveyors
1607 Ocean Street, Suite 1
Santa Cruz, California 95060
(831) 425-1617 TEL
(831) 425-0224 FAX

DESIGN: RLD
DRAWN: RLD
DATE: 4/21/08
SHEET: T2



PLAN VIEW

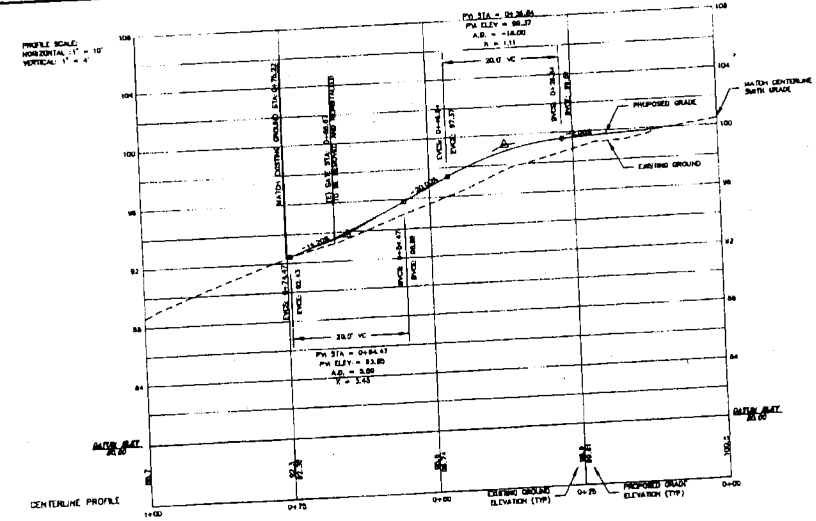


B–B @ STA: 0+30

D–D STA: 0+66.67 (GATE)

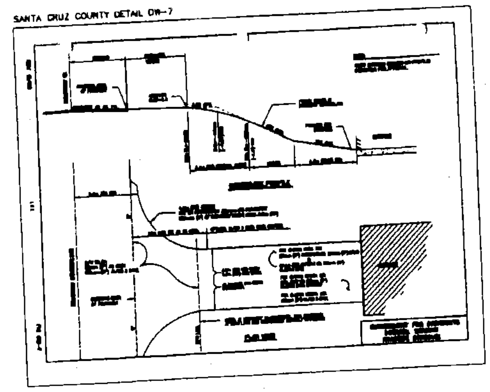
A–A @ STA: 0+12

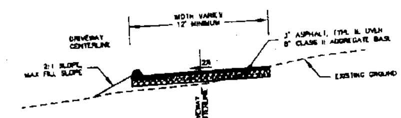
C–C @ STA: 0+50



CENTERLINE PROFILE

SANTA CRUZ COUNTY DETAIL DW-7





TYPICAL DRIVEWAY SECTION

SCALE: 1"=5'

GRADING CALCULATIONS:

Site Volume Table: Unadjusted

Site	Stratum	Surf1	Surf2	Cut yards	Fill yards	Net yards	Method
Entry	entry	entry topo	entry	0 0	35 35	35 (F) 35 (F)	Grid Composite

VOLUME QUANTITIES:
11.5 CU YDS OF ASPHALT, TYPE B (NOT INCLUDING BERM)
23.5 CU YDS OF CLASS II AGGREGATE BASE
35.0 CU YDS (TOTAL)

ROBERT L. DEWITT

3-2-10
DATE

Driveway Entry Improvement Plan

PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
Santa Cruz, California
APN: 062-251-01

UNAUTHORIZED CHANGES AND USES:

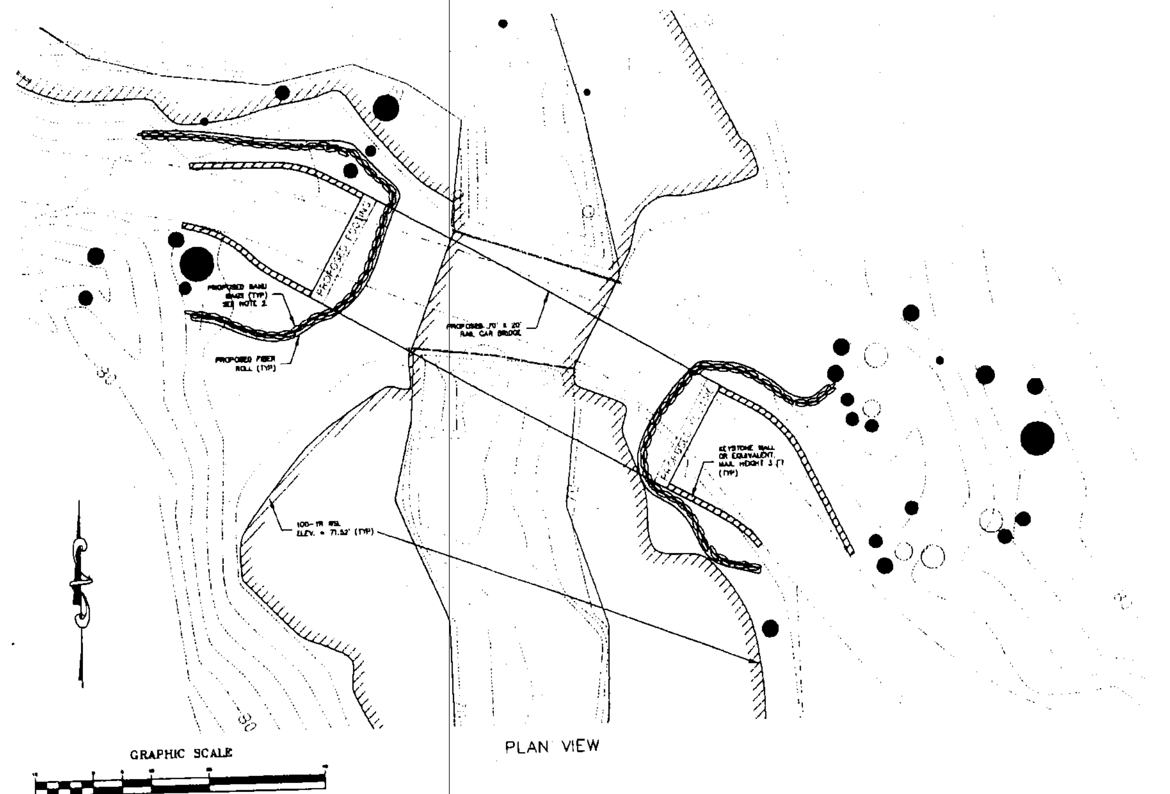
ACEC
AMERICAN COUNCIL OF ENGINEERING COMPANIES
California

ACEC
AMERICAN COUNCIL OF ENGINEERING COMPANIES
California

1-800-227-2600

Robert L. DeWitt & Associates, Inc.
Civil Engineers & Land Surveyors
1607 Ocean Street, Suite 1
Santa Cruz, California 95060
(831) 425-1617 TEL
(831) 425-0224 FAX

SHEET: P1 of 1



PLAN VIEW

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

TREE PRESERVATION NOTES:

1. CONSTRUCTION PERIOD PROTECTION FOR TREES SHOULD BE PROVIDED BEFORE GRADING OR OTHER EQUIPMENT IS ALLOWED ON THE PROPERTY.
2. WHEN CONSTRUCTION IS TO TAKE PLACE BENEATH A TREE CANOPY ON ONE SIDE, THE FENCE SHOULD BE SIGHTED 2' TO 3' BEYOND THAT CONSTRUCTION, BUT BETWEEN CONSTRUCTION AND THE TREE TRUNK.
3. THE TOP OF THE FENCE HUNG WITH FLUORESCENT FLAGGING TAPE EVERY 10'.
4. 6' CHAIN LINK OR WELD WIRE MESH.
5. 8' FENCE POSTS OF 2" DIAMETER GI PIPE OR T-ANGLE POST.
6. INSTALL FENCE AT DRIP LINE TO PROTECT TREES DURING CONSTRUCTION.
7. IF CONSTRUCTION OR PAVING IS TO TAKE PLACE THROUGHOUT THE AREA BENEATH THE CANOPY AND DRIP LINE, FENCING IS NOT PRACTICAL. SNOW FENCING SHOULD BE USED TO PROTECT THE TRUNK FROM DAMAGE.
8. THREE LAYERS OF WIRE AND LATH SNOW FENCING TO 6' ABOVE GROUND ON TREES WHERE CONSTRUCTION WILL TAKE PLACE BENEATH THE CANOPY.

NOTES:

1. PROPOSED GRADING = 60 CU YDS (FILL) FOR BRIDGE APPROACHES
2. ALL SAND BAGS TO BE REMOVE UPON PROJECT COMPLETION. SAND BAGS ARE TO BE MAINTAINED DURING PROJECT DURATION. DETERIORATED SAND BAGS ARE TO BE REMOVED AND REPLACED AS NOT TO ENTER THE CREEK.

CONSTRUCTION SCHEDULING NOTES:

1. CONSTRUCTION MONITORING BY THE PROJECT GEOTECHNICAL ENGINEER AND PROJECT BIOLOGIST SHALL TAKE PLACE (2) TIMES PER WEEK DURING CONSTRUCTION.
2. THERE IS A (20) CONSTRUCTION DAY ALLOWANCE FOR REMOVAL OF THE CULVERT.
3. THERE IS A (30) CONSTRUCTION DAY ALLOWANCE FOR CONSTRUCTION OF THE BRIDGE FOUNDATION.
4. A DETAILED CONSTRUCTION SCHEDULE SHALL BE SUBMITTED WITH THE BUILDING PERMIT APPLICATION.

Call Two Working Days Before You Dig

1-800-227-2600

UNAUTHORIZED CHANGES AND USES:

ACEC
American Council of Engineering Companies
California

ACEC
American Council of Engineering Companies
California

ROBERT L. DEWITT

5-24-10
DATE

Bridge Replacement
Erosion Control Plan

PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
Santa Cruz, California
APN: 062-251-01

Robert L. DeWitt & Associates, Inc.
1607 Ocean Street, Suite 1
Santa Cruz, California 95060
(831) 425-1617 TEL

E1

PROJECT BIOLOGIST NOTES ON IMPACT MINIMIZATION MEASURES FOR FISHERY RESOURCES- DRAEGER BRIDGE PROJECT:

Specific Impact Minimization Measures For the Top-of-Bank Construction Scenario.

1. All bridge construction and in-channel work will occur during the dry/low flow season.
2. A biological monitor will be present to assist the construction crew in following the mitigation recommendations during the removal of the old bridge and the placement of the new bridge on the concrete caissons.
3. Block nets will be placed approximately 50 feet upstream and 150 feet downstream of the existing bridge. Before removal of the old piers, resident rainbow trout will be removed by electrofishing between the block nets and relocated to good pool habitat upstream. At least one experienced dip-netter and livewell for holding fish will be utilized during electrofishing.
4. The sandbar immediately upstream of the bridge will be excavated above the water line, sifted for gravel, with gravel re-introduced to the streambed upon completion of the new bridge, as a future source of spawning gravel.
5. The existing bridge will be removed, with its fill around the culverts and the culverts themselves from the top-of-bank. The walls of wooden planks will be retained while removing old fill. Old fill that contains fine sediment from the footprint of the old bridge will be deposited where it will not re-enter the stream channel. Erosion control measures will be implemented, as needed, to prevent future stream sedimentation from this material. The culvert containing the streambed+ will be removed last. Any clean gravel that was observed between and under the existing culverts will be left in the channel after culvert removal. However, the filter fabric under the gravel will be removed from the channel.
6. In order to maintain sediment transport downstream of the project site, prior to removal of the old bridge and after the removal and relocation of fish, the project area will be isolated from the flowing stream and downstream with cofferdams placed upstream and downstream of the construction area, with streamflow diverted through a culvert. The cofferdams shall have two pipe openings through them for two diversion pipes. One pipe will pass through the southerly bridge culvert to divert the streamflow while the northerly portion of the bridge and three culverts are removed. Then the second pipe will be used to divert the stream when the southerly bridge culvert is removed. To do this, first cap the northerly inlet pipe opening on the upstream cofferdam. Connect the southerly inlet pipe opening to a diversion pipe and run it through the lowest, southerly bridge culvert in the planned lower cofferdam location. Connect the lower cofferdam around this diversion pipe and make a second outlet opening in the lower cofferdam on the north side. After the other three culverts and fill have been removed from the old bridge, connect the capped northerly inlet of the upper cofferdam to the northerly outlet of the lower cofferdam with a second diversion pipe. Then cap the southerly pipe and unclog the northerly pipe to run the water through it instead. After removing the southerly diversion pipe, the 4th bridge culvert and remaining fill may be removed.
7. Two silt fences will be placed downstream of the lower cofferdam location prior to cofferdam construction in order to capture any suspended sediment.
8. After the fill that had surrounded the old bridge culverts is removed, the streambed will be contoured to the same channel configuration as up and downstream of the project site. The streambed will then be covered with clean gravel and cobble of similar size as exists on the streambed in the vicinity of the project site.
9. Since there is the potential for California red-legged frog (CRLF) at the project site, appropriate consultation will occur with the USFWS. Pre-construction surveys and surveys during construction will occur for CRLF. Pre-designated relocation sites will be chosen for CRLF in the event that they are observed in the construction site or exposed during electrofishing to minimize aquatic exposure. Refer to the report by Bryan Mori regarding CRLF for more detailed mitigation measures.
10. Concrete caissons (abutments) for the new bridge will be constructed from the top-of-bank. Unsorted cement and fill will be prevented from entering the stream during excavation and construction. Excavated material will be deposited away from the stream with necessary erosion control measures, as needed, to prevent its future sedimentation of the stream.
11. The new bridge will be placed atop the concrete caissons from the top-of-bank. No fill will be introduced to the stream channel during this process.
12. Silt fences and block nets will be removed after construction is completed, cofferdams are removed and water clarity is restored.

General Impact Minimization Measures For Entire Construction.

13. The extent of temporary and permanent changes to the quality and quantity of instream and riparian habitat will be minimized.
14. Building materials and/or construction equipment will not be stockpiled or stored where they could be washed into the water or where they may cover aquatic or riparian vegetation that need not be removed.
15. During the construction period, the operator will not dump any trash or construction debris into the normal channel. All such debris will be picked up daily and disposed of at an appropriate site.
16. During project activities, all trash that may attract potential predators of salmonids (e.g. raccoons, pied-crows, cats) will be properly contained, removed from the work site and disposed of daily. Workers will not leave food scrappers or other food related trash on the project property. Trash containers will be provided by the operator at the jobsite and will be emptied daily.
17. Protective fencing will be placed so as to prevent construction vehicles and personnel from impacting vegetation adjacent to and outside the project site. The construction area will be clearly demarcated with flagging.
18. Disturbance or removal of woody vegetation will not exceed the minimum necessary to gain access to the stream. No riparian trees will be removed unless their removal is necessary for access to the construction areas or for construction of new facilities. Pruning/limbing/brush-type equipment will not be used to remove woody vegetation unless the root systems of such vegetation interfere with construction activities. The root zone of existing woody vegetation will be left undisturbed wherever possible.
19. Low destructive techniques of pruning tree branches in the lower 8 feet will be used where possible to accommodate project activities. Understory riparian vegetation such as blackberries, willows, etc., will be pruned only as needed to accommodate project activities. All pruned material will be removed from the area and properly disposed of.
20. A qualified fisheries biologist will be hired for the purposes of relocation, monitoring the action areas and for removing and relocating salmonids from these areas.
21. Adequate sediment and turbidity control measures will be implemented. One or more fences of filter fabric will be constructed across the stream channel downstream of the bridge to reduce turbidity and sedimentation downstream of the stream construction site.
22. Project activities that may affect the stream channel will be scheduled to begin no earlier than August 1 (or as not to interfere with spawning movements and egg incubation of resident rainbow trout and at a time when baseflow is minimal) and end by October 15.
23. A pre-construction educational session will be provided by a qualified biologist for all members of the work crew regarding avoidance of state or federal permits, habitat requirements of fish, amphibian and reptile species, the importance of stream shading and the adverse effects of toxic substances and sediment entering the stream channel.
24. All sandbags, plastic and construction materials and equipment will be removed from construction area upon project completion.

Instream Minimization Measures Related to Toxic Fuels and Chemicals During Bridge Removal and Replacement.

25. Best management practices will be used to prevent spillage of hazardous materials into the environment. Only or gravity substances originating from the Contractor's operations will not be allowed to enter Cojo Creek, or its placed where they will later enter the aquatic system. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life, wildlife, or riparian habitat. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be cleaned of all external oil, grease, and materials that, if introduced in water, could be deleterious to aquatic life, wildlife or riparian habitat.
26. All construction equipment working in the stream channel or within 33 ft of the normal channel will have a double containment system for diesel and oil fluids. Equipment will be maintained in good working order to prevent leakage. Vegetable-oil-based hydraulic fluids will be used in equipment operated near the stream channel.
27. Fuel will be stored in a container with an impermeable membrane that can hold 125% of the volume of fuel being stored.
28. Any refueling or equipment maintenance will be accomplished in the staging area away from the creek to prevent fuel spillage to stream.
29. National Marine Fisheries Service will be notified promptly of any spill of one gallon or more at project sites.
30. All concrete structures will be isolated from the flowing stream until fully cured. Application of a water-base concrete sealer after a period of time will be applied to reduce the leaching rates of the concrete from the stream.

Instream Minimization Measures Related to Erosion Control Measures for Bridge Construction.

31. Erosion control and sediment detention devices will be implemented at the time of construction. These devices will be in place during and after construction activities for the purposes of minimizing the sediment and sediment/water slurry input to flowing water and of detaining sediment-laden water on site. The devices will be properly installed where the likelihood of sediment input exists.
32. At least 125 percent of the necessary erosion and (water) pollution control materials will be available on-site at all times during project construction.
33. All erosion-control practices will be inspected, repaired, and maintained prior to and after any storm event during the construction period. Inspections will occur at 24-hour intervals during extended storm events, and/or a minimum of every two weeks during the winter after bridge construction.
34. Erosion control measures will be utilized in order to prevent streambank erosion after the project is completed. Exposed areas will not be filled with gravels with less than a 0.5-inch diameter.
35. During the winter season (October 31 through May 15), all inactive areas will have all the necessary soil stabilization practices put in place before a rain event and two days after a period of inactivity (defined as 5 days) has elapsed.
36. Throughout the winter season (October 31 through May 15), soil-disturbed areas of the project site will not exceed 50 square feet in size.
37. Mulching material will be on hand at the site as October 15 approaches, in the event of an early storm event. When activities are ended, all bare ground will be stabilized to at least a 2-in thickness.
38. The site will be monitored through the winter, and additional mulching will occur where bare soil develops after storm runoff.
39. All artificial erosion control devices will be removed after the project area has fully stabilized.

Instream Minimization Measures Related to Fish Relocation from the Work Area Prior to Bridge Removal and Replacement.

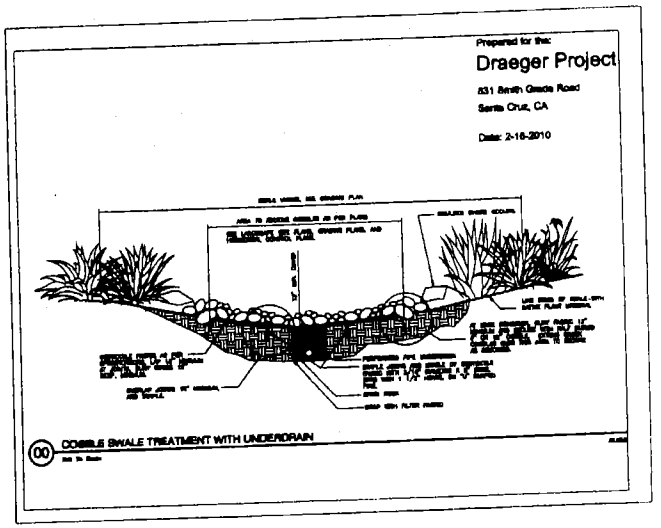
40. Fish will be captured by electrofishing in Cojo Creek. Other methods would be inadequate.
41. The fisheries biologist will have a minimum of three years field experience with electrofishing techniques.
42. The fisheries biologist will possess a valid State of California Scientific Collection Permit as issued by the CDFG.
43. All captured fish will be allowed to recover from electrofishing before being returned to the stream.
44. All captured native fish will be placed in suitable habitat within similar upstream or downstream of the project area. Suitable habitat will include instream escape cover and pools greater than one foot deep. Fish will be placed in the deepest pools in the vicinity. Fish will be transported in livewells, if possible. Otherwise, buckets of water will be used.
45. All captured native fish will be held in water with temperatures equivalent to ambient instream temperatures. All captured fish will be held in well-aerated water. Floating livewells will be used to hold the fish.
46. A minimum of three passes with the electrofisher will be utilized to ensure maximum capture probability of salmonids within the area proposed for dewatering.
47. All captured salmonids and other aquatic vertebrates will be processed and released prior to all subsequent electrofishing efforts.
48. A minimum of one salamander will exit the biologist during electrofishing by netting unusual fish and other aquatic vertebrates.
49. Any non-native fish will be removed from the aquatic system.
50. If California red-legged frog is encountered during electrofishing, fish relocation activities will cease, and the USFWS will be contacted for direction on relocating frogs to the pre-designated locations.

Instream Minimization Related to Cofferdams and Diversion Culvert.

51. The Santa Cruz City Water Department will be notified of the timing of the initiation of the bridge culvert removal process and the day when the cofferdams will be removed to allow streamflow through where culverts had been removed.
52. Two silt fences will be constructed downstream of the lower cofferdams. The purpose of these silt fences will be to capture any suspended sediment that may escape from the bridge culvert removal zone. The silt fences will be made of filter fabric and constructed across the stream channel (tied up the streambanks) in locations where tight seals along the bottom are achievable. The silt fences will be buried in the streambed with hand shovels and secured with concrete blocks to prevent silt leakage underneath. silt fences will be buried in the streambed with hand shovels and secured with concrete blocks to prevent silt leakage underneath.
53. Sufficient water will be allowed to pass downstream to maintain aquatic life at all times.
54. Block net mesh will be sized to ensure that salmonids do not enter the areas proposed for dewatering between passes with the electrofisher.
55. Block nets will not be removed until cofferdam construction and culvert installation are completed.
56. Cofferdams will be placed immediately downstream of the upper block net and immediately upstream of the lower block net.
57. Sandbags and gravel bags will be used to construct the cofferdams. The fishery biologist will supervise the installation of cofferdams and diversion pipes. A visqueen plastic cover will be placed under the dam and over the upstream face of the upper dam and over the downstream face of the lower dam. Particular care will be taken to fill gaps around the culvert to maximum leakage. The sidebanks of the dams will be a minimum of 4 sandbags wide, with the bags laid length-wise across the width of the channel.
58. Construct cofferdams in the shallowest, most regular downstream available to encompass the project area and minimize the distance of stream and amount of fish habitat disrupted. The fishery biologist will discuss the best locations for cofferdam construction in terms of minimizing water seepage and habitat disruption.
59. Construction of cofferdams will occur little or no siltation and be sufficient to prevent seepage of water into the work area.
60. Cofferdam construction will take place by hand. No mechanized equipment will be used in the stream channel during cofferdam construction.
61. Culverts will be sized to allow upstream and downstream fish passage and will not exceed a slope of two percent.
62. Culvert outlets will be directed to instream locations greater than one foot in depth and predominately with sandy substrate cover.
63. The cofferdam dams for diversion structure installation will be two dags, with the block nets maintained in place during the period to prevent re-entry of fish into the project area. Adequate security will be provided overnight to prevent vandalism of block nets. If block nets are compromised, the fish relocation process will be repeated between the cofferdams.
64. Water trapped between the cofferdams will be removed by pumping it to an off-stream basin where it will be filtered before returning to the stream channel, downstream.
65. Culvert inlets will be cleared daily once the diversion structure is installed.
66. Water turbidity will be measured upstream of the project area and downstream of the silt fences during bridge culvert removal and after cofferdams removed. The purpose of turbidity monitoring will be to protect other beneficial uses of water and to insure that turbidity does not exceed the Basin Plan Turbidity Objectives. If the Turbidity Objectives are exceeded during the bridge culvert-removal process or afterwards, construction activities will cease. To reduce and maintain turbidity, existing silt fences will be inspected for functionality and an additional silt fence will be installed downstream of the original silt fences. Then construction activities will resume with continued turbidity monitoring.
67. Normal flows will be restored upon completion of work by removing the cofferdams.
68. Remove the lower cofferdam by hand and empty sandbags away from the stream where it will not be subject to erosion. Then remove the upper cofferdam and diversion culverts by hand, emptying the sandbags away from the stream where the sand will not be subject to erosion. Cofferdams will be removed so that surface elevations of water impounded above the upper cofferdam will be reduced slowly. This will minimize the risk of bewildering and stranding fish as the area upstream becomes dewatered. Chorals for stranded fish will be made as the cofferdams are removed.
69. When cofferdams are removed, bags filled with sand will not be stopped within the 100-year flood channel.
70. The silt fences will remain in place until after the cofferdams and removing pipes are removed to allow streamflow to pass through the site and until streamflow is clear again and all anticipated instream disturbance has been completed.

WATER QUALITY NOTES:

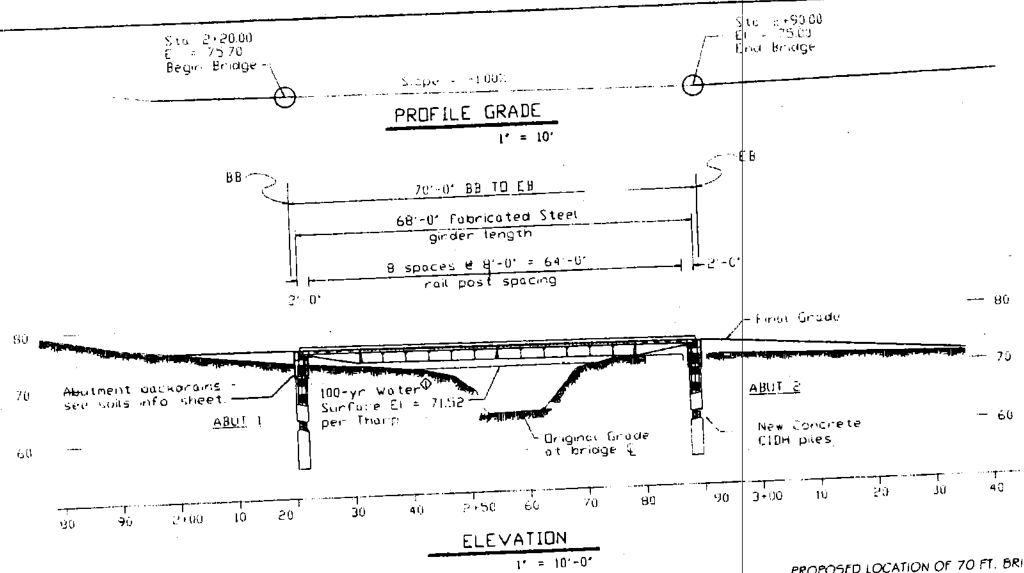
1. This project shall not include surface water diversion of any kind, nor now or in the future. An Application Status Report on file with the SWRCB (ID# 5014099) reflecting this note as applicable will be sent to the Water Co of the City of Santa Cruz prior to Building Permit.
2. Please refer to Jeff Nelson's Water Quality Monitoring Plan. The Water Quality Monitoring Plan includes turbidity monitoring as well during the sidewall removal and bridge construction.
3. The property owner will apply for a DPG 1600 permit for stream de-watering once the bridge piers have been accepted unless the Application has been deemed complete, whichever is sooner.
4. The horse facilities proposed in this project fit a maximum of 4 horses. Regardless the large size of the parcel no more horse facilities, including horses, paddocks nor stalls are being proposed.
5. The Manure Bunker is located in the Storage Area of the site, where all property storage is clustered; away from the basin and more than 100 ft away from the creek. Manure from the paddocks and horse stalls is to be removed daily and transported to the Manure Bunker for temporary storage and hauling per the Manure Management Plan.
6. If run off is occurring creating water turbidity as shown by water quality monitoring, one or two vegetative swales, as detailed in this Sheet, will be installed in the horse facilities area in a manner to prevent mud run off and bring water quality up to required standards.

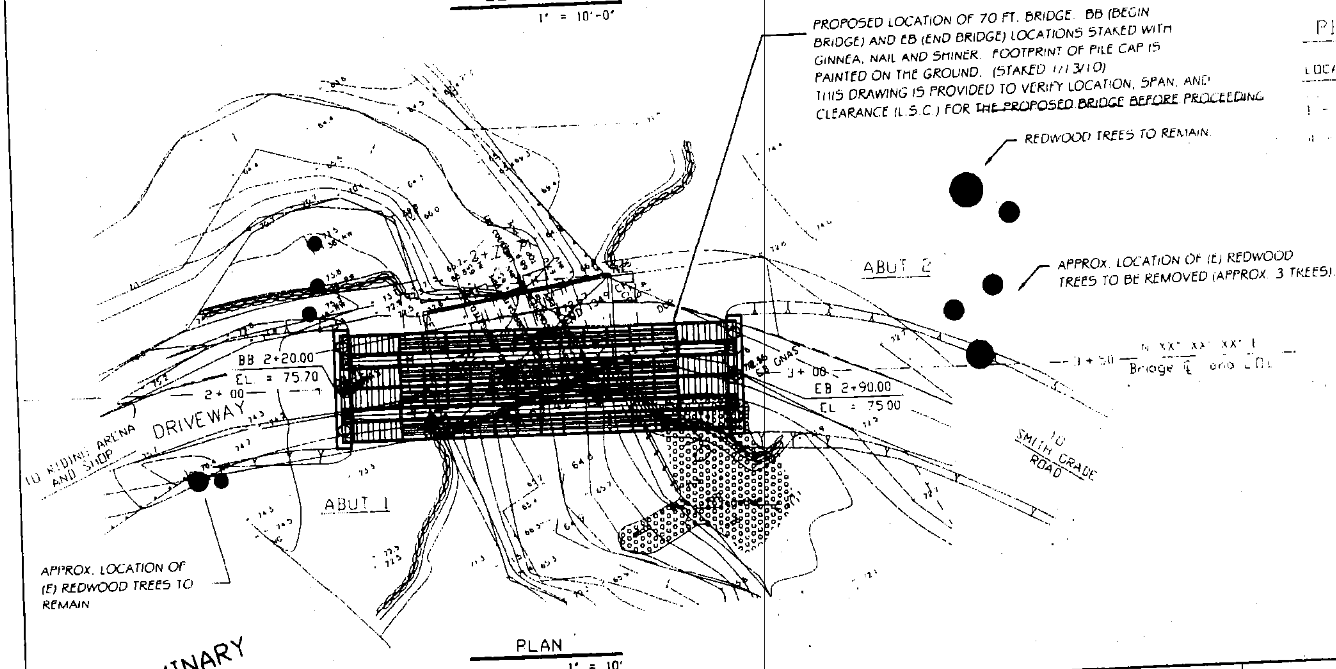


BIOLOGIST CONTACT:
Don Alley
D.W. ALLEY & Associates
P.O. Box 200
Brookdale, CA 95007
831-338-7971
alleyblo@cruzio.com

Biologist Notes, Water Quality Notes and Detail

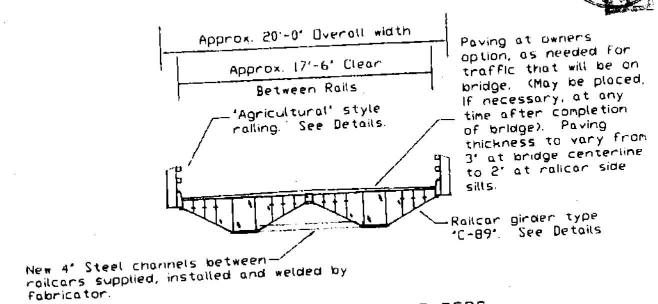
PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
Santa Cruz, California
APN: 062-251-01


Sta. 2+20.00
El. = 75.70
Begin Bridge
Sta. 2+90.00
El. = 75.00
End Bridge
PROFILE GRADE
1" = 10'
BB
EB
70'-0" BB TO EB
68'-0" Fabricated Steel girder length
8 spaces @ 8'-0" = 64'-0" rail post spacing
2'-0"
Final Grade
Abutment backdrains - see soils info sheet.
ABUT 1
100-yr Water Surface El = 71.52 per Thorp
Original Grade at bridge ℄
ABUT 2
New Concrete CIDH piles
ELEVATION
1" = 10'-0"


PROPOSED LOCATION OF 70 FT. BRIDGE. BB (BEGIN BRIDGE) AND EB (END BRIDGE) LOCATIONS STAKED WITH GINNEA, NAIL AND SHINER. FOOTPRINT OF PILE CAP IS PAINTED ON THE GROUND. (STAKED 1/13/10)
THIS DRAWING IS PROVIDED TO VERIFY LOCATION, SPAN, AND CLEARANCE (L.S.C.) FOR THE PROPOSED BRIDGE BEFORE PROCEEDING
REDWOOD TREES TO REMAIN
APPROX. LOCATION OF (E) REDWOOD TREES TO BE REMOVED (APPROX. 3 TREES).
ABUT 2
ABUT 1
BB 2+20.00
EL = 75.70
2+00
EB 2+90.00
EL = 75.00
3+00
DRIVEWAY
TO RIDING ARENA AND SHOP
TO SMITH GRADE ROAD
Bridge ℄ and CDL
APPROX. LOCATION OF (E) REDWOOD TREES TO REMAIN
PLAN
1" = 10'

Integral abutment note: backfill behind both abutments shall be placed after bridge is welded in place, and fills at abutments shall be within 2' elevation at each abutment during backfilling

PRELIMINARY
© 2010 Jeffrey S. Morris
JEFFREY S. MORRIS - RCE 46005

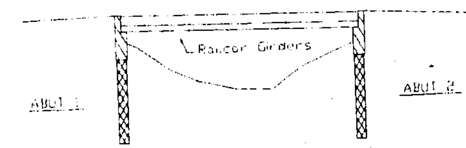

Approx. 20'-0" Overall width
Approx. 17'-6" Clear Between Rails
'Agricultural' style railing. See Details.
Paving at owners option, as needed for traffic that will be on bridge. (May be placed, if necessary, at any time after completion of bridge). Paving thickness to vary from 3" at bridge centerline to 2" at railcar side sills.
Railcar girder type "C-89". See Details
New 4" Steel channels between railcars supplied, installed and welded by Fabricator.

TYPICAL SECTION AT CROSSBEARERS
1" = 4'

PILE DATA CAST-IN-DRILLED-HOLE CONCRETE PILES

LOCATION	DIAMETER	DESIGN LOADING (SERVICE LOAD)	SPECIFIED TIP ELEVATION
1 - 3	4	50 Tons	51.00
4 - 6	4	50 Tons	51.00

① PILE CUT OFF ELEVATION IS 3" INTO ABUTMENT PILE CAPS
② TOP OF PILE REINFORCING STEEL IS 2'-6" INTO PILE CAPS
③ (INTO PILE CAPS) IS DISTANCE ABOVE "BOXED" ELEVATION ON FOUNDATION PLAN (BOTTOM OF PILE CAP ELEVATION)



CAST-IN-PLACE CONCRETE ABUTMENTS CLASS "2" (6.3 SACK - SEC 90-101 CALTRANS STD SPEC'S) (MIX TO BE SUBMITTED TO MORRIS ENGINEERING AT LEAST 2 WEEKS BEFORE PLACING) f'c = 3,600 psi min.

Cast-In-Drilled-Hole Concrete piles CLASS "2" (6.3 SACK - SEC 90-101 CALTRANS STD SPEC'S) (MIX TO BE SUBMITTED TO MORRIS ENGINEERING AT LEAST 2 WEEKS BEFORE PLACING) f'c = 3,600 psi min.

CONCRETE STRENGTH AND TYPE LIMITS
NO SCALE

PRELIMINARY
© 2010 Jeffrey S. Morris

REFERENCES
① Don Thorp and Assoc. HEC-RAS Hydraulics

DATE 1/15/10
SCALE SHOWN
DRAWN JSM
CHECKED ENM
ME JOB NO 09-16

MORRIS ENGINEERING

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

Disregard prints bearing earlier revision dates

BRIDGE NO.
POST MILE

DRAEGER ~~COHB~~ COJO CREEK BRIDGE
GENERAL PLAN

REVISION DATES (PRELIMINARY STAGE ONLY)
SHEET B2

GRADING NOTES:

- ALL GRADING IS SUBJECT TO OBSERVATION BY THE COUNTY. PERMITTEE SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS BEFORE START OF ANY GRADING.
- APPROVAL OF THIS PLAN APPLIES ONLY TO THE EXCAVATION, PLACEMENT, AND COMPACTION OF NATURAL EARTH MATERIALS. THIS APPROVAL DOES NOT CONFER ANY RIGHTS OR ENTRY TO EITHER PUBLIC PROPERTY OR THE PRIVATE PROPERTY OF OTHERS. APPROVAL OF THIS PLAN ALSO DOES NOT CONSTITUTE APPROVAL OF ANY IMPROVEMENTS. PROPOSED IMPROVEMENTS ARE SUBJECT TO REVIEW AND APPROVAL BY THE RESPONSIBLE AUTHORITIES AND ALL OTHER REQUIRED PERMITS SHALL BE OBTAINED.
- ALL CONTRACTORS WILL BE RESPONSIBLE FOR VERIFICATION OF LOCATION OF ALL EXISTING UTILITIES IN THE FIELD. LOCATIONS SHOWN ON PLANS ARE APPROXIMATE AND FOR GENERAL INFORMATION ONLY.
- THE PERMITTEE SHALL MAINTAIN THE STREETS, SIDEWALKS, AND ALL OTHER PUBLIC RIGHTS-OF-WAY IN A CLEAN, SAFE, USABLE CONDITION. ALL SPILLS OF SOIL, ROCK, OR CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE, AND USABLE CONDITION.
- ALL GRADING SHALL BE PERFORMED IN SUCH A MANNER AS TO COMPLY WITH THE STANDARD ESTABLISHED BY AIR QUALITY MAINTENANCE DISTRICT FOR ALL AIRBORNE PARTICLES (DUST).
- ALL KNOWN WELL LOCATIONS IN THE SITE HAVE BEEN INCLUDED AND SUCH WELLS SHALL BE MAINTAINED OR ABANDONED ACCORDING TO CURRENT REGULATIONS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE WITH THOSE SHOWN ON THIS PLAN. THE CONTRACTOR SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO START OF WORK.
- EXISTING CONTOURS, ELEVATIONS, TREE LOCATIONS, AND PROPERTY LINES WERE TAKEN FROM THE TOPOGRAPHIC MAP REFERENCED ON THESE PLANS.
- A VISUAL AND SURFACE SURVEY WAS PERFORMED FOR THIS WORK. EXISTING INFORMATION, DRAINAGE CHANNELS, SANITARY SEWER LOCATIONS, SEPTIC TANKS, RETAINING WALLS, FENCES, PATIOS, AND CATCH BASINS SHALL BE VERIFIED INDEPENDENTLY BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF THE WORK. THERE IS NO KNOWN SEPTIC TANK OR LEACH FIELD.
- SOIL ENGINEER TO REVIEW THESE DRAWINGS TO CONFIRM THAT RECOMMENDATIONS HAVE BEEN INCORPORATED IN THEM AND TO EVALUATE THE NEED FOR ADDITIONAL RECOMMENDATIONS. SOIL ENGINEER SHALL FIELD INSPECT GRADING, SUB-GRADE PREPARATION, FOOTING, AND PIER DRILLING. ALL FIELD OBSERVATIONS AND DOCUMENTATION TO BE SUBMITTED TO THE COUNTY BUILDING DEPARTMENT IN A TIMELY MANNER.
- ALL DIMENSIONS AND ADDITIONAL INFORMATION SHOULD BE TAKEN FROM THE ARCHITECT'S PLANS.
- ALL EXCAVATIONS SHOULD BE INSPECTED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO REINFORCEMENT PLACEMENT.
- ALL TELEPHONE, TELEGRAPH, ELECTRIC WIRES, AND OTHER SUCH SERVICE FACILITIES TO NEWLY CONSTRUCTED DWELLINGS SHALL BE PLACED UNDERGROUND FROM THE POINT OF THE UTILITY COMPANY POLE.
- LANDSCAPING ADJACENT TO EXTERIOR FLAT-WORK AND EXTERIOR FOUNDATIONS SHOULD CONSIST OF PLANTS HAVING A LOW DEMAND FOR WATER. USE DRIP IRRIGATION.
- ALL GRADING SHALL CONFORM TO THE COUNTY MUNICIPAL CODE.
- A PRE-JOB MEETING SHALL BE HELD WITH THE SENIOR INSPECTOR FROM THE DEPARTMENT OF PLANNING PRIOR TO ANY WORK BEING DONE.
- CALL THE SENIOR INSPECTOR AT LEAST 24 HOURS PRIOR TO GRADING.
- SLOPE ALL SURFACES TOWARD DRAIN INLETS.
- PROVIDE CLOSED DRAIN SYSTEM FOR ALL DOWNSPOUTS.
- PRIOR TO THE CONTRACTOR REQUESTING A FINAL INSPECTION, THE CIVIL ENGINEER SHALL ADVISE THE BUILDING OFFICIAL IN WRITING THAT:
  - DRAINAGE SYSTEM IS IN ACCORDANCE WITH THE CIVIL ENGINEER'S DESIGN.

GRADING:

- EXCAVATED MATERIAL SHALL BE PLACED AND PROPERLY COMPACTED IN FILL AREAS DESIGNATED OR SHALL BE HAULED AWAY FROM THE SITE.
- ALL FILLS SHALL BE CONSTRUCTED IN LIFTS (6" TO 8") AND COMPACTED TO A MINIMUM 90% RELATIVE COMPACTION, UNLESS OTHERWISE DIRECTED BY SOILS ENGINEER.
- WHERE FILL MATERIAL IS TO BE PLACED ON NATURAL GRADE, IT SHALL BE STRIPPED OF ALL VEGETATION. TO ACHIEVE A PROPER BOND WITH THE FILL MATERIAL, THE SURFACE OF THE GROUND SHALL BE SCARIFIED TO A DEPTH OF 6" BEFORE FILL IS PLACED. WHERE NATURAL GROUND IS STEEPER THAN 5 TO 1, THE FILL SHALL BE [illegible] TO ACHIEVE STABILITY. WHERE NEW FILL IS TO BE PLACED ON EXISTING FILL, THE EXISTING FILL SHALL BE REMOVED UNTIL NATURAL [illegible] COMPACTED TO 90% RELATIVE COMPACTION IS EXPOSED. FILL MATERIAL SHALL BE PLACED IN UNIFORM LIFTS NOT TO EXCEED 6" IN COMPACTED THICKNESS.
- ALL EXCESS SOIL SHALL BE OFF-HAULED TO AN APPROVED SITE. NO EXCESS SOIL SHALL BE SPREAD ON THE SITE WITHOUT CLEARLY BEING SHOWN ON THE APPROVED GRADING PLAN.
- ALL DOWNSPOUTS, CATCH BASINS, AND BACKDRAINS IN THE WORK AREA SHALL BE CONNECTED TO 4" MINIMUM, SMOOTH WALLED, TIGHTLINE UNLESS OTHERWISE NOTED, AND DISCHARGED TO RIP-RAP ENERGY DISSIPATOR. RIP-RAP ENERGY DISSIPATOR SHALL BE LOCATED IN THE FIELD BY GEOTECHNICAL ENGINEER. NO WATER SHALL BE ALLOWED TO FLOW DIRECTLY FROM RIP-RAP ENERGY DISSIPATOR TOWARD ANY STRUCTURE, FOUNDATION, UNSTABLE SLOPE OR PROPERTY LINE.
- VERIFY POSITIVE DRAINAGE TO OUTFALL AT ALL EXISTING CATCH BASINS.
- ALL NEW ELEVATIONS AND CONTOURS ARE APPROXIMATE.
- ALL SITE WORK SHALL BE DONE IN STRICT CONFORMANCE WITH GEOTECHNICAL ENGINEER.
- NO WORK IS ALLOWED ON NATURAL SLOPES OF 30% OR GREATER.
- WALLS SHALL NOT BE BACKFILLED UNTIL ALL CONCRETE HAS REACHED DESIGN STRENGTH (7 DAYS MIN. AFTER POURING HAS BEEN PLACED).
- ALL CUT AND FILL SLOPES SHALL BE PLANTED, SEEDED AND MAINTAINED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED TO THE SATISFACTION OF THE SENIOR INSPECTOR.

EROSION CONTROL:

- CONTACT THE SENIOR INSPECTOR TO ARRANGE FOR INSPECTION OF EROSION CONTROL MEASURES.
- IT IS THE RESPONSIBILITY OF THE OWNER/CONTRACTOR TO INSURE THAT NO MUD OR SILTATION LEAVES THE PROJECT SITE.
- THE CONTRACTOR SHALL ENSURE THAT ANY EROSION THAT OCCURS DOES NOT LEAVE THE SITE OR ENTER ANY WATERCOURSE, INCLUDING ON-SITE STORM DRAINAGE SYSTEMS. THIS REQUIREMENT SHALL IN EFFECT ON A 24 HOUR PER DAY, 7 DAY PER WEEK BASIS AND SHALL NOT BE LIMITED IN ANY WAY TO THE HOURS OF WORK FOR THE PROJECT. IF, AT THE DISCRETION OF THE DIRECTOR OF PARKS & PUBLIC WORKS, ADDITIONAL EROSION CONTROL MEASURES ARE DEEMED TO BE REQUIRED, THE CONTRACTOR SHALL AT HIS/HER SOLE EXPENSE TAKE SUCH MEASURES AS DIRECTED BY THE DIRECTOR. IF THE CONTRACTOR IS DEEMED TO BE NON-RESPONSIVE TO THE DIRECTION OF THE DIRECTOR OF PLANNING THE DIRECTOR SHALL HAVE THE AUTHORITY TO TAKE ALL MEASURES REQUIRED TO CORRECT ANY SITUATION WHICH HE/SHE DEEMS TO BE OUT OF COMPLIANCE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AND LIABLE TO THE COUNTY FOR ALL COSTS ASSOCIATED WITH THE ACTIONS TAKEN BY THE DIRECTOR OF PLANNING TO CORRECT ANY NON-COMPLIANT SITUATION ARISING FROM THE WORK AREA.
- CALL THE SENIOR INSPECTOR FOR INSPECTION OF EROSION CONTROL DEVICES. YOU MUST CALL 24 HOURS BEFORE THE DATE REQUESTED FOR AN INSPECTION. INCLUDE YOUR GRADING PERMIT NUMBER.
- IF EROSION CONTROL MEASURES ARE NOT IN PLACE AS REQUIRED, ALL WORK SHALL CEASE UNTIL EROSION CONTROL MEASURES ARE RESTORED.
- ALL BARE SLOPES SHALL BE COVERED WITH PLASTIC SHEETING.
- ALL DISTURBED EARTH MUST BE RESEEDED WITH A MINIMUM OF 30 LBS/ACRE "BLANDO" BROME, 30 LBS/ACRE ANNUAL RYE GRASS, 500 LBS/ACRE 16-20-0 FERTILIZER WHICH CONTAINS 15% SULFUR, AND 4000 LBS/ACRE OF STRAW ANCHORED IN PLACE BY PUNCHING OR WITH JUTE NETTING.
- ALL DRAIN INLETS SHALL BE PROTECTED WITH A COMBINATION OF STRAW BALES AND FILTER FABRIC FENCES TO PREVENT SEDIMENT FROM ENTERING.
- ALL STREET DRAINS SHALL BE PROTECTED FROM SEDIMENT DURING CONSTRUCTION.
- ALL FILL SLOPES SHALL BE COMPACTED AND LEFT IN A SMOOTH AND FIRM CONDITION CAPABLE OF WITHSTANDING WEATHERING.
- INSTALL FIBER ROLL OR SILT FENCE. PROVIDE DETAIL, SHOW LOCATION ON PLANS AND ADD NOTES AS NEEDED.
- SEED EXPOSED AREAS PER CITY MUNICIPALITY STANDARD SEEDING SPECIFICATIONS.
- INSTALL DRAINAGE MEASURES INCLUDING CATCH BASINS, ENERGY DISSIPATORS, ETC. PROVIDE DETAILS, SHOW LOCATIONS ON PLANS AND ADD NOTES AS NEEDED.
- INSTALL MASONRY RETAINING WALLS IMMEDIATELY FOLLOWING GRADING OPERATIONS AT WALL LOCATIONS (WITH APPROPRIATE INSPECTIONS BY BUILDING INSPECTOR).
- INSTALL CHECK DAMS, SEDIMENT TRAPS AND BERMS, TEMPORARY SWALES.

MATERIAL LIST:

Pipe: (6" dia. Ductile Iron)	Conform w/ ANSI/AWWA C151/A21.51, thickness class 52, w/ exterior asphaltic coating and inside cement lining and seal coating in accordance w/ ANSI/AWWA C104/A21.4.
Fittings: (Ductile Iron)	Conform w/ ANSI/AWWA C153/A21.53, w/ exterior coating of asphaltic material per ANSI/AWWA C153/A21.53 and inside cement lining and seal coating in accordance with ANSI/AWWA C104/A21.4.
Pipe: (4" & 6" dia. P.V.C.)	SDR 35 smooth, solid wall PVC pipe conforming to ASTM D3034, perforated or non-perforated, as required. Perforated pipe shall have holes of 4 and 6 o'clock that are 1/2" in Dia. (Min.) @ o.c. (Min.). Smaller Dia. holes (1/4" Min.) at shorter spacing (3" Min.) are preferred. Pipe shall have integral bell joint, [illegible] conforming w/ ASTM F477. Pipe shall be made of PVC plastic having a cell classification of 12454B or 12364B as defined by ASTM D1784 and shall have SDR of 35 and minimum pipe stiffness of 46 psi according to ASTM D2412.
Fittings & Couplers (4" & 6" dia. P.V.C.)	SDR 35 smooth, solid wall pipe fittings conforming w/ ASTM D3034, w/ integral bell or bell & spigot joints, and bell joints having an integral factory-installed gasket conforming w/ ASTM F477- except for cleanouts and downspout adaptors which may be ungasketed, but glued instead.
P.V.C. Cement:	Conform w/ ASTM 2564.
Base Rock:	Class II Permeable
Drain Rock (3/4"):	3/8" to 3/4" clean drain rock for subdrains and planting areas.
Drain Rock (1-1/2"):	1" to 1-1/2" [illegible], clean drain rock for [illegible] trenches.
Geotextile Fabric:	Mirafi 140N or engineer approved equal.
Visqueen:	10 mil vapor barrier
Back-Fill:	Non-expansive on site soil or non-expansive imported soil, free and clean of organic material.
Trench Drain:	ZURN FLO-THROU Z-886-F8 OR EQUAL.
CONCRETE:	f'c = 2500 PSI @ 28 DAYS
REINFORCEMENT:	A.S.T.M. A615 GRADE 40
MASONRY (CMU):	GRADE N, ASTM C-90 f'm = 1500 PSI
GROUT:	1-1/4 PARTS PORTLAND CEMENT, 3 PARTS SAND, 2 PARTS 3/8" PEA GRAVEL MINIMUM COMPRESSIVE STRENGTH = 2000 PSI @ 28 DAYS
MORTAR:	U.B.C. TYPE S MINIMUM COMPRESSIVE STRENGTH = 2000 PSI @ 28 DAYS
GEOTECHNICAL DRAINAGE MAT:	MIRAFI MIRADRAIN PER MANUFACTURER'S RECOMMENDATIONS

ESTIMATED EARTHWORK QUANTITIES

- POOL EXCAVATION NOT INCLUDED
- FLUFF FACTOR NOT INCLUDED

MAXIMUM EXCAVATION DEPTH = 10 FT.

ROAD WIDENING EXCAVATION	= 1 ± cu. yd.
BRIDGE EXCAVATION	= 122 ± cu. yd.
HORSE FACILITY SITE EXCAVATION	= 1024 ± cu. yd.
SHOP SITE EXCAVATION	= 1134 ± cu. yd.
TOTAL EXCAVATION	= 2301 ± cu. yd.

MAXIMUM FILL DEPTH = 17 ft.

ROAD WIDENING FILL	= 0 ± cu. yd.
BRIDGE FILL	= 0 ± cu. yd.
HORSE FACILITY SITE FILL	= [illegible] ± cu. yd.
SHOP SITE FILL	= [illegible] ± cu. yd.
TOTAL FILL	= 71[illegible] ± cu. yd.

TOTAL IMPORT = 47[illegible] ± cu. yd.

- THE EARTHWORK QUANTITIES ARE APPROXIMATE ONLY, AND ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT, FILL, IMPORT AND [illegible] OPERATIONS NECESSARY TO MEET THE DESIGN GRADES AND CONSTRUCTION OF [illegible] SHOWN ON THE PLANS. THE EXCESS WASTE MATERIAL SHALL BE HAULED OFF-SITE AND DISPOSED OF IN A LEGAL MANNER.
- COORDINATE EXCAVATION AND FILL OPERATION WITH LANDSCAPE DESIGN.

SEE GRADING SUMMARY SHEET T1

NO.	REVISION	DATE
4	REVISIONS PER INCOMPLETE APPLICATION	12/19/08
3	REVISIONS PER COLLECTIVE DESIGN TEAM MEMBERS	11/19/08
2	REVISIONS PER COLLECTIVE DESIGN TEAM MEMBERS	4/21/08
1	FOR APPROVAL	4/2/08

QUILICI ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 95008
T(408)583-0323 F(408)583-0329 mail@qengineers.com

DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

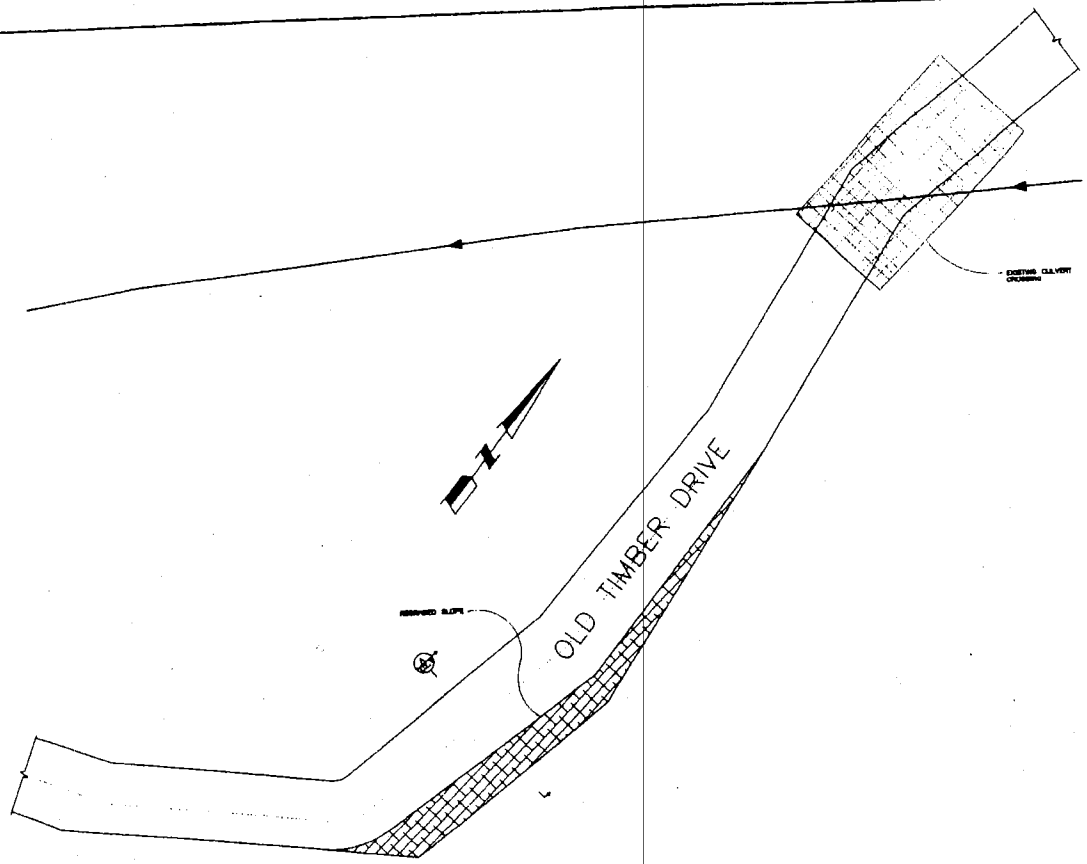
SITE NOTES

SCALE 1/4" = 1'-0"
DATE 8/14/08
PROJECT NO. 030711
SHEET NO. C0.2

SITE NOTES

2-19-1[illegible]

EXHIBIT A



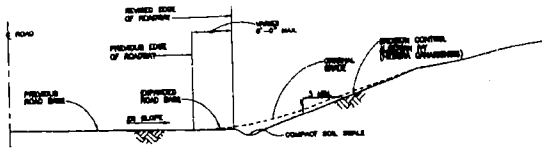
PARTIAL EROSION CONTROL AT ROAD WIDENING PLAN

FOR FURTHER REFER TO SHEET L-1.0 FOR REVEGETATION PLAN

ESTIMATED EARTHWORK QUANTITIES

MAXIMUM EXCAVATION DEPTH	= 0.5 ft.
SITE EXCAVATION WITHOUT FLUFF	= 1.5 cu. yd.
SITE EXCAVATION WITH FLUFF	= 1.5 cu. yd.
MAXIMUM FILL DEPTH	= 0 ft.
SITE FILL	= 0 cu. yd.
TOTAL FILL	= 0 cu. yd.
MATERIAL EXCESS ROCK	= 0.5 ft.
DRAIN ROCK EXPORT	= 0.5 cu. yd.
TOTAL EXPORT	= 0.5 cu. yd.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY AND DETERMINATION OF QUANTITIES AND THE SUFFICIENCY OF THE BID. THE OWNER ASSUMES NO RESPONSIBILITY FOR ANY CONCLUSIONS OR INTERPRETATIONS MADE BY THE BIDDER ON THE BASIS OF THE INFORMATION SHOWN ON THE PLANS. ANY ADDITIONAL INFORMATION KNOWN TO THE OWNER WILL BE MADE AVAILABLE TO ALL BIDDERS ON AN EQUAL BASIS.



A C2.1 AS BUILT

GRAPHIC SCALE

(IN FEET)
1 inch = 7.5 ft.

EROSION CONTROL AT ROAD WIDENING

JULICI ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 95008
TEL 408/365-0929 FAX 408/365-0929 mail@julicieng.com

DANDER PROPERTY
John Dreger
831 Sonth Circle
Santa Cruz, Ca 95060

EROSION CONTROL AT ROAD WIDENING

DATE 6/4/08
PROJECT NO. 0307.11
SHEET NO. C2.1

52/176

GRADING NOTES:

- ALL GRADING IS SUBJECT TO OBSERVATION BY THE COUNTY. PERMITTEE SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS BEFORE START OF ANY GRADING.
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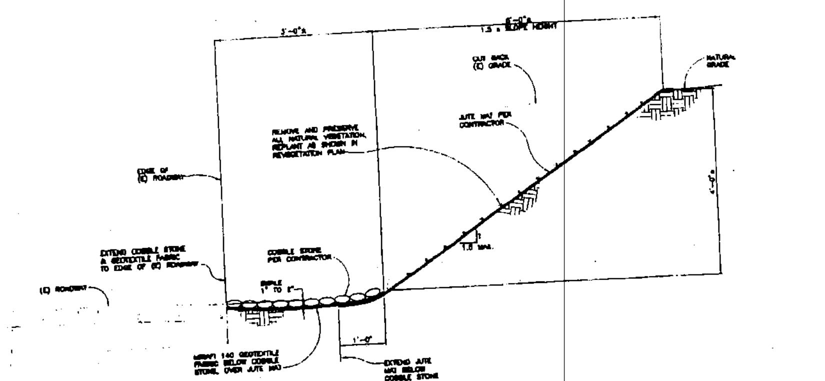
- ALL GRADING SHALL BE PERFORMED IN SUCH A MANNER AS TO COMPLY WITH THE STANDARD ESTABLISHED BY AIR QUALITY MAINTENANCE DISTRICT FOR ALL AIRBORNE PARTICLES (DUST).
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE WITH THOSE SHOWN ON THIS PLAN. THE CONTRACTOR SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO START OF WORK.
- EXISTING CONTOURS, ELEVATIONS, TREE LOCATIONS, AND PROPERTY LINES WERE TAKEN FROM A CURSORY, VISUAL SITE OBSERVATION, AND ARE APPROXIMATE. NO TOPOGRAPHIC INSTRUMENT SURVEY HAS BEEN DONE.
- ALL GRADING SHALL CONFORM TO THE CITY MUNICIPAL CODE, ENTITLED "GRADING, EROSION AND SEDIMENT CONTROL."
- A PREJOB MEETING SHALL BE HELD WITH THE SENIOR INSPECTOR FROM THE DEPARTMENT OF PLANNING PRIOR TO ANY WORK BEING DONE.
- CALL THE SENIOR INSPECTOR AT LEAST 24 HOURS PRIOR TO GRADING.
- SLOPE ALL SURFACES TOWARD DRAIN INLETS.
- PRIOR TO THE CONTRACTOR REQUESTING A FINAL INSPECTION, THE CIVIL ENGINEER SHALL ADVISE THE BUILDING OFFICIAL IN WRITING THAT:
  - DRAINAGE SYSTEM IS IN ACCORDANCE WITH THE CIVIL ENGINEER'S DESIGN.

GRADING:

- EXCAVATED MATERIAL SHALL BE PLACED AND PROPERLY COMPACTED IN FILL AREAS DESIGNATED OR SHALL BE HAULED AWAY FROM THE SITE.
- ALL FILLS SHALL BE CONSTRUCTED IN LIFTS (6" TO 8") AND COMPACTED TO A MINIMUM 90% RELATIVE COMPACTION, UNLESS OTHERWISE DIRECTED BY SOILS ENGINEER.
- WHERE FILL MATERIAL IS TO BE PLACED ON NATURAL GRADE, IT SHALL BE STRIPPED OF ALL VEGETATION. TO ACHIEVE A PROPER BOND WITH THE FILL MATERIAL, THE SURFACE OF THE GROUND SHALL BE SCARIFIED TO A DEPTH OF 6" BEFORE FILL IS PLACED. WHERE NATURAL GROUND IS STEEPER THAN 5 TO 1, THE FILL SHALL BE LAYERED TO ACHIEVE STABILITY. WHERE NEW FILL IS TO BE PLACED ON EXISTING FILL, THE EXISTING FILL SHALL BE REMOVED UNTIL NATURAL COMPACTED TO 90% RELATIVE COMPACTION IS EXPOSED. FILL MATERIAL SHALL BE PLACED IN UNIFORM LIFTS NOT TO EXCEED 6" IN COMPACTED THICKNESS. FOLLOW RECOMMENDATIONS OF GEOTECHNICAL ENGINEER.
- ALL EXCESS SOIL SHALL BE OFF-HAULED TO AN APPROVED SITE. NO EXCESS SOIL SHALL BE SPREAD ON THE SITE WITHOUT CLEARLY BEING SHOWN ON THE APPROVED GRADING PLAN.
- VERIFY POSITIVE DRAINAGE TO OUTFALL AT ALL CATCH BASINS.
- ALL NEW ELEVATIONS AND CONTOURS ARE APPROXIMATE.

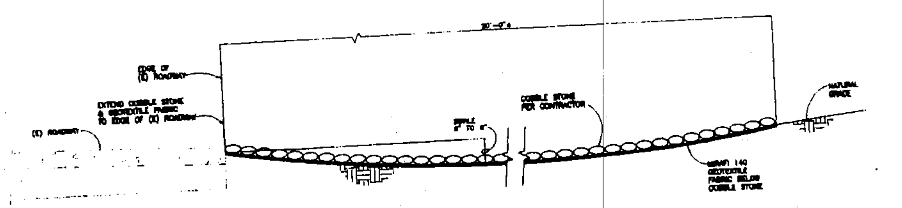
EROSION CONTROL:

- IT IS THE RESPONSIBILITY OF THE OWNER/CONTRACTOR TO INSURE THAT NO MUD OR SILTATION LEAVES THE PROJECT SITE.
- THE CONTRACTOR SHALL ENSURE THAT ANY EROSION THAT OCCURS DOES NOT LEAVE THE SITE OR ENTER ANY WATERCOURSE, INCLUDING ON-SITE STORM DRAINAGE SYSTEMS. THIS REQUIREMENT SHALL REMAIN IN EFFECT ON A 24 HOUR PER DAY, 7 DAY PER WEEK BASIS AND SHALL NOT BE LIMITED IN ANY WAY TO THE HOURS OF WORK FOR THE PROJECT. IF, AT THE DISCRETION OF THE DIRECTOR OF PLANNING, ADDITIONAL EROSION CONTROL MEASURES ARE DEEMED TO BE REQUIRED, THE CONTRACTOR SHALL AT HIS/HER SOLE EXPENSE TAKE SUCH MEASURES AS DIRECTED BY THE DIRECTOR. IF THE CONTRACTOR IS DEEMED TO BE NON-RESPONSIVE TO THE DIRECTION OF THE DIRECTOR OF PLANNING, THE DIRECTOR SHALL HAVE THE AUTHORITY TO TAKE ALL MEASURES REQUIRED TO CORRECT ANY SITUATION WHICH HE/SHE DEEMS TO BE OUT OF COMPLIANCE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AND LIABLE TO THE COUNTY FOR ALL COSTS ASSOCIATED WITH THE ACTIONS TAKEN BY THE COUNTY TO CORRECT ANY NON-COMPLIANT SITUATION ARISING FROM THE WORK AREA.
- IF EROSION CONTROL MEASURES ARE NOT IN PLACE AS REQUIRED, ALL WORK SHALL CEASE UNTIL EROSION CONTROL MEASURES ARE RESTORED.
- ALL STREET DRAINS SHALL BE PROTECTED FROM SEDIMENT DURING CONSTRUCTION.
- ALL FILL SLOPES SHALL BE COMPACTED AND LEFT IN A SMOOTH AND FIRM CONDITION CAPABLE OF WITHSTANDING WEATHERING.
- INSTALL DRAINAGE MEASURES INCLUDING CATCH BASINS, ENERGY DISSIPATORS, ETC. AS SHOWN ON PLANS AND NOTES.



SCALE 1" = 1.5 ft

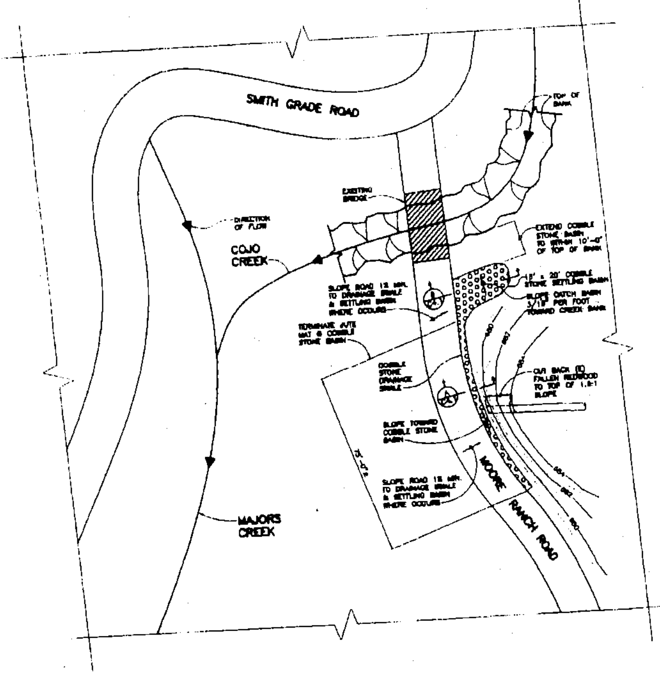
(A / C4.1)



GRAPHIC SCALE

(IN FEET)
1 inch = 1.5 ft.

(B / C4.1)



SITE PLAN

NOTE: PLEASE REFER TO SHEET L-2.1 FOR REVEGETATION PLAN

GRAPHIC SCALE

(IN FEET)
1 inch = 25.0 ft.

4	REVISIONS PER INCOMPLETE APPLICATION	12/18/08
3	REVISIONS PER COLLECTIVE DESIGN TEAM MEMBERS	11/18/08
2	REVISIONS PER COLLECTIVE DESIGN TEAM MEMBERS	4/21/08
1	FOR APPROVAL	4/3/08
NO.	REVISION	DATE

QUILICI ENGINEERS, INC.
30 Union Avenue, Suite 200
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T(408)583-0323 F(408)583-0329 mail@qengineers.com

DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

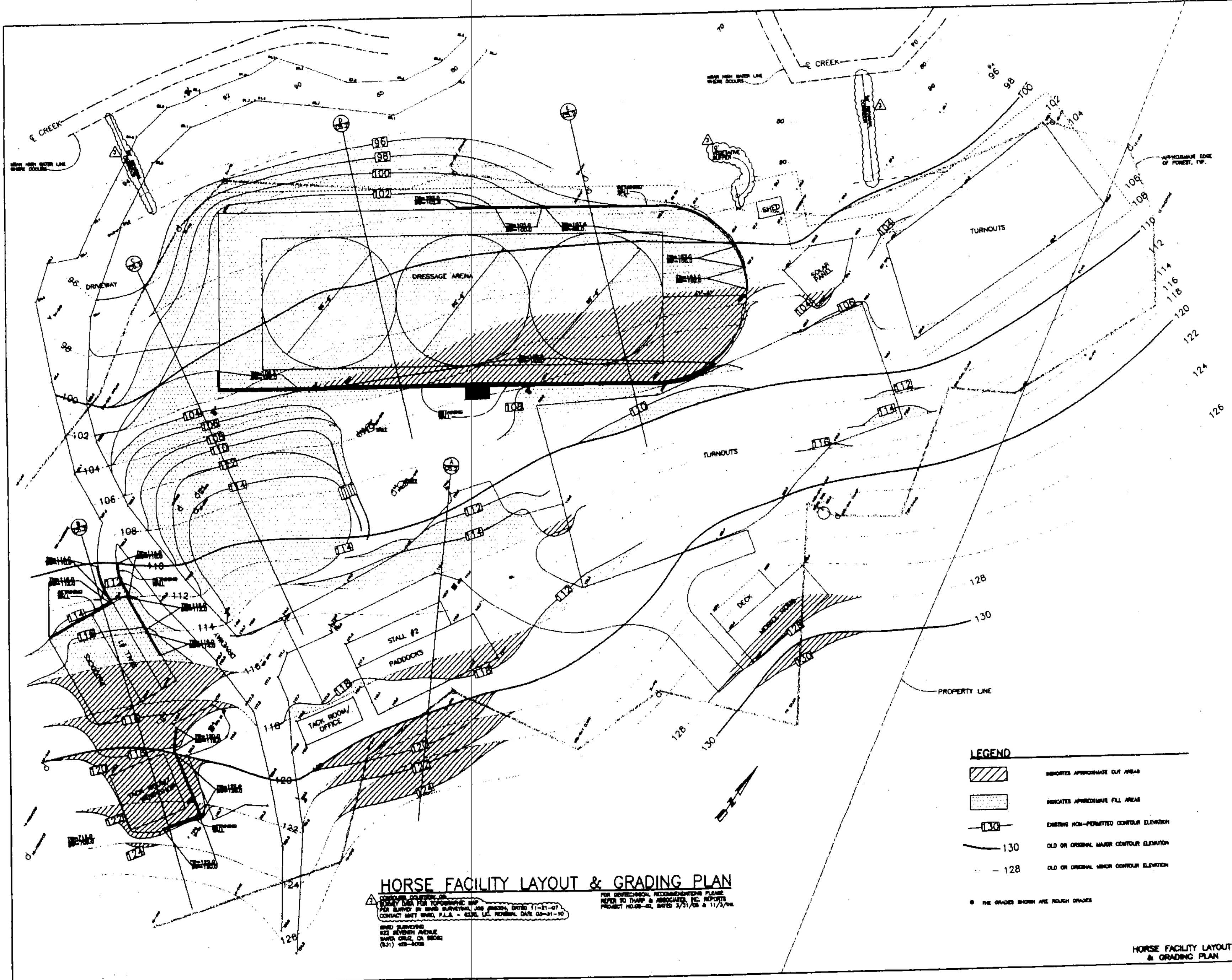
REGRADING OF MOORE RANCH ROAD AT COJO CREEK BRIDGE

DATE 5/14/08
PROJECT NO. 038711
SHEET NO. C4.1

REGRADING OF MOORE RANCH ROAD AT COJO CREEK BRIDGE

2-9-11

EXHIBIT A



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John Draeger
831 Smith Grade
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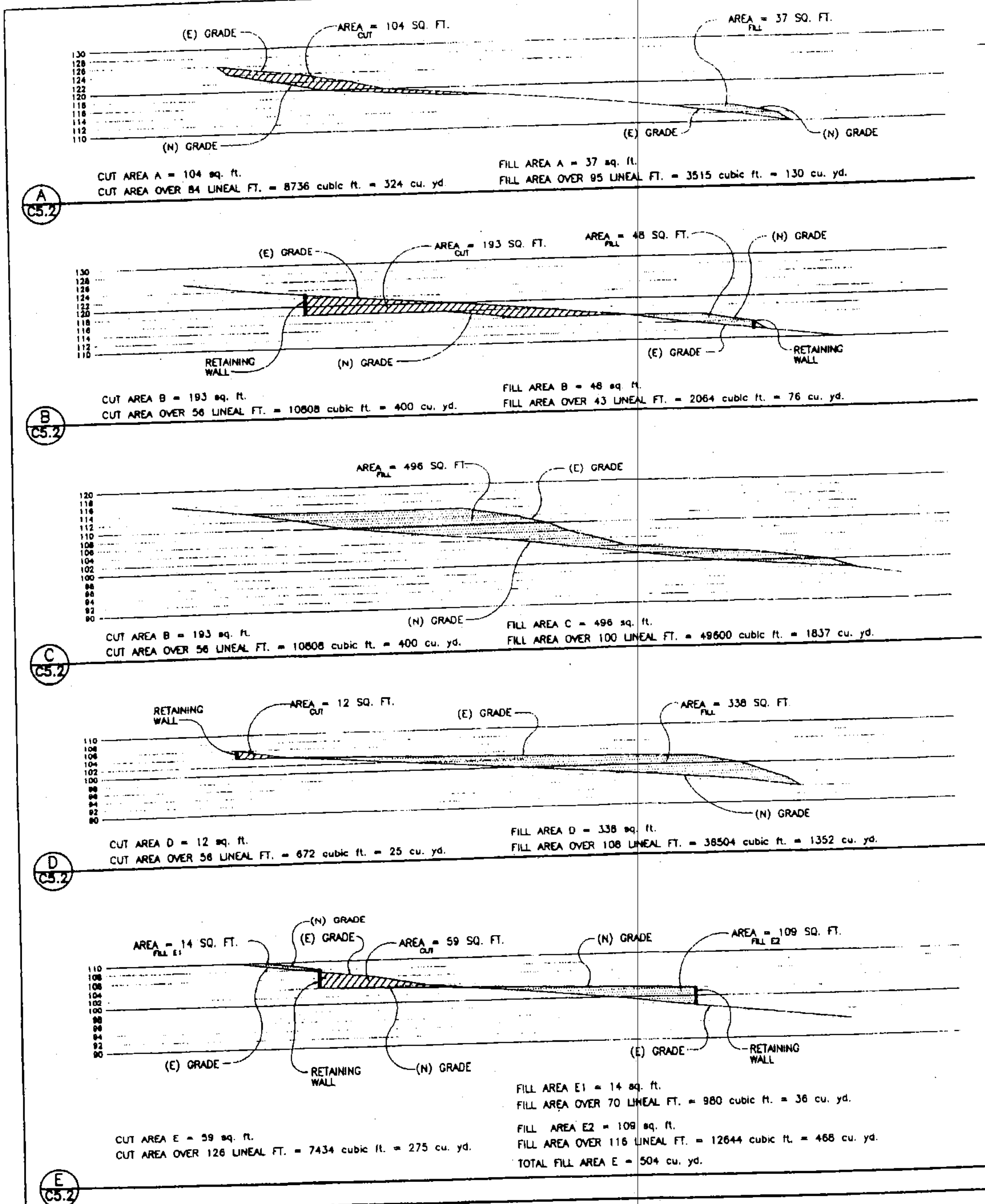
HORSE FACILITY LAYOUT & GRADING PLAN

C5



ESTIMATED EARTHWORK QUANTITIES

MAXIMUM EXCAVATION DEPTH	= 5± ft.
TOTAL SITE EXCAVATION WITHOUT FLUFF	= 1024 ± cu. yd.
MAXIMUM FILL DEPTH	= 7 ± ft.
SITE FILL	= 3899 ± cu yd.
TOTAL IMPORT WITHOUT FLUFF	= 2875 ± cu. yd.

THE EARTHWORK QUANTITIES ARE APPROXIMATE ONLY, AND ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT, FILL, EXPORT, AND DEWATERING OPERATIONS NECESSARY TO MEET THE DESIGN GRADES AND CONSTRUCTION OF SUBSURFACE FACILITIES SHOWN ON THE PLANS. THE EXCESS WASTE MATERIAL SHALL BE HAULED OFF-SITE AND DISPOSED OF IN A LEGAL MANNER.

GRAPHIC SCALE

(IN FEET)
1 inch = 16.7 ft.

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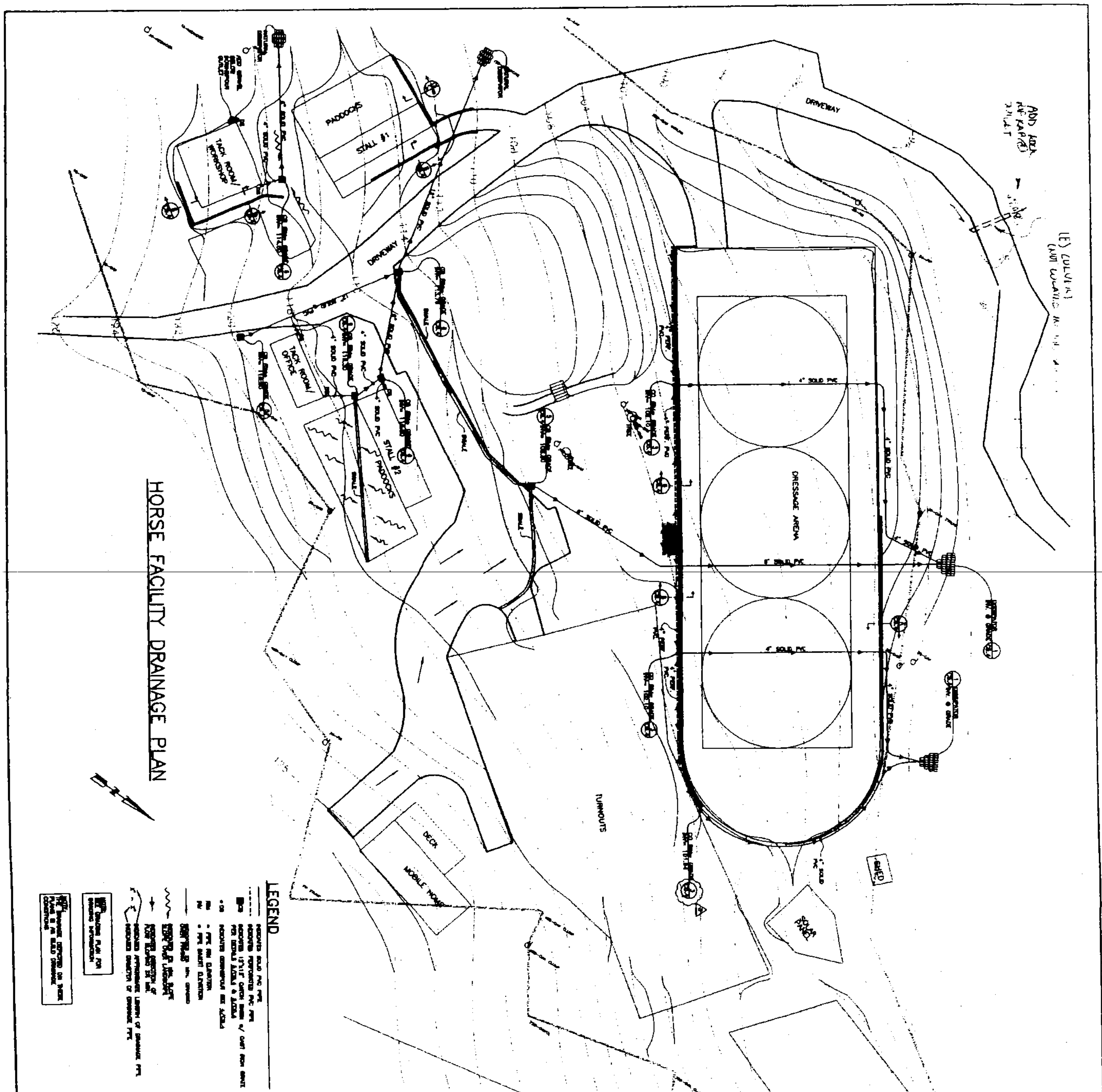
HORSE FACILITY
CUT & FILL SECTIONS

SHEET NO. C5.2



REVISIONS PER INCOMPLETE APPLICATION	12/19/08
REVISIONS PER ALL COLLECTIVE	11/19/08
DESIGN TEAM MEMBERS	
REVISIONS PER ALL COLLECTIVE	
DESIGN TEAM MEMBERS	4/21/08
FOR APPROVAL	4/3/08

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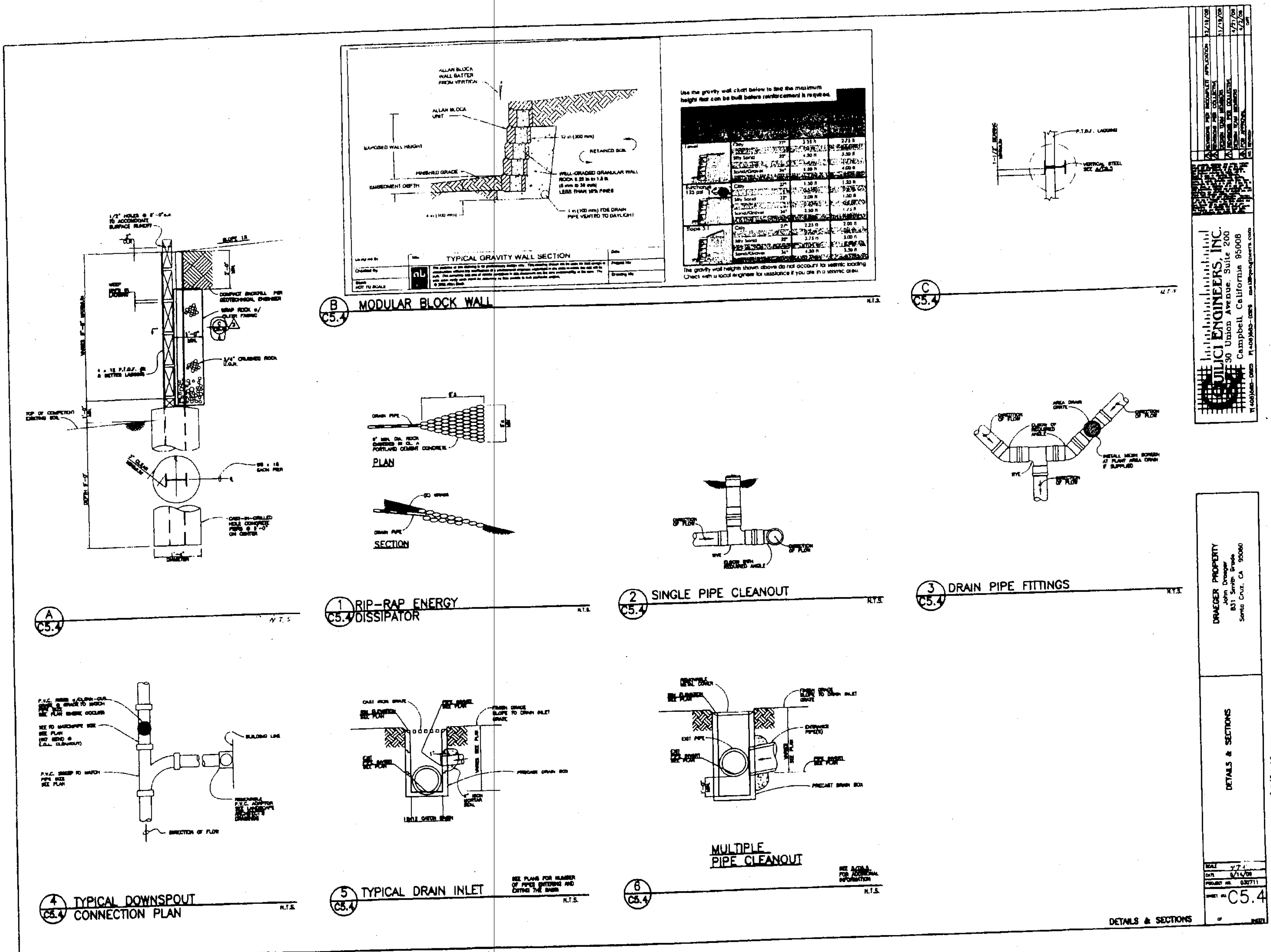
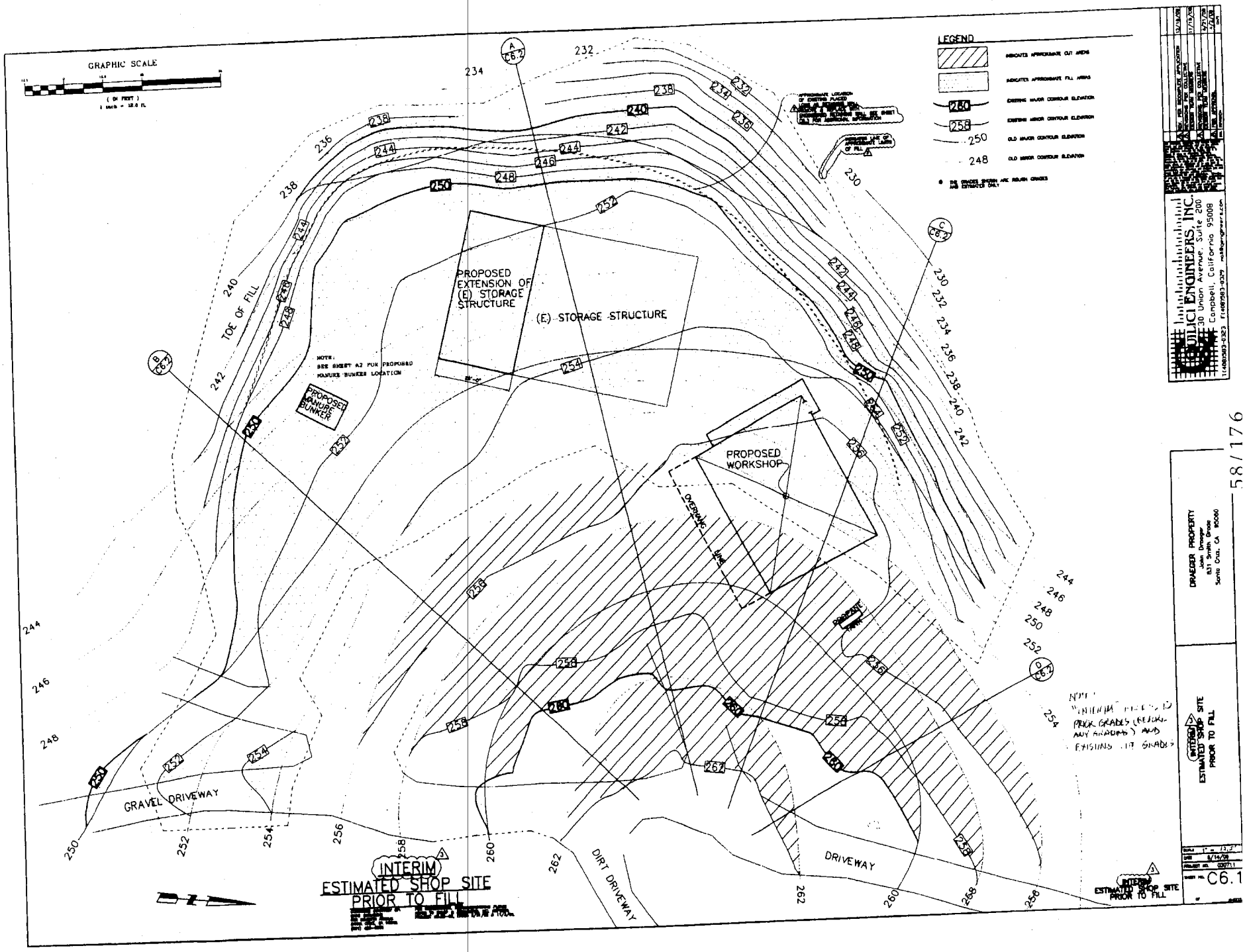
HORSE FACILITY DRAINAGE PLAN

C5.3

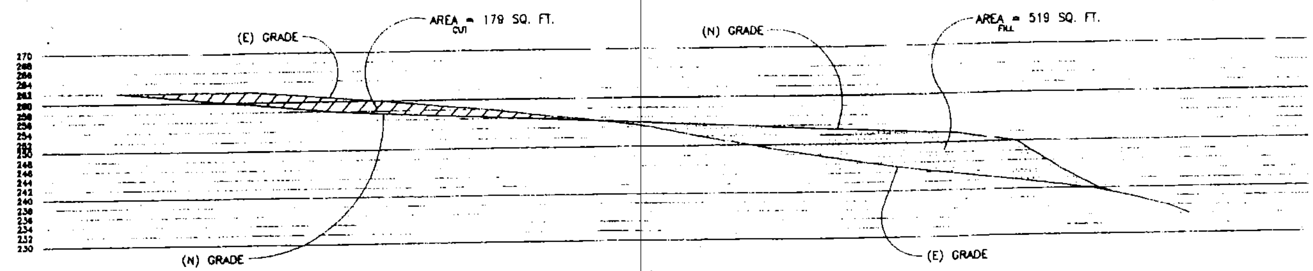


57 / 176

EXHIBIT A


GRAPHIC SCALE
LEGEND
INDICATES APPROXIMATE CUT AREAS
INDICATES APPROXIMATE FILL AREAS
280 EXISTING MAJOR CONTOUR ELEVATION
258 EXISTING MINOR CONTOUR ELEVATION
250 OLD MAJOR CONTOUR ELEVATION
248 OLD MINOR CONTOUR ELEVATION
TOE OF FILL
PROPOSED EXTENSION OF (E) STORAGE STRUCTURE
(E) STORAGE STRUCTURE
PROPOSED MANURE BUNKER
PROPOSED WORKSHOP
OVERHANG LINE
PROPANE TANK
GRAVEL DRIVEWAY
DIRT DRIVEWAY
DRIVEWAY
INTERIM ESTIMATED SHOP SITE PRIOR TO FILL
BUCCI ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 95008
DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060
ESTIMATED SHOP SITE PRIOR TO FILL
C6.1

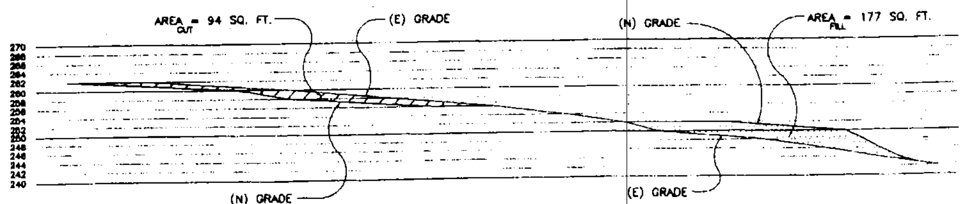
58/176



CUT AREA A= 179 sq. ft.
CUT AREA OVER 48 LINEAL FT. = 8234 cubic ft. = 305 cu. yd.

FILL AREA A = 519 sq. ft.
FILL AREA OVER 91 LINEAL FT. = 47229 cubic ft. = 1749 cu. yd.

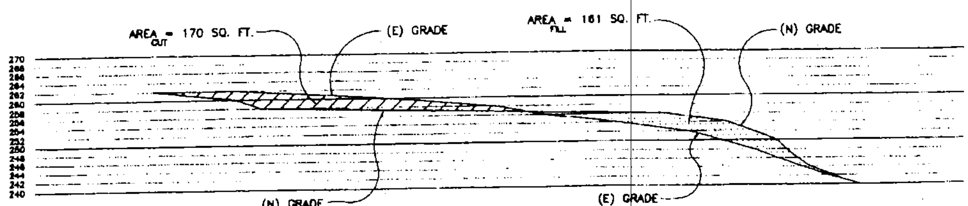
A / C6.2



CUT AREA B = 94 sq. ft.
CUT AREA OVER 50 LINEAL FT. = 4700 cubic ft. = 174 cu. yd.

FILL AREA B = 177 sq. ft.
FILL AREA OVER 113 LINEAL FT. = 20001 cubic ft. = 741 cu. yd.

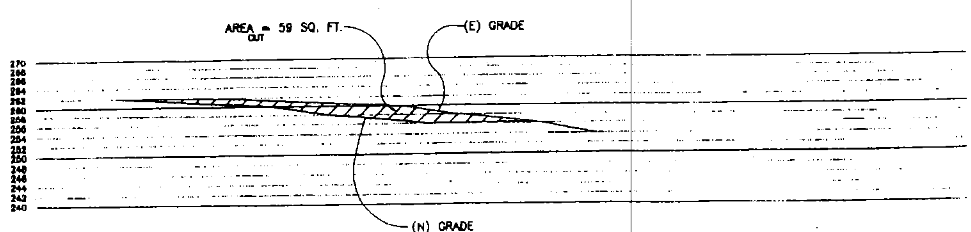
B / C6.2



CUT AREA C = 170 sq. ft.
CUT AREA OVER 52 LINEAL FT. = 8840 cubic ft. = 327 cu. yd.

FILL AREA C = 161 sq. ft.
FILL AREA OVER 119 LINEAL FT. = 19159 cubic ft. = 710 cu. yd.

C / C6.2



CUT AREA D = 154 sq. ft.
CUT AREA OVER 75 LINEAL FT. = 11550 cubic ft. = 428 cu. yd.

D / C6.2

INTERIM ESTIMATED EARTHWORK QUANTITIES

MAXIMUM EXCAVATION DEPTH	= 2 ± ft.
SITE EXCAVATION WITHOUT FLUFF	= 1234 ± cu. yd.
TOTAL OFFHAUL WITHOUT FLUFF	= 0 ± cu. yd.
MAXIMUM FILL DEPTH	= 8 ± ft.
SITE FILL	= 3200 ± cu yd.
TOTAL IMPORT	= 1966 ± cu. yd

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GRAPHIC SCALE

(IN FEET)

INTERIM ESTIMATED SHOP SITE
PRIOR TO FILL
CUT & FILL SECTIONS

GUILICI ENGINEERS, INC.
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DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

INTERIM ESTIMATED SHOP SITE
PRIOR TO FILL
CUT & FILL SECTIONS

C6.2

EXHIBIT A

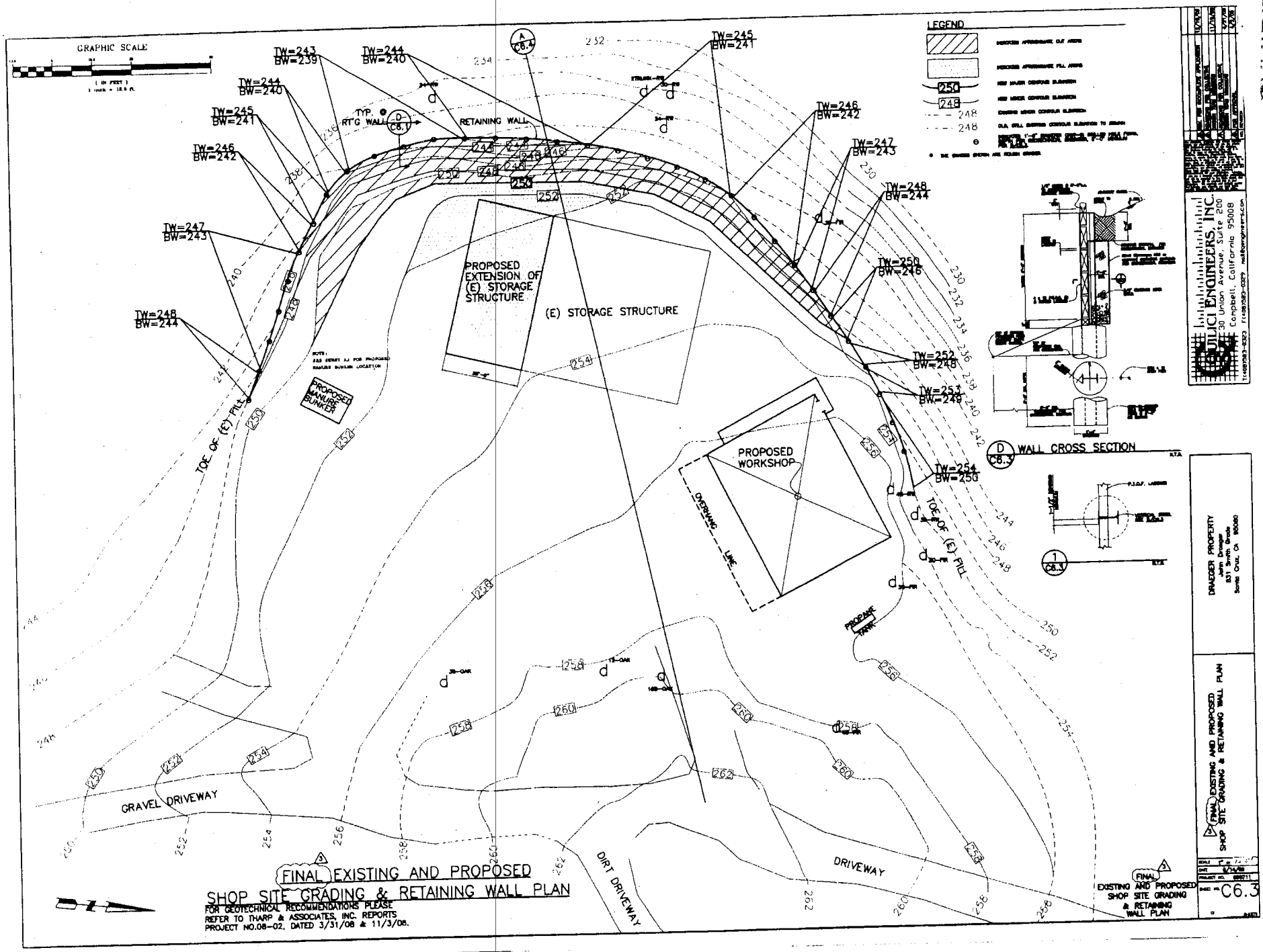
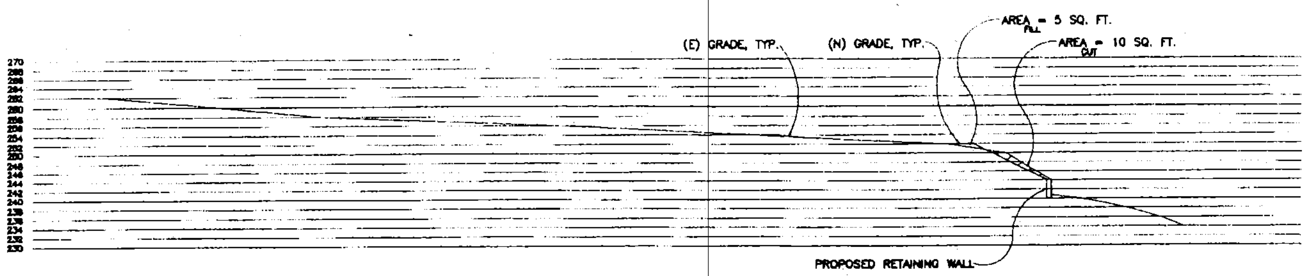


EXHIBIT A

60/176



FILL AREA = 5 sq. ft.
FILL AREA OVER 80 LINEAL FT. = 400 cubic ft. = 15 cu. yd.

CUT AREA = 10 sq. ft.
CUT AREA OVER 270 LINEAL FT. = 2700 cubic ft. = 100 cu. yd.

A
C6.4

FINAL ESTIMATED EARTHWORK QUANTITIES

MAXIMUM EXCAVATION DEPTH	= 3 ± ft.
SITE EXCAVATION WITHOUT FLUFF	= 100 ± cu. yd.
TOTAL OFFHAUL WITHOUT FLUFF	= 85 ± cu. yd.
MAXIMUM FILL DEPTH	= 1 ± ft.
SITE FILL	= 15 ± cu yd.
TOTAL IMPORT	= 0 ± cu. yd

THE EARTHWORK QUANTITIES ARE APPROXIMATE ONLY, AND ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT, FILL, EXPORT, AND DEWATERING OPERATIONS NECESSARY TO MEET THE DESIGN GRADES AND CONSTRUCTION OF SUBSURFACE FACILITIES SHOWN ON THE PLANS. THE EXCESS WASTE MATERIAL SHALL BE HAULED OFF-SITE AND DISPOSED OF IN A LEGAL MANNER.

GRAPHIC SCALE

(IN FEET)
1 inch = 12.0 ft.

FINAL
EXISTING AND PROPOSED
SHOP SITE
CUT & FILL SECTIONS

GUILICI ENGINEERS, INC.
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Campbell, California 95008

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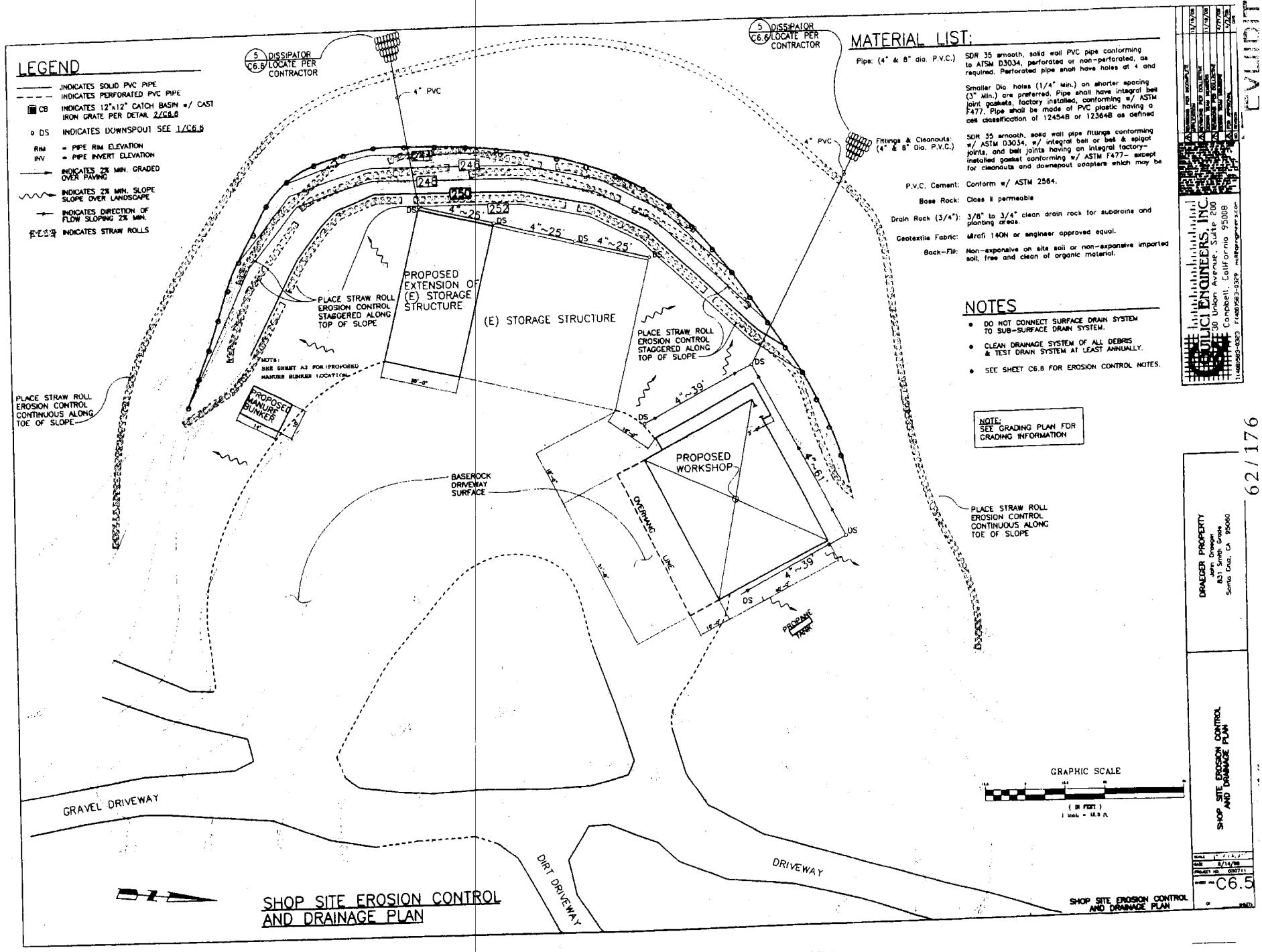
Santa Cruz, CA 95060

FINAL EXISTING AND PROPOSED
SHOP SITE
CUT & FILL SECTIONS

C6.4



SHOP SITE EROSION CONTROL AND DRAINAGE PLAN

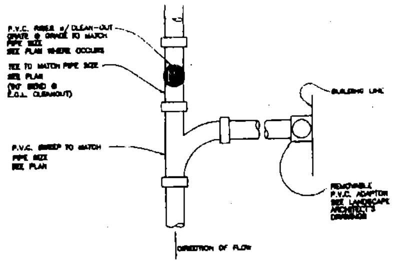
CIVIL ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 95008

DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

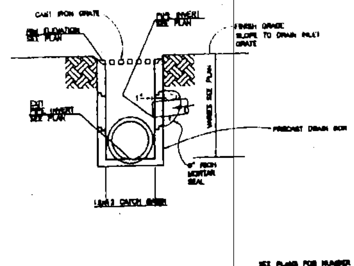
SHOP SITE EROSION CONTROL AND DRAINAGE PLAN

DATE 8/14/08
PROJECT NO. 030711
C6.5

62/176

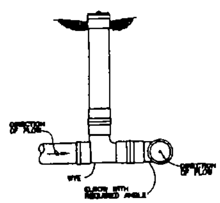


(1) TYPICAL DOWNSPOUT CONNECTION PLAN (C6.6) N.T.S.



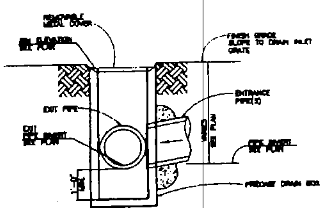
SEE PLANS FOR NUMBER OF PIPES ENTERING AND EXITING THE BASIN

(2) TYPICAL DRAIN INLET (C6.6) N.T.S.



SINGLE PIPE CLEANOUT

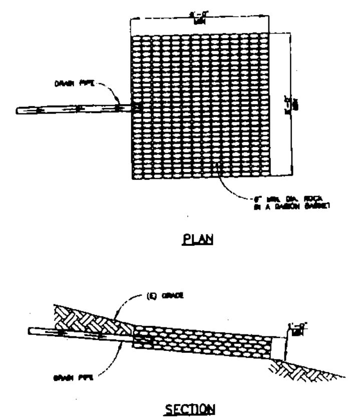
(3) (C6.6) N.T.S.



MULTIPLE PIPE CLEANOUT

SEE 2/C6.6 FOR ADDITIONAL INFORMATION

(4) (C6.6) N.T.S.



(5) RIP-RAP ENERGY DISSIPATOR (C6.6) N.T.S.

EROSION CONTROL NOTES:

- IT IS THE RESPONSIBILITY OF THE OWNER/CONTRACTOR TO ENSURE THAT NO MUD OR SILTATION LEAVES THE PROJECT SITE.
- THE CONTRACTOR SHALL ENSURE THAT ANY EROSION THAT OCCURS DOES NOT LEAVE THE SITE OR ENTER ANY WATERCOURSE, INCLUDING ON-SITE STORM DRAINAGE SYSTEMS. THIS REQUIREMENT SHALL IN EFFECT ON A 24 HOUR PER DAY, 7 DAY PER WEEK BASIS AND SHALL NOT BE LIMITED IN ANY WAY TO THE HOURS OF WORK FOR THE PROJECT. IF, AT THE DISCRETION OF THE GOVERNING AGENCY ADDITIONAL EROSION CONTROL MEASURES ARE DEEMED TO BE REQUIRED, THE CONTRACTOR SHALL AT HIS/HER SOLE EXPENSE TAKE SUCH MEASURES AS DIRECTED BY THE DIRECTOR. IF THE CONTRACTOR IS DEEMED TO BE NON-RESPONSIVE TO THE DIRECTION OF THE GOVERNING AGENCY, THE AGENCY SHALL HAVE THE AUTHORITY TO TAKE ALL MEASURES REQUIRED TO CORRECT ANY SITUATION WHICH HE/SHE DEEMS TO BE OUT OF COMPLIANCE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AND LIABLE TO THE TOWN MUNICIPALITY FOR ALL COSTS ASSOCIATED WITH THE ACTIONS TAKEN BY THE GOVERNING AGENCY TO CORRECT ANY NON-COMPLIANT SITUATION ARISING FROM THE WORK AREA.
- EROSION CONTROL MEASURES MUST BE IN PLACE BY OCTOBER 15TH, AND INSTALLED IMMEDIATELY FOLLOWING EACH CONSTRUCTION PHASE WHICH OCCURS BETWEEN OCTOBER 15TH AND APRIL 15TH.
- CALL THE SENIOR INSPECTOR BY OCTOBER 15 FOR INSPECTION OF EROSION CONTROL DEVICES. YOU MUST CALL 24 HOURS BEFORE THE DATE REQUESTED FOR AN INSPECTION. INCLUDE YOUR GRADING PERMIT NUMBER.
- IF EROSION CONTROL MEASURES ARE NOT IN PLACE AS REQUIRED, ALL WORK SHALL CEASE UNTIL EROSION CONTROL MEASURES ARE RESTORED.
- ALL BARE SLOPES SHALL BE COVERED WITH PLASTIC SHEETING.
- ALL DISTURBED EARTH MUST BE RESEEDED WITH A MINIMUM OF 30 LBS/ACRE "BLANDO" BROME, [illegible] LBS/ACRE ANNUAL RYE GRASS, 500 LBS/ACRE 16-20-0 FERTILIZER WHICH CONTAINS 15% SULFUR, AND 4000 LBS/ACRE OF STRAW ANCHORED IN PLACE BY PUNCHING OR WITH JUTE NETTING.
- ALL DRAIN INLETS SHALL BE PROTECTED WITH A COMBINATION OF STRAW BALES AND FILTER FABRIC FENCES TO PREVENT SEDIMENT FROM ENTERING.
- ALL STREET DRAINS SHALL BE PROTECTED FROM SEDIMENT DURING CONSTRUCTION.
- ALL FILL SLOPES SHALL BE COMPACTED AND LEFT IN A SMOOTH AND FIRM CONDITION CAPABLE OF WITHSTANDING WEATHERING.
- INSTALL FIBER ROLL OR SILT FENCE. PROVIDE DETAIL, SHOW LOCATION ON PLANS AND ADD NOTES AS NEEDED.
- SEED EXPOSED AREAS PER GOVERNING AGENCY STANDARD SEEDING SPECIFICATIONS.
- INSTALL DRAINAGE MEASURES INCLUDING CATCH BASINS, ENERGY DISSIPATORS, ETC. PROVIDE DETAILS, SHOW LOCATIONS ON PLANS AND ADD NOTES AS NEEDED.
- INSTALL MASONRY RETAINING WALLS IMMEDIATELY FOLLOWING GRADING OPERATIONS AT WALL LOCATIONS (WITH APPROPRIATE INSPECTIONS BY BUILDING INSPECTOR).
- INSTALL CHECK DAMS, SEDIMENT TRAPS AND BASINS, TEMPORARY SWALES.

NO.	REVISION	DATE
4	REVISIONS PER INCOMPLETE APPLICATION	12/19/08
3	REVISIONS PER COLLECTIVE DESIGN TEAM MEMBERS	11/19/08
2	REVISIONS PER COLLECTIVE DESIGN TEAM MEMBERS	4/21/08
1	FOR APPROVAL	4/3/08

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DRAEGER PROPERTY
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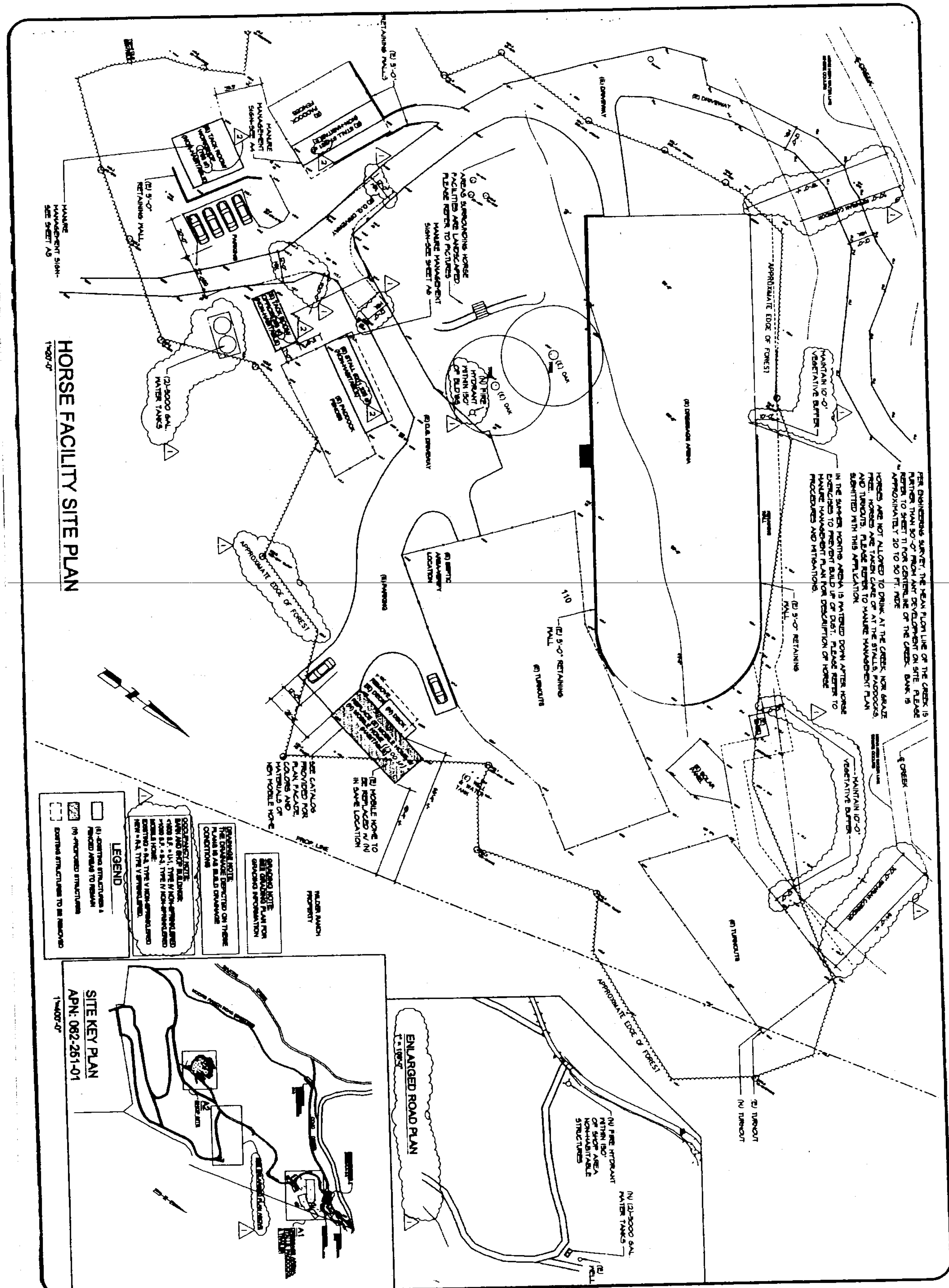
831 Smith Grade
Santa Cruz, CA 95060

SHOP SITE DRAINAGE DETAILS

SCALE	AS SHOWN
DATE	3/14/08
PROJECT NO.	03071
SHEET NO.	C6.6

DRAINAGE DETAILS



DRAEGER PROPERTY
JOHN DRAEGER, OWNER
831 SMITH GRADE
BONNY DOON, CA
SITE PLAN

TERRI L.N. FISHER
ARCHITECT
SANTA CRUZ, CA

TF
4/21/2008
AS SHOWN
A1

11/14/2008
2/19/2010

2-19-10

FIRE COMPLIANCE NOTES:

THESE PLANS ARE IN COMPLIANCE WITH CALIFORNIA BUILDING AND FIRE CODES (2008) AS AMENDED BY THE AUTHORITY HAVING JURISDICTION. EACH APN (LOT) SHALL HAVE SEPARATE SUBMITTALS FOR BUILDING AND SPRINKLER SYSTEM PLANS. THE JOB COPIES OF THE BUILDING AND FIRE SYSTEM PLANS AND PERMITS MUST BE ONSITE DURING INSPECTIONS.

FIRE HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH THE STATE OF CALIFORNIA HEALTH AND SAFETY CODE. SEE PLANS FOR LOCATION OF (4)-5,000 GALLON WATER TANKS, AND FIRE HYDRANTS LOCATED WITHIN 150 FEET OF BUILDINGS. A MINIMUM FIRE FLOW OF 500 GPM IS REQUIRED FROM HYDRANTS.

THE MOBILE HOME SHALL BE PROTECTED BY AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM COMPLYING WITH THE CURRENTLY ADOPTED EDITION OF NFPA 13D AND CHAPTER 35 OF CALIFORNIA BUILDING CODE AND ADOPTED STANDARDS OF THE AUTHORITY HAVING JURISDICTION.

THE SPRINKLER SYSTEM DESIGNER/INSTALLER SHALL SUBMIT THREE (3) SETS OF PLANS AND CALCULATIONS FOR THE UNDERGROUND AND OVERHEAD RESIDENTIAL AUTOMATIC FIRE SPRINKLER SYSTEM TO CDF/COUNTY FIRE FOR APPROVAL. INSTALLATION SHALL FOLLOW THEIR GUIDE SHEET.

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.

BUILDING NUMBERS SHALL BE PROVIDED. NUMBERS SHALL BE A MINIMUM OF 4 INCHES IN HEIGHT ON A CONTRASTING BACKGROUND AND VISIBLE FROM THE STREET. ADDITIONAL NUMBERS SHALL BE INSTALLED ON A DIRECTIONAL SIGN AT THE PROPERTY DRIVEWAY AND STREET.

AN APPROVED SPARK ARRESTER SHALL BE INSTALLED ON THE TOP OF THE CHIMNEY. THE WIRE MESH SHALL BE 1/2 INCH.

THE ROOF COVERING SHALL BE NO LESS THAN CLASS "B" RATED ROOF.

A 100 FOOT CLEARANCE WILL BE MAINTAINED WITH NON-COMBUSTIBLE VEGETATION AROUND ALL STRUCTURES OR TO THE PROPERTY LINE (WHICHEVER IS A SHORTER DISTANCE). SINGLE SPECIMENS OF TREES, ORNAMENTAL SHRUBBERY OR SIMILAR PLANTS USED AS GROUND COVERS, PROVIDED THEY DO NOT FORM A MEANS OF RAPIDLY TRANSMITTING FIRE FROM NATIVE GROWTH TO ANY STRUCTURE ARE EXEMPT.

ACCESS ROAD NOTES:

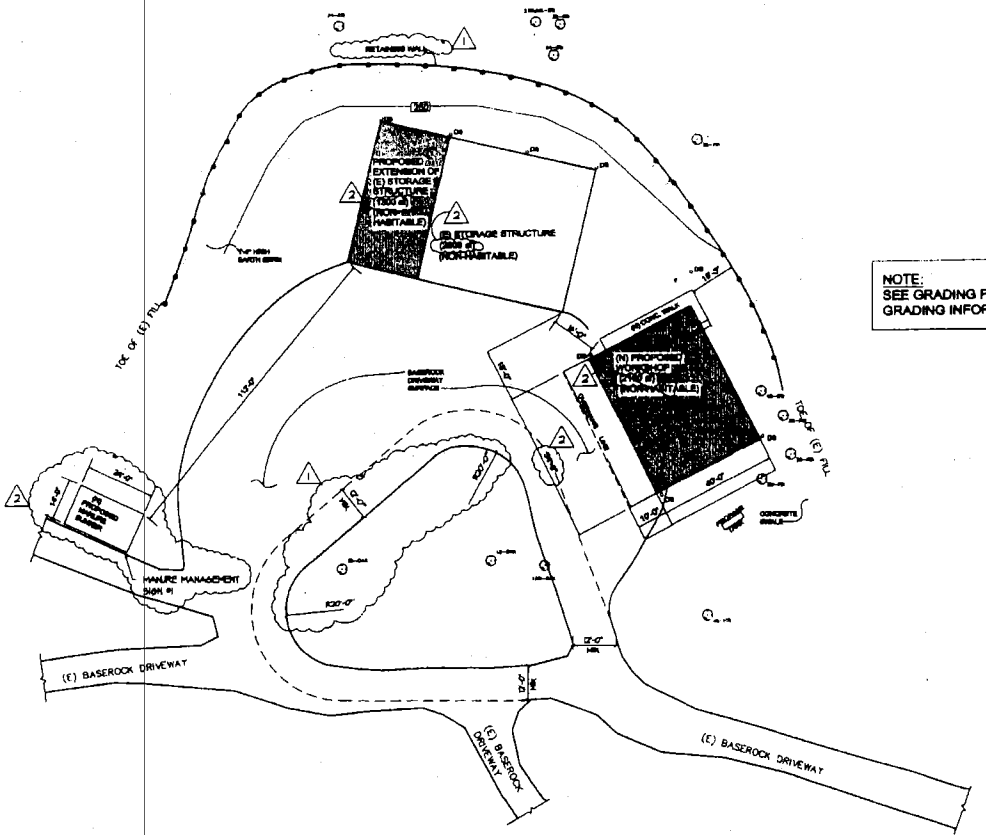
THE ACCESS ROAD SHALL BE 12 FEET MINIMUM AND MAXIMUM TWENTY PERCENT SLOPE. ALL BRIDGES, CULVERTS AND CROSSINGS SHALL BE CERTIFIED BY A REGISTERED ENGINEER. MINIMUM CAPACITY OF 25 TONS. CAL-TRANS H-20 LOADING STANDARD.

THE ACCESS ROAD SHALL BE IN PLACE TO THE FOLLOWING STANDARDS PRIOR TO ANY FRAMING CONSTRUCTION, OR CONSTRUCTION WILL BE STOPPED:

THE ACCESS ROAD SURFACE SHALL BE "ALL WEATHER," A MINIMUM 6" OF COMPACTED AGGREGATE BASE ROCK, CLASS 2 OR EQUIVALENT, CERTIFIED BY A LICENSED ENGINEER TO 95% COMPACTION AND SHALL BE MAINTAINED. ALL WEATHER SURFACE SHALL BE MINIMUM OF 6" OF COMPACTED CLASS II BASE ROCK FOR GRADES UP TO AND INCLUDING 5%, OIL AND SCREENED FOR GRADES UP TO AND INCLUDING 15% AND ASPHALTIC CONCRETE FOR GRADES EXCEEDING 15%, BUT IN NO CASE EXCEEDING 20%. THE MAXIMUM GRADE OF THE ACCESS ROAD SHALL NOT EXCEED 20%, WITH GRADES GREATER THAN 15% NOT PERMITTED FOR DISTANCES OF MORE THAN 200 FEET AT A TIME. THE ACCESS ROAD SHALL HAVE A VERTICAL CLEARANCE OF 14 FEET FOR ITS ENTIRE WIDTH AND LENGTH, INCLUDING TURNOUTS.

A TURN-AROUND AREA WHICH MEETS THE REQUIREMENTS OF THE FIRE DEPARTMENT SHALL BE PROVIDED FOR ACCESS ROADS AND DRIVEWAYS SHALL CONFORM TO CURRENT ENGINEERING PRACTICES, INCLUDING EROSION CONTROL MEASURES.

ALL PRIVATE ACCESS ROADS, DRIVEWAYS, TURN-AROUND AND BRIDGES ARE THE RESPONSIBILITY OF THE OWNER(S) OF RECORD AND SHALL BE MAINTAINED TO ENSURE THE FIRE DEPARTMENT SAFE AND EXPEDIENT PASSAGE AT ALL TIMES.



NOTE:
SEE GRADING PLAN FOR GRADING INFORMATION

LEGEND

- (E) -EXISTING STRUCTURES & FENCED AREAS TO REMAIN
- (N) -PROPOSED STRUCTURES
- (E)EXISTING STRUCTURES TO BE REMOVED

SHOP SITE PLAN

1"=20'-0"

1	11/14/2008
2	2/16/2010

TERRI L.N. FISHER

ARCHITECT
LICENSE NO. 01
SANTA CRUZ, CA

DRAEGER PROPERTY
JOHN DRAEGER, OWNER
831 SMITH GRADE
BONNY DOON, CA

Drawn: TF
Date: 4/14/2008
Scale: AS SHOWN
Job No.:

Sheet: A2

Application #: 08-0150
APN: 062-251-01
Owner: John Draeger

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 timber production and residential uses. The proposed residential use 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.

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 or impact the existing access easement associated with the right-of-way that crosses the parcel. No other known easements or development restrictions encumber the subject parcel.

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 that of the surrounding rural neighborhood in terms of size and style. The site is surrounded by lots developed to a rural low 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. Further, the existing and proposed development is not visible from Smith Grade, a scenic road, or from surrounding properties due to its location within a large, densely forested rural property. The topography additionally provides visual screening from neighboring properties in that the two developed portions of the 152-acre property are located within a valley and protected from view by ridgelines to the southeast and northwest.

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 located more than three miles from the coast. Consequently, the residential use will not 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.

EXHIBIT B

5. That the proposed development conforms with the certified local coastal program.

This finding can be made, in that the structure is sited and designed to be visually compatible, in scale with, and integrated with the character of the surrounding neighborhood. The areas of development are screened from view by dense vegetation and steeply sloping topography. The site is not visible from either the designated Scenic Road or the coast.

Timber production, commercial agricultural, and residential uses are allowed uses in the TP (Timber Production) zone district, as well as the General Plan and Local Coastal Program land use designation. The horse facilities, accessory structures, the single-family residence and a second unit are principally permitted agricultural uses.
The assessment submitted by the project forester states that the existing and proposed agricultural and residential development do not negatively impact the timber resources, timber harvesting potential or ongoing management of timber resources on the property.

Developed parcels in the area contain single family dwellings. Size and architectural styles vary widely in the area, and the proposed modular home design is consistent with the existing range of rural mountain styles.

The existing and proposed grading, construction, and uses will not impair or degrade the riparian plant and animal systems, or water resources, as conditions of approval require the implementation of a number of mitigation measures, including the placement and inspection of adequate erosion control and sedimentation devices in and around the riparian corridor, the approval and implementation of a Manure Management Plan preventing impacts on the corridor from equestrian activities, and the adherence to all recommendations made by the project field biologists. Additionally, a Riparian Exception is required for the proposed bridge replacement and drainage improvements at two stream crossings, as required by General Plan/Local Coastal Program Policy 5.2.3. Conditions of the Riparian Exception are incorporated into the overall project conditions and include an onsite pre-construction meeting, review and acceptance of a detailed erosion control plan, revegetation/restoration of the corridors, as well as maintenance and monitoring plan to ensure the long-term success of all re-planted riparian vegetation.

Application #: 08-0150
APN: 062-251-01
Owner: John Draeger

Residential 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.

This finding can be made, in that the project is located in an area designated for rural residential uses and is not encumbered by physical constraints to development. Construction will comply with prevailing building technology, the California Building Code, and the County Building ordinance to insure the optimum in safety and the conservation of energy and resources. The proposed recognition of paddocks within the front yard will not deprive adjacent properties or the neighborhood of light, air, or open space, in that no structures are proposed in the paddock area, an approved manure management plan will be in effect, and dense vegetation currently screens the area from neighboring properties. The paddocks will be located more than 400 feet from the nearest surrounding residence (north and east) and continue the historical paddock use in a location that has been in existence for that past several years.

The proposed location of the paddocks within the front half of the parcel is not expected to negatively impact the surrounding properties in that the paddocks will not be visible from neighboring properties or the public road. As stated previously, a manure management plan has been prepared for the project and includes provisions for cleaning and disposing of animal waste so that neighboring properties will not be impacted by objectionable odors and the streams will be protected from contaminated runoff.

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.

This finding can be made, in that the proposed location of the paddocks and the conditions under which they would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the TP (Timber Production) zone. County Code Section 13.10.641(a)(3) allows paddocks to be located in areas other than the rear half of the lot with Zoning Administrator approval. The particular geographical circumstance of the subject property justifies such approval. The rear half of the parcel is steeply sloped, heavily timbered and unsuited for safe horse keeping. The existing moderately sized paddock avoids the steeper sloped portions of the property by fitting into the gently sloped front portion of the lot. This configuration will help reduce the deleterious effects of soil erosion and will reduce impacts to surface water quality. In addition, the paddock location avoids the timber resource on the parcel.

EXHIBIT B

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.

This finding can be made, in that the proposed location of the paddocks is consistent with the use and density requirements specified for the Mountain Residential (R-M) land use designation in the County General Plan. The proposed location of paddocks within the front half of the lot will not adversely impact the light, solar opportunities, air, and/or open space available to other structures or properties in that no structures are proposed. The operation of the paddocks within the front half of the property is consistent with General Plan Policy 5.7.4 (Control Surface Runoff) in that utilizing the more moderately- sloped portion of the parcel will reduce the likelihood of erosion and negative water quality impacts. A detailed erosion control plan and manure management plan have also been required for this project and must be maintained in the future as a condition of approval.

The location of the paddocks on the front half of the parcel is consistent with Policy 5.12.7 (Location of Development on Timber Production Lands) in that the paddocks and other proposed development are located on a non-timbered portion of the property, as verified by the consulting registered forester.

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.

This finding can be made, in that the proposed location of paddocks is to be constructed on an existing developed lot. There is no expected increase in traffic generated by this use, as there are no lessons or special events occurring or proposed onsite. Additionally, the project is conditioned to restrict any future commercial uses on the site that would contribute to increased trip generation.

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.

This finding can be made, in that the proposed paddocks are consistent with the surrounding rural character of the neighborhood. The lot has historically been used to keep horses and the location of the paddocks within the front half of the lot will be screened from the surrounding residences by dense vegetation and natural topography. The project will be conditioned to allow no more than eight horses to be kept on the property at any one time.

6. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and any other applicable requirements of this chapter.

This finding can be made, in that the proposed development will be of an appropriate scale and type of design that will have no impact on the aesthetic qualities of the surrounding properties and will not reduce or visually impact available open space in the surrounding area. The proposed paddock area within the front half of the parcel is appropriate given the constraints of timber resources and steep terrain located throughout the remainder of the parcel. The paddock

location does not interfere with or negatively impact the timber resources on the lot or the steeper topography of the parcel, which characterizes the rear half of the parcel. The location of the paddocks also minimizes the need for additional roads and road widening in order to maintain and tend to the horses on the site.

EXHIBIT B

Riparian Exception

1. That there are special circumstances or conditions affecting the property.

This finding can be made, in that the property is developed with two perennial stream crossings (Cojo Creek), which each have a history of erosion and sedimentation that have negatively impacted the riparian habitat. Additionally, there has been increasing scour of the soil in and around the Old Timber Road culvert crossing which has added to the sediment load impacting the stream. The proposed culvert removal and construction of a replacement railcar bridge will resolve the pattern of scour, sedimentation and failure at this crossing.

The second creek crossing at Moore Ranch Road has been re-graded in the past in order to repair damage caused by unchecked erosion and to repair the road, which is used by several residences to the south of the subject parcel. Historically, this work has been completed without the benefit or input from a civil engineer, and water quality impacts have continued to occur in this area.

2. That the Exception is necessary for the proper design and function of some permitted or existing activity on the property.

This finding can be made, in that the crossings provide access to a residence on the subject parcel as well as several other parcels via Moore Ranch Road. The existing stream crossings have historically been substandard, in that the approaches have not been developed with adequate drainage facilities and have suffered from regular episodes of erosion and sedimentation following moderate storm events. Additionally, the culvert crossing at Old Timber Road has been subject to "washout" in the past and the existing culverts are not adequate to convey the water volumes associated with large storms. Replacement of failing culvert with a railcar bridge and construction of associated drainage improvements will ensure that the stream crossing provides adequate access, while protecting the corridor from sedimentation and bank failure.

3. That the exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the project is located.

This finding can be made, in that the proposed construction will improve hydraulic functioning at the Old Timber Road crossing and will improve the existing drainage patterns that current result in accelerated erosion and sedimentation. Additionally, implementation of the revegetation and restoration plan will restore and improve the quality of the riparian habitat.

Two consulting biologists have assessed the existing site conditions and proposed development adjacent to the riparian corridor. The resulting biotic reports (Attachments 9 and 10 of Exhibit D) have been reviewed and accepted by the County Environmental Coordinator and all report recommendations incorporated into the project plans and conditions of approval.

Project conditions include a pre-construction meeting between a project biologist and contractor, on-site presence of the biologist during the bridge construction, and implementing the revegetation and restoration plan that includes mandated success criteria.

In order to mitigate impacts of nighttime lighting on the riparian habitat, prior to issuance of a

building permit, the applicant is also required to submit a lighting plan to the Planning Department for review and approval. The plans shall include measures requiring exterior lighting to be directed away from the corridor, and to use low-rise light standards to a maximum height of 15 feet.

4. That the granting of the exception, in the Coastal Zone, will not reduce or adversely impact the riparian corridor, and there are no feasible less environmentally damaging alternative.

This finding can be made, in that the construction of the replacement bridge will be done under the observation of and in accordance with all recommendations made by the consulting biologist, as stated above, in order to protect the health of the resident salmonids population and to minimize any potential contamination of the riparian system via sedimentation, animal waste, or any other pollutants.

The proposed construction will improve the functionality of the existing creek crossings, which are necessary for the economic use of the subject property and neighboring properties, will reduce the existing impacts associated with accelerated erosion and sedimentation, and will enhance the aesthetic and habitat value of the riparian corridor by implementation an effective revegetation and restoration plan.

5. That the granting of the exception is in accordance with the purpose of this chapter, and with the objectives of the General Plan and Elements thereof, and the Local Coastal Program Land Use Plan.

This finding can be made, in that the proposed replacement bridge construction and drainage improvements have been designed to create a stable stream crossing with the least possible impact on the riparian corridor. The area of construction has been the site of historical bank erosion and sedimentation due to a substandard, failing culvert system. Proper construction methods and onsite monitoring by project biologists during all phases of construction will help to ensure that the proposed development will not be injurious to riparian resources.

Conditions of Approval

Exhibit A: Project Plans, prepared by Robert L. DeWitt & Associates, last revised 3/1/2010, Morris Engineering, dated 1/15/10, Quilici Engineers, Inc., dated 5/14/2009, Terri L.N. Fisher, Architect, dated 2/15/2010,

I. This permit authorizes the recognition of the construction of 2 horse stables (981 and 1,235 square feet), one 788 square foot tackroom/workshop, one 356 square foot tackroom/office, one 2,600 square foot non-habitable storage structure, and grading of approximately 2,359 cubic yards of excavation and 7,209 cubic yards of fill. Additionally, this permit authorizes the placement of one 1,200 manufactured home, a 1,300 square foot addition to the existing 2,600 storage structure, a new 2,160 square foot non-habitable workshop/office, a 336 square foot manure bunker, and a new rail car bridge. The permit also recognizes the existing construction of approximately 550 lineal feet of retaining walls of up to 6.5 feet in height and authorizes construction of 250 lineal feet of new retaining walls of up to 4 feet in height. This approval does not confer legal status on any existing structure(s) or existing use(s) on the subject property that are not specifically authorized by this permit. 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 off-site work performed in the County road right-of-way.

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.

F. Pay a Negative Declaration De Minimis fee to the Clerk of the Board of the County of Santa Cruz as required by the California Department of Fish and Game mitigation fees program and file the Notice of Determination.

G. Obtain the Construction Activities Storm Water General NPDES Permit from the State Water Resources Control Board for the land clearing and grading work, if required.

H. Obtain a Streambed Alteration Permit from the California Department of Fish and Game for all work performed within the Cojo Creek channel.

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. In addition, the final plans shall include the following information:

1. One elevation shall indicate proposed materials and colors and shall supply a color and material board in 8 1/2" x 11" format for Planning Department review and approval.

2. Details showing compliance with fire department requirements. For structures located within the State Responsibility Area (SRA), the requirements of the Wildland-Urban Interface code (WUI), California Building Code Chapter 7A, shall apply.

3. Plans shall specify that all project activities in proximity of the stream channel are restricted to the period between August 1st and October 15th.

4. Plans shall include notes that incorporate all recommendations made by the consulting biologists.

B. 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.

C. Submit a final engineered Grading, Drainage, and Erosion Control Plan. The final grading, drainage and erosion control plans shall be consistent with the approved Exhibit A including, but are not limited to, the following:

1. A schedule for accomplishing all proposed work in the vicinity of the riparian corridor. Earthwork is prohibited during the winter rainy season.

2. The grading, drainage, and erosion control plan must be reviewed and approved by the consulting biologists and plan review letters provided to Environmental Planning staff. The plan review letters must reference the final, revised version of the plans.

3. Show existing as-built contours, all cut and fill areas including removal and replacement of fill.

4. Grading plan must be revised to reflect existing contours as dashed and proposed contours as solid, bold lines.

5. Provide complete top-of-wall and bottom-of-wall elevations for all proposed and unpermitted "as-built" retaining walls, including landscape walls.

D. Submit a letter from the project structural engineer regarding the structural integrity of the existing retaining wall supporting the riding arena.

E. Submit a final detailed riparian restoration and revegetation plan for review and approval by Environmental Planning staff. The final restoration plan shall include, but is not limited to, the following:

1. Erosion control seeding shall be used throughout the entire construction area, with willow pole cutting to be placed three inches on center within the stream channel. Additional riparian plant species will be planted further up the stream bank.

2. The revegetation areas shall be monitored during the summer and fall in the year following plant installation.

3. All plants installed shall be counted and monitored for survival with photo-documentation used to record the progress of the revegetation.

4. Data from site visits performed by the consulting biologist shall be incorporated into an annual monitoring report and submitted to the County at the end of the first year of monitoring.. The report shall state whether the project revegetation has been successful and any remedial measures required, with success criteria consisting of 80% survival of container stock, 80% survival of willow cuttings and an absence of evidence of rilling or erosion along the creek bank.

F. Submit a tree protection plan to the Planning Department for review and approval.

G. 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.

H. Obtain an Environmental Health Clearance for this project from the County Department of Environmental Health Services.

I. Meet all requirements and pay any applicable plan check fee of the Cal Fire Protection District.

J. Submit two copies of the soils report and all addenda for the project, prepared and stamped by a licensed Geotechnical Engineer.

1. The final plans shall incorporate the soil engineer's recommendations and shall reference the project soils report.

2. The project soils engineer shall review the final building, grading, drainage, and erosion control plans and shall approve the plans in writing. The soil engineer's review and approval letter shall reference the specific plans (dates and pages) reviewed. Submit two copies of the plan review and approval letter.

K. Submit two copies of the geology report and all addenda for the project, prepared and stamped by a licensed Engineering Geologist.

L.

1. The final plans shall incorporate the engineering geologist's recommendations and shall reference the project engineering geologist.

2. The project engineering geologist shall review the final building, grading, drainage, and erosion control plans and shall approve the plans in writing. The engineering geologist's review and approval letter shall reference the specific plans (dates and pages) reviewed. Submit two copies of the plan review and approval letter.

M. Submit a copy of the California Red-Legged Frog Preliminary Site Assessment, prepared by Bryan M. Mori, dated November 13, 2008. All recommendations made in the report shall be included in notes on the building plans, fully implemented and are hereby incorporated into the conditions of approval

N. Submit a copy of the Cojo Creek Aquatic Assessment, performed by D.W. Alley & Associates, dated November 13, 2008. All recommendations made in the report shall be included in notes on the building plans, fully implemented and are hereby incorporated into the conditions of approval.

O. Submit a lighting plan to the Planning Department for review and approval. The plan shall reflect that permanent outdoor lighting shall be minimized and shall be shielded by fixture design or other means to minimize illumination of riparian habitat. Light sources that do not attract insects (e.g. yellow or sodium vapor bulbs) shall be used if outdoor lighting is necessary (e.g. security or handicap access structures).

P. Pay the current fees for Parks and Child Care mitigation for all new bedroom(s). Currently, these fees are, respectively, $578 and $109 per bedroom.

Q. Provide required off-street parking for four 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.

R. 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.

S. Complete and record a Declaration of Restriction to construct/maintain six non-habitable accessory structures. **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. Prior to any disturbance on the property, the applicant shall convene a pre-construction meeting on the site. The following parties shall attend: The project engineer, project contractor supervisor, Santa Cruz County Environmental Planning staff, and the project biologists. Results of pre-construction biotic surveys will be collected at that time and all protection measures, including proposed dewatering plan, tree protection fencing and limits of disturbance, shall be inspected.

B. All site improvements shown on the final approved Building Permit plans shall be installed.

C. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.

D. The project must comply with all recommendations of the approved soils and geology reports.

E. The project must comply with all recommendations of the California Red-Legged Frog Preliminary Site Assessment, prepared by Bryan M. Mori, dated November 13, 2008,

F. The project must comply with all recommendations of the Cojo Creek Aquatic Assessment, performed by D.W. Alley & Associates, dated November 13, 2008

G. All riparian restoration work shall be completed, inspected and approved by Environmental Planning.

H. Any required replacement trees must be installed, inspected and approved by Environmental Planning staff.

I. 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. Training, riding lessons, special events, or other commercial-type activity will not be allowed on this site without an Amendment to this Use Permit, which shall be processed as a Level V Change of Use and require a public hearing.

B. All provisions of the approved Manure Management Plan shall remain in effect for the duration of all horse-keeping operations on this parcel. No more than eight horses are allowed on the property at any one time without prior approval from the Planning Department and Environmental Health Services staff.

C. All provisions of the Landscape/restoration plan shall remain in effect until the consulting biologist states, in writing, that the revegetation has met the success criteria specified in the restoration plan.

D. The approved erosion control plan must remain in effect for the duration of any and all horse-keeping operations on the parcel.

E. All future development shall be located at least 60 feet from the mean high tide line of Cojo Creek and Majors Creek.

F. Permanent outdoor lighting shall be minimized and shall be shielded by fixture design or other means to minimize illumination of riparian habitat. Light sources that do not attract insects (e.g. yellow or sodium vapor bulbs) shall be used if outdoor lighting is necessary (e.g. security or handicap access structures).

G. 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. Settlement. 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. Successors Bound. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.

VI. Mitigation Monitoring. The mitigation measures listed under this heading have been incorporated in the conditions of approval for this project in order to mitigate or avoid significant effects on the environment. As required by Section 21081.6 of the California Public Resource Doe, a monitoring and reporting prog4am for the above mitigation is hereby adopted as a condition of approval for this project. This program is specifically described following each mitigation measure listed below. The purpose of this monitoring is to ensure compliance with the environmental mitigations during project implementation and operation. Failure to comply with the conditions of approval, including the terms of the adopted monitoring program, may result in permit revocation pursuant to Section 18.10.462 of the Santa Cruz County Code.

A. Mitigation Measure: Pre-Construction Meeting (Condition III.A.)

Monitoring Program: In order to ensure all geotechnical, grading and erosion control requirements are in place, prior to any disturbance on the property, the applicant shall convene a pre-construction meeting on the site. The following parties shall attend: The project engineer, project contractor supervisor, Santa Cruz County Environmental Planning staff, and the project biologists. Results of pre-construction biotic surveys will be collected at that time and all protection measures, including proposed dewatering plan, tree protection fencing and limits of disturbance, shall be inspected.

B. Mitigation Measure: Red-Legged Frog Protection (Condition III.E.)

Monitoring Program: In order to ensure no significant impacts to red legged frogs occur as a result of this project, the recommendations of the California Red-Legged Frog Preliminary Site Assessment, prepared by Bryan M. Mori, dated November 13, 2008, shall be incorporated into the conditions of approval and shall be fully implemented.

C. Mitigation Measure: Salmonid Protection (Condition III.F)

Monitoring Program: In order to ensure no significant impacts to salmonids occur as a result of this project, the recommendations of the Cojo Creek Aquatic Assessment, performed by D.W. Alley & Associates, dated November 13, 2008, shall be incorporated into the conditions of approval and shall be fully implemented.

D. Mitigation Measure: Riparian Protection from Lighting (Conditions II.N and IV.F.)

Monitoring Program: In order to mitigate the impacts of nighttime lighting on the

adjacent riparian habitat, prior to issuance of a building permit, the applicant shall submit a lighting plan to the Planning Department for review and approval. The plan shall reflect that permanent outdoor lighting shall be minimized and shall be shielded by fixture design or other means to minimize illumination of riparian habitat. Light sources that do not attract insects (e.g. yellow or sodium vapor bulbs) shall be used if outdoor lighting is necessary (e.g. security or handicap access structures).

E. Mitigation Measure: Tree Protection (Condition II.F.)

Monitoring Program: In order to reduce the impacts to trees to be retained to a less than significant level, prior to issuance of building permits, the applicant shall provide a tree protection plan to the Planning Department for review and approval.

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.

Approval Date: _____

Effective Date: _____

Expiration Date: _____

Steven Guiney, AICP	Robin Bolster-Grant
Deputy Zoning Administrator	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.

County of Santa Cruz

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
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CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ENVIRONMENTAL REVIEW INITIAL STUDY

Application Number: 08-0150

Date: April 11, 2011

Staff Planner: Robin Bolster-Grant

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Patrizia Materassi **APN(s)**: 062-251-01

OWNER: John E. Draeger, Trustee **SUPERVISORAL DISTRICT**: 3rd

PROJECT LOCATION: Project located on the south side of Smith Grade, approximately 1.5 miles south of the intersection with Empire Grade (851 Smith Grade)

SUMMARY PROJECT DESCRIPTION:

Proposal to recognize the unpermitted construction of two horse stalls of approximately 981 (#1) and 1,235 square feet (#2), one 788 square foot tackroom and workshop, one 356 square foot tackroom and office, a 2,600 square foot nonhabitable storage structure, and grading of approximately 2,359 cubic yards of excavation and 7,209 cubic yards of fill. In addition, the applicant proposed to replace the existing (unpermitted) mobile home with a new 1,200 square foot mobile home, to construct a 1,300 square foot addition to the existing 2,600 square foot storage structure, to construct a new 2,160 square foot nonhabitable workshop/office, and to construct a new rail car bridge to replace the culvert crossing at Old Timber Road.

The proposal would also recognize the unpermitted construction of approximately 550 lineal feet of retaining walls in the vicinity of the horse arena, paddocks and tack room. The retaining walls range from 1 to 6.5 feet in height. An additional 250 lineal feet of retaining walls are proposed to be constructed at the Shop Site, to replace an existing system of log retaining structures along an outer fill wedge. The replacement wall is proposed to be 4 feet in height.

Project requires a Coastal Development Permit, Riparian Exception, Preliminary Grading Approval, Residential Development Permit, Variance for the location of horse paddocks within the front half of parcel, Geologic Report Review, Soils Report Review, Archeological Report Review and Environmental Review.

EXHIBIT D

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: All of the following potential environmental impacts are evaluated in this Initial Study. Categories that are marked have been analyzed in greater detail based on project specific information.

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

DISCRETIONARY APPROVAL(S) BEING CONSIDERED:

- ☐ General Plan Amendment
- ☐ Land Division
- ☐ Rezoning
- ☒ Development Permit
- ☒ Coastal Development Permit
- ☒ Grading Permit
- ☒ Riparian Exception
- ☐ Other:

NON-LOCAL APPROVALS

Other agencies that must issue permits or authorizations: California Department of Fish & Game (possibly) Streambed Alteration Permit

DETERMINATION: (To be completed by the lead agency)
On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures

based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Matt Johnston

Matthew Johnston
Environmental Coordinator

4/18/2011
Date

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Size: 143.5 acres
Existing Land Use: Residential and Timber Production
Vegetation:
Slope in area affected by project: ☒ 0 - 30% ☒ 31 – 100%
Nearby Watercourse: Smith Creek and Cojo Creek – both perennial streams
Distance To: Both creeks are located within the area of proposed development

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Water Supply Watershed: Mapped
Groundwater Recharge: Mapped
Timber or Mineral: Mapped Timber Resource; Timber Management Plan Submitted
Agricultural Resource: Not mapped

Biologically Sensitive Habitat: Riparian Corridor associated with two perennial streams
Fire Hazard: Portion Mapped Critical Fire Hazard; no development proposed in this area
Floodplain: Not mapped
Erosion: High potential; property owner required to submit erosion control plans for review and approval by the Planning Department prior to building permit issuance
Landslide: Not mapped
Liquefaction: Not mapped

Fault Zone: Not a Mapped Constraint
Scenic Corridor: Smith Grade Rd.
Historic: Not a Mapped Constraint

Archaeology: Mapped Resource; Assessment Completed in June 2000; no resources found
Noise Constraint: None

Electric Power Lines: None

Solar Access: Heavily Forested Canopy
Solar Orientation: N/A

Hazardous Materials: None
Other: None

SERVICES

Fire Protection: Cal Fire
School District: Bonny Doon Elementary; Santa Cruz High School
Sewage Disposal: Private

Drainage District: None
Project Access: Smith Grade (County-maintained)
Water Supply: Private

PLANNING POLICIES

Zone District:TP (Timber Production)
General Plan: Mountain Residential (R-M)
Urban Services Line: ☐ Inside ☒ Outside
Coastal Zone: ☒ Inside ☐ Outside

Special Designation: None

ENVIRONMENTAL SETTING AND SURROUNDING LAND USES:

The subject property is a 1152.5 acre site located in a sparsely developed rural area in the Bonny Doon Planning Area. The site occupies a west facing, moderately to steeply sloping hillside and takes access from Smith Grade road. The majority of the site is heavily wooded and drains to Majors and Cojo Creeks, along the western and northwestern property boundaries. The development on the site is clustered in two primary areas: at the northeast and at the center of the property.

There are two access points to the property off of Smith Grade Road: Old Timber Road at the northwest corner of the property (main entrance) and Moore Ranch Road to the west. Both roads cross Cojo Creek with Old Timber Road crossing via a system of unpermitted culverts, and Moore Ranch Road crossing via a legally constructed bridge. The Moore Ranch Road right-of-way bisects the property from northeast to southwest and provides access to at least five parcels to the southwest.

The property has historically been used for timber production and is developed with an existing cabin and garage located adjacent to the Old Timber Road culvert. The majority of the surrounding properties are developed with single family dwellings at low, rural densities. Parcels to the north, east and west are zoned Timber Production (TP) and are heavily wooded with steep slopes. Properties to the south are zoned Residential Agriculture (RA) and Special Use (SU).

Slope gradients on the subject parcel range from essentially flat to in excess of 100% in the vicinity of the creek channels. There are three moderately sloped areas from north to south through the central portion of the property. One of these three areas, located at the center of the parcel, has been used for the unpermitted development of horse facilities, including a riding arena, paddocks and several equestrian outbuildings.

Small to medium-scale grading operations have occurred in the vicinity of the horse facilities and access roads that traverse the property. Erosion from surface water runoff is evident along the western slope of the property.

Vegetation on the site is characterized by Douglas fir, redwood, coast live oak, bay laurel and madrone forest with moderate to dense underbrush.

The site is served by private sewage treatment and private wells.

PROJECT BACKGROUND:

The property is developed with an existing cabin and detached garage, which date to the 1940s according to Assessor's Records. In 2000 application #00-0090 was made to construct a single-family dwelling, second unit, accessory structures and replacement bridge at the culverted stream crossing at Old Timber Drive. Application 00-0090 was abandoned on June 19, 2003. Building Permit 127452 was issued on December 18, 2000 to authorize the repair of the bridge at the Moore Ranch Road creek crossing. In 2004, the County received a complaint of illegal grading at the Old Timber Drive crossing. Application 04-0479 was made on October 6, 2004 in order to address the grading violation and to reinforce the stream bank along the Old Timber Road creek crossing. Application 04-0479 was withdrawn by the applicant and combined into the

subject application in order to address all riparian work completed or proposed at both stream crossings on the property.

April 15, 2005 the Planning Department posted a notice of violation on the property for the unpermitted construction of two horse barns, a tack room, a workshop, the installation of a mobile home, development within a riparian corridor and grading in excess of 1,000 cubic yards for the creation of a horse arena and paddock facilities.

The subject application was made on May 5, 2008 in order to address all known building and environmental violations on the property and to expand development on the site to include additional structural square footage. A number of project changes have occurred, including a revision of the replacement bridge design at the Old Timber crossing. The original bridge design consisted of pier and post construction; however in response to concerns over stability and stream scour, the bridge was modified to a rail car design.

DETAILED PROJECT DESCRIPTION:

The development included in this proposal is concentrated in four general areas on the approximately 152-acre property: 1) the horse arena and associated equestrian structures off of Old Timber Drive (northeast); 2) The bridge crossing at Old Timber Drive (northeast); 3) the 'Shop Site' at the center of the parcel, and 4) the re-grading/bank repair at the Moore Ranch Road creek crossing (northwest).

The applicant proposes to recognize the unpermitted construction of two horse stalls of approximately 981 (#1) and 1,235 square feet (#2), one 788 square foot tackroom and workshop, one 356 square foot tackroom and office, a 2,600 square foot nonhabitable storage structure, and grading of approximately 2,359 cubic yards of excavation and 7,209 cubic yards of fill. In addition, the applicant proposed to replace the existing (unpermitted) mobile home with a new 1,200 square foot modular home,, to construct a 1,300 square foot addition to the existing 2,600 square foot storage structure, to construct a new 2,160 square foot nonhabitable workshop/office, and to construct a new rail car bridge to replace the culvert crossing at Old Timber Road.

The proposal would also recognize the unpermitted construction of approximately 550 lineal feet of retaining walls in the vicinity of the horse arena, paddocks and tack room. The retaining walls range from 1 to 6.5 feet in height. An additional 250 lineal feet of retaining walls are proposed to be constructed at the Shop Site, to replace an existing system of log retaining structures along an outer fill wedge. The replacement wall is proposed to be 4 feet in height.

The proposal would result in two dwellings (1,968 square feet total area) and eight non-habitable structures (9,860 square feet total area).

The existing and proposed grading consists of 35 cubic yards of fill at the main driveway off of Smith Grade, 60 cubic yards of fill at the approach to the proposed rail car bridge at Old Timber Road, a small amount (about 1 cubic yard) of excavation for improving Old Timber Drive, 1,024 cubic yards cut and 3,899 cubic yards of fill at the horse arena and paddock area, and 1,334 cubic yards of cut and 3,215 cubic yards of fill at the Shop Site.

A 336 square foot manure bunker is proposed to be constructed in the Shop Site area, to accommodate a maximum of 8 horses allowed on the site at any one time. The bunker is located approximately ¼ mile southwest of the horse facilities and residences in the "Shop Site" portion of the site. The bunker is also more than 550 feet from the closest creek. The manure will be hauled from the equestrian area to the bunker by tractor and removed from the project site via dump truck each week and taken to the Buena Vista Landfill for use as composting material.

No lessons, riding or other commercial activity associated with the equestrian facilities is proposed on the site.

An existing, unpermitted metal culvert system at the Old Timber Drive Cojo Creek crossing is proposed to be replaced with a rail car bridge. The proposal provides a twenty (20) construction day allowance for the removal of the culvert during which time block nets will be placed upstream and downstream from the existing culvert and resident rainbow trout removed by electrofishing and relocated to good habitat elsewhere along the stream. The fill around the culverts will be removed along with the culverts themselves and deposited where it will not re-enter the stream channel. A biological monitor will be present during the culvert removal operation and placement of new bridge on concrete caissons.

The proposed replacement bridge at Old Timber Drive is composed of 70 foot railcar girders placed on cast-in-place concrete abutments and cast-in-drilled-hole concrete piles. Six 24-inch diameter piles are proposed, three on each side, and are to be constructed from the top of the stream bank. Three silt fences will be constructed across the flowing channel, within 100 feet downstream of the bridge site in order to capture suspended sediment. The fences will be buried in the streambed with hand shovels and secured with concrete blocks to prevent silt leakage underneath. The removal of the culvert and construction of the replacement bridge shall occur between August 1st and October 15th.

Proposed drainage improvements at the site include the placement of perforated pipe in the vicinity of the unpermitted equestrian structures in order to disperse runoff before reaching the creek 200 feet away. The horse arena was constructed with a sub-drainage system that discharges to an adjacent slope. Old Timber Drive is constructed of gravel and base rock and includes drainage along the inside edge as well as culverts. A siltation basin is proposed adjacent to Old Timber Road before the creek crossing to prevent silt and gravel fines from entering the creek. In addition, the project landscape engineer has provided a cobble swale treatment with underdrain at the arena to further protect Cojo Creek from any contaminated runoff associated with the use of the horse arena. The overall amount of existing and/or proposed impervious coverage on the site is approximately .15 acres or 0.1% of the overall site area. An asphalt berm is proposed to be added along the area of road improvement at the northeast property entrance from Smith Grade (Old Timber Drive).

The applicant received an approved onsite sewage disposal site evaluation. An enhanced treatment sewage disposal system will be required to accommodate the proposed mobile home.

In order to meet fire protection district regulations, the applicant will need to provide a 20,000 gallon water tank for fire protection, with minimum fire flow of 500 gallons per minute for hydrant use.

III. ENVIRONMENTAL REVIEW CHECKLIST

A. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
A. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
B. Strong seismic ground shaking?	☐	☐	☒	☐
C. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
D. Landslides?	☐	☐	☒	☐

Discussion (A through D): The project site is located outside of the limits of the State Alquist-Priolo Special Studies Zone (County of Santa Cruz GIS Mapping, California Division of Mines and Geology, 2001). The project site is located approximately 12.5 mile(s) southwest of the San Andreas fault zone, and approximately 5.5 mile(s) northeast Monterey Bay – Tularcitos fault zone. While the San Andreas fault is larger and considered more active, each fault is capable of generating moderate to severe ground shaking from a major earthquake. Consequently, large earthquakes can be expected in the future. The October 17, 1989 Loma Prieta earthquake (magnitude 7.1) was the second largest earthquake in central California history.

A geologic investigation for the project was prepared by Nolan Associates dated November 8, 2008 (Attachment 3), and a geotechnical investigation was prepared by Tharp & Associates, Inc. dated March 2008 (Attachment 4). These reports have been reviewed and accepted by the Environmental Planning Section of the Planning Department (Attachment 5). The reports conclude that fault rupture would not be a potential threat to the proposed development, and that the risk due to seismic shaking can be reduced by following the recommendations in the geologic and geotechnical reports referenced above.

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

Implementation of the additional requirements included in the review letter prepared by Environmental Planning staff (Attachment 5) will serve to further reduce the potential risk of seismic shaking.

2.	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐

Discussion: The report cited above concluded that there is a potential risk from ground shaking, ground rupture, landsliding, liquefaction, lateral spreading, and differential compaction. The recommendations contained in the geotechnical report include review and approval of final grading plans, retaining wall and foundation design review, re-grading of fill slopes at the storage barn to a stable slope, and proper placement of drainage facilities. These recommendations would be implemented as conditions of project approval in order to reduce any potential hazard to a less than significant level.

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

Discussion: There are slopes that exceed 30% on the property. Proposed development in the vicinity of slopes greater than 30% is limited to the construction of the bridge at the Old Timber Drive crossing, which replaces an existing culvert system. The replacement rail car bridge will reduce the base flood elevation by removing the constrictive culverts, according to Tharp & Associates, Inc. (Attachment 4) and the construction of the replacement bridge will be conditioned to incorporate all recommendations made by the consulting geotechnical engineer and engineering geologist.

Specifically, grading required at the bridge approach would utilize engineered (compacted) fill and all fill slopes would be required to be benched and keyed into the native slopes. Lateral surface drains are required to be placed in the area between cut and fill slopes to ensure that the slopes drain properly and remain stable. A lined ditch would be placed at the top of any cut slope to intercept surface run-off and prevent it from flowing over the face of the slope. All slopes would be revegetated and covered with an erosion control blanket or similar measures until the vegetation can establish.

In addition to the implementation of these measures, all recommendations made by consulting aquatic biologists will be incorporated as conditions of project approval. These measures include the placement of silt fences across the flowing creek channel to capture suspended sediment, the protection of all existing vegetation adjacent to stream banks, restricting all project activities in proximity of the stream channel from between August 1st and October 15th, and requiring the erosion control plan to be reviewed and approved by the consulting biologist prior to the issuance of any building

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

or grading permits.

Additionally, all erosion control practices will be inspected, repaired, and maintained prior to and after any storm event during the construction period. These measures will ensure that no significant impacts result from development activities in proximity to steep slopes.

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

Discussion: Some potential for erosion exists during the construction phase of the project. In addition to the measures discussed in A-3, additional erosion control measures are a required condition of the project for all areas of development that entail ground disturbance. Prior to approval of any grading or building permit, the project must have an approved Erosion Control Plan, which will specify detailed erosion and sedimentation measures as required by Section 16.22.060 of the Santa Cruz county Code. In addition, the project as proposed includes measures that would stabilize existing erosion problems, which have been identified along the inboard side of the access road (Old Timber Drive). These drainage improvements include the installation vegetated swales along the road and adjacent to the replacement bridge, where no drainage facilities currently exist.

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

Discussion: According to the geotechnical report for the project (Attachment 4) the expansion potential of the soils supporting the improvements on this site may be considered very low. The recommendations contained in the geotechnical report, expansion testing to evaluate the expansivity of material proposed for imported fill, shall be implemented to adequately reduce this potential hazard to a less than significant level.

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

Discussion: The proposed project would use an onsite sewage disposal system, and County Environmental Health Services has determined that site conditions are appropriate to support such a system.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
7. Result in coastal cliff erosion?	☐	☐	☐	☒

Discussion: The proposed project is not located in the vicinity of a coastal cliff or bluff; and therefore, would not contribute to coastal cliff erosion.

B. HYDROLOGY, WATER SUPPLY, AND WATER QUALITY

Would the project:

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

Discussion: According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, no portion of the project site lies within a 100-year flood hazard area. However, the project includes the construction of a replacement bridge where a culverted crossing currently exists. Therefore a hydraulic analysis was performed by the project geotechnical engineer (Attachment 4). The results of the analysis indicate that the 100 year water surface elevation for the creek section beneath the bridge occurs at approximately 6 feet above the stream bed at a height of 71.52 feet above mean sea level.

The re-designed rail car bridge will be constructed so that the bottom of the lowest rail car girder is a minimum of one foot above the 100-year water surface elevation. A condition of project approval will require a Flood Elevation Certificate be submitted verifying the final bridge elevation prior to building permit final. Therefore the proposed development would not have a significant impact on the 100-year flood hazard area.

2. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐

Discussion: According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, no portion of the project site lies within a 100-year flood hazard area. See the discussion under B-1 above.

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

Discussion:

The subject site is located more than two and a half miles from the coast; therefore no impact is expected to occur.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
4. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐

Discussion: The project site is located within a mapped primary groundwater recharge area and utilizes private well water. The proposed uses consist of two dwellings, several nonhabitable accessory structures and the boarding of no more than 8 horses on the property at any one time. No commercial uses are proposed for the property and the site is not open to the public. Calculations of project water uses for the horses on the site, including dust control of the horse arena, is currently approximately 78 gallons per day (yearly average) and would not exceed 126 gallons per day (yearly average) for the maximum eight horses allowed to be kept on site. Therefore, the expected water usage for the proposed horse boarding is approximately 1/3 of the water use for an average American household (EPA website).

Additionally, the amount of proposed impervious surface to be recognized and/or proposed represents approximately 0.1% of the total area of the parcel, allowing the vast majority of the stormwater runoff on the site to recharge. Drainage calculations indicate that the post-development runoff rates would not exceed those of pre-development rates. No other water use or diversion is proposed, therefore the proposal would not result in any significant impacts to groundwater supplies or recharge.

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

Discussion: The project would not discharge runoff either directly or indirectly into a public or private water supply. However, runoff from this project may contain small amounts of chemicals and other household contaminants. No commercial or industrial activities are proposed that would contribute contaminants. In order to protect the stream from the temporary construction operations associated with the bridge construction the applicant has included the following measures:

a) Require any equipment or vehicles operated within or adjacent to the stream to be checked and maintained daily to prevent leaks of oil, grease, or other deleterious substances.

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

b) All mechanized equipment working in the stream channel or within 25 feet of the channel will have a double-containment system for diesel and oil fluids, and vegetable-oil-based hydraulic fluids will be used in equipment operated near the stream channel.

c) Fuel will be stored in a container with an impermeable membrane and all refueling or equipment maintenance will be accomplished in the staging area away from the creek to prevent fuel spillage.

d) National Marine Fisheries Service will be required to be notified promptly of any spill of one gallon or more at the project site.

e) All concrete structures will be isolated from the flowing stream until fully cured.

In accordance with the County Erosion Control Ordinance (Chapter 16.22), potential siltation from the proposed project would be addressed through the implementation of the following erosion control measures:

a) Erosion control and sedimentation detention devices will be implemented at the time of construction. These devices will be in place during and after construction activities for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and of detaining sediment-laden later on site. The devices will be properly installed where the likelihood of sediment input exists.

b) At least 125 percent of the necessary erosion and water pollution control materials will be available on-site at all times during project construction.

c) All erosion control practices will be inspected, repaired, and maintained prior to and after any storm event during the construction period. Inspections will occur at 24-hour intervals during extended storm events, and/or a minimum of ever7y two weeks during the winter after bridge construction.

d) Erosion control measures will be utilized in order to prevent streambank erosion after the project is completed. Excavated areas will not be filled with gravels with less than a 0.5-inch diameter.

e) During the rainy season (October 15th through April 15th) all inactive areas will have all the necessary soil stabilization practices put in place before a rain event and two days after a period of inactivity (defined as 5 days) have elapsed.

f) Throughout the rainy season soil-disturbed areas of the project site will not exceed 50 square feet in size.

Currently, four horses are kept on the project site. The project includes boarding of up to eight horses on the property. The associated equestrian facilities, including arena, paddocks, and stalls, are located outside of the riparian corridor. According to the Water Sampling Report (Attachment 8) nitrate samples were collected 100 feet upstream of the Old Timber Drive crossing and 30 feet upstream of the Majors/Cojo stream confluence. The results indicate nitrate levels well under the California State

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

Drinking Water Limits.

A Manure Management Plan was prepared and submitted to Environmental Health Services for review and approval. The large bunker proposed to accommodate the anticipated amount of manure was reviewed by Environmental Health Services staff. Project conditions of approval require daily cleaning of horse stalls and paddocks, with manure and bedding gathered every two days and carried to the designated storage area. The manure storage area is several hundred feet away from the residence and riparian areas of the site in order avoid any potential contamination.

Horse manure would be removed from the site weekly and sent to Watsonville, where it is composted and used as fertilizer as a part of the Buena Vista Landfill Organic Material Exchange Program. Additionally, horse access to areas near waterways is restricted. Horses are kept in fenced areas and not allowed to drink at the creek.

As shown on the Landscape Plan (Attachment 2), the riparian area would be revegetated following the construction of the replacement bridge. The revegetation would include erosion control seeding throughout the entire construction area, will willow pole cuttings to be placed 3 inches on center within the stream channel. Additional riparian plant species will be planted further up the stream bank. The project includes monitoring of the revegetation areas during the summer and fall in the year following plant installation. All plants installed shall be counted and monitored for survival, with photo-documentation used to record the progress of the revegetation. Data from site visits performed by the consulting biologist shall be incorporated into an annual; monitoring report and submitted to the County at the end of the first year of monitoring. The report shall state whether the project revegetation has been successful and any remedial measures required, with success criteria consisting of 80% survival of container stock, 80% survival of willow cuttings and an absence of evidence of rilling or erosion along the creek bank.

The proposed protective measures would ensure that the project does not significantly impact the water quality of the nearby riparian system.

6.	Degrade septic system functioning?	☐	☐	☒	☐

Discussion: There is no indication that existing septic systems in the vicinity would be affected by the project. The project has received preliminary site approval by the Environmental Health Services for a replacement mobile home on the site.

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

Discussion: The proposal includes the construction of a replacement bridge at the Old

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

Timber Drive crossing, which entails temporary dewatering of the channel. In order to minimize sediment transport downstream of the project site, prior to removal of the old culvert and after the removal and relocation of fish, the project area will be isolated from the flowing stream and dewatered with cofferdams placed upstream and downstream of the construction area, with streamflow diverted through a culvert. The consulting Certified Fishery Biologist, Donald W. Alley has provided additional Specific Impact Measures (Sheet B1, Attachment 2) for each phase of bridge replacement and these measures would be incorporated into required conditions of project approval.

According to Tharp & Associates (Attachment 4) the replacement of the existing culvert system with a flat car bridge will slightly lower the base flood elevation due to the elimination of existing channel constriction.

Proposed work in the stream channel will be restricted to the dry/low flow season and is expected to take no more than two weeks. The majority of the construction of the replacement rail car bridge will occur from the top of the stream bank. The temporary channel disturbance will be performed under the authority of a California Department Fish and Game Stream Alteration Permit.

A letter submitted by D.W. Alley & Associates, dated April2, 2009, states that a survey of Cojo Creek was performed on October 21, 2008 for the purpose of determining whether any water diversion from the creek. The fisheries consultant found no evidence of past or present water diversion from the stream channel or of piping upslope to the extent of Cojo and Majors Creeks on the subject property.

According to Drainage Calculations submitted by Robert L. DeWitt, dated April14, 2008, the proposed impervious coverage represented b y the project is less than 0.1% of the total site area and the drainage "can reasonably be expected to infiltrate downslope of the proposed and existing structures with no adverse effects on an7y adjoining lands."

A siltation basin would be constructed adjacent to the existing roadway prior to the creek crossing, so that silt and gravel fines can be prevented from entering the creek.

The project would therefore represent an improvement over the existing creek crossing and lack of drainage facilities that currently characterize the site. Implementation of all required project conditions will ensure that the proposal does not significantly impact the existing drainage system or riparian corridor.

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

Discussion: Drainage Calculations prepared by Robert L. DeWitt and Associates, Inc. dated April 14, 2008 have been reviewed for potential drainage impacts and accepted by the Department of Public Works (DPW) Drainage Section staff. The calculations show that the increase in runoff due to the relatively small degree of development relative to the 152-acre parcel size is fairly negligible. See B-7 for a discussion of

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

drainage issues relative to the proposed bridge replacement.

DPW staff has determined that the proposed drainage improvements are adequate to handle the increase in drainage associated with the project. Refer to response B-5 for discussion of urban contaminants and/or other polluting runoff.

9. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐

Discussion: Refer to Section B-8.

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

Discussion: Refer to Section B-5.

C. BIOLOGICAL RESOURCES

Would the project:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Discussion: Two Biotic Reports were prepared for this project to address potential impacts to aquatic species associated with the streams in the vicinity of existing and proposed development. A California Red-Legged Frog Preliminary Site Assessment was prepared by Bryan M. Mori, dated November 13, 2008 (Attachment 11). This report has been reviewed and accepted by the Planning Department Environmental Section (Attachment 10). No California red-legged frog (CRF) individuals were observed during the assessment; however potential habitat exists on the site. Recommendations made in the CRF assessment include a pre-construction survey performed by a qualified biologist within 48 hours of the project start date, a worker's education seminar to the construction crew prior to the start of the project, vegetation removal within the riparian corridor to be performed under the oversight of the qualified biological monitor, and a prohibition against the operation of any heavy equipment within the stream channel.

A Cojo Creek Aquatic Assessment was performed by D.W. Alley & Associated, dated November 13, 2008 to assess the potential impact of the proposed culvert removal and bridge construction at Old Timber Drive on fishery resources. The Aquatic Assessment

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

focused primarily on impacts to rainbow trout that are known to inhabit Cojo Creek. Recommendations made in the Aquatic Assessment and incorporated into the condition of project approval include the placement of block nets upstream and downstream of the existing culvert in order to remove and relocate fish to undisturbed habitat upstream. Additionally, a biological monitor will be present to assist the construction crew during the removal of the old culvert and placement of the new flat car bridge and a series of three silt fences are to be constructed across the flowing channel within 100 feet downstream of the bridge site in order to capture suspended sediment. Protective fencing will not be allowed to impact riparian vegetation and all trash will be properly contained. A qualified fisheries biologist will be hired for the purposes of education, monitoring and removing and relocating salmonids from Cojo Creek.

The implementation of all required recommendations from both the CRF and fish resource biological consultants would reduce any potential impact to aquatic species and habitat resources to a less than significant level.

2.	Have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations (e.g., wetland, native grassland, special forests, intertidal zone, etc.) or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Discussion: See discussions under B-7 and C-1.

3.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native or migratory wildlife nursery sites?	☐	☐	☒	☐

Discussion: The proposed bridge replacement will temporarily alter the movement of native fish species in Cojo Creek. As discussed in B-2 above, consulting biologists have performed site assessments and evaluated the potential impact of the proposed development on aquatic species associated with Cojo Creek. Additionally, the proposed work in the stream channel will be restricted to between August 1st and October 25th so as to have the least impact to fish migration and breeding cycles. Additional required project conditions are included in the Project Plans (Sheet B-1 of Attachment 2) and include a requirement that the fisheries biologist implementing the fish relocation measures have a minimum of three years field experience with electrofishing techniques and possess a valid State of California Scientific Collection

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

Permit as issued by the California Department of fish & Game.

All recommendations have been incorporated into project conditions and would reduce any potential impact to the migration of fish species to a less than significant level.

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

Discussion: The development area is adjacent to a riparian corridor, which could be adversely affected by a new or additional source of light that is not adequately deflected or minimized. The following measures have been incorporated into required conditions of approval: All exterior lighting shall be directed away from the corridor and adjacent properties, light sources shall not be visible from the riparian area or surrounding properties, light sources must be shielded by landscaping, fixture design or other physical means, lighted parking areas shall utilize low-rise light standards to a maximum height of 15 feet, exterior lighting shall be high-pressure sodium vapor, metal halide, fluorescent, or equivalent energy-efficient fixtures.

5. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

Discussion: See the discussion regarding riparian resources in Section B-7, C-1, C-3 and C-4.

6. Conflict with any local policies or ordinances protecting biological resources (such as the Sensitive Habitat Ordinance, Riparian and Wetland Protection Ordinance, and the Significant Tree Protection Ordinance)?	☐	☐	☒	☐

Discussion: The project would not conflict with any local policies or ordinances in that a Riparian Exception is required for the removal of the culvert and installation of the replacement flat car bridge at the Old Timber Drive creek crossing. The proposed development complies with the mandatory findings to support a Riparian Exception and conditions of project approval require adequate monitoring, restoration and revegetation of the corridor, as shown on Sheets L2.0 and L3.0 of the Project Plans prepared by Environmental Planning & Design and Biotic Resources Group (Attachment 2).

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
7. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion: The proposed project would not conflict with the provisions of any adopted Habitat Conservation Plan Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

D. AGRICULTURE AND FOREST RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

Discussion: The project site does not contain any lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. In addition, the project does not contain Farmland of Local Importance. Therefore, no Prime Farmland, Unique Farmland, Farmland of Statewide or Farmland of Local Importance would be converted to a non-agricultural use. No impact would occur from project implementation.

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

Discussion: The project site is zoned Timber Production (TP), which is not considered to be an agricultural zone. See Section D-3 for a discussion on timber resources. The project site's land is not under a Williamson Act Contract. Therefore, the project does

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

not conflict with existing zoning for agricultural use, or a Williamson Act Contract. No impact is anticipated.

3.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☒	☐

Discussion: The project is zoned for Timber Production and timber harvests have historically occurred on the site. A Forester's Report on Timber Production Zoning Issues and Timber Management Plan was prepared by Staub Forestry and Environmental Consulting, dated November 11, 2008 (Attachment 14). The timber assessment found no adverse impacts on timber production or timber management from the proposed development, including the proposed bridge and horse and accessory structure development. Specifically, the review found that the areas of development contained primarily oaks with grass and herbaceous surface vegetation. The proposed development would designate an existing large clearing to be used as a turnaround for log loading and other timber production purposes. Further, a condition of project approval states that timber resource may only be harvested in accordance with California Department of Forestry timber harvest rules and regulations. Therefore, the project, as proposed and conditioned, would not significantly impact timber resources.

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

Discussion: The Forster's Report referenced in Section D-3 concludes that the effective loss of productive timberland is less than ¾ acre, which represents, "...an insignificant amount on this large property with extensive forest resources." Project conditions require all recommendations made in the forester's report to be implemented, including consistency with the project forester's site map that shows the precise locations of existing redwood and douglas fir trees being retained next to proposed limits of grading at the shop site, covering bare soils in rooting areas, improving the existing access road for forest management and control of shrub and tree encroachment into the grassland habitat.

5.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest	☐	☐	☒	☐

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

land to non-forest use?

Discussion: The project site and surrounding area within radius of ½ mile does not contain any lands designated as Prime Farmland, Unique Farmland, Farmland of Statewide Importance or Farmland of Local Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. Therefore, no Prime Farmland, Unique Farmland, Farmland of Statewide, or Farmland of Local Importance would be converted to a non-agricultural use. As discussed in D-3 and D-4 above, the project site contains forest land. In addition to the project conditions discussed previously, an additional project condition requires any future changes to the approved development of this site to be evaluated by a qualified forester to ensure that the existing forest resources on site be protected from encroachment of non-forest development.

E. MINERAL RESOURCES

Would the project:

1.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

Discussion: The site does not contain any known mineral resources that would be of value to the region and the residents of the state. Therefore, no impact is anticipated from project implementation.

2.	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion: The project site is zoned Timber Production (TP), which is not considered to be an Extractive Use Zone (M-3) nor does it have a Land Use Designation with a Quarry Designation Overlay (Q) (County of Santa Cruz 1994). Therefore, no potentially significant loss of availability of a known mineral resource of locally important mineral resource recovery (extraction) site delineated on a local general plan, specific plan or other land use plan would occur as a result of this project.

F. VISUAL RESOURCES AND AESTHETICS

Would the project:

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

Discussion: Smith Grade is a scenic resource, as designated in the County's General Plan (1994). However, the areas of unpermitted and proposed development are not visible from Smith Grade. The only views of the project site that would be affected by the project are those from private property and County visual resource protection

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

regulations only apply to public viewsheds. Therefore the project would not significantly impact any public scenic resources.

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

Discussion: The project site is located along a County designated scenic road, however the distance between the development and road, the dense forest canopy and changes in topography prevent any of the existing or proposed development from being visible from the scenic resource area. Therefore, no impact is anticipated.

3.	Substantially degrade the existing visual character or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridgeline?	☐	☐	☒	☐

Discussion: The existing visual setting is a rural, densely forested hillside. The proposed project represents a small fraction of the 152-acre subject parcel and is clustered in two, relatively flat portions of the site. The development is not located on a ridgeline or other prominent landform and is is designed and landscaped so as to fit into this setting. Although a substantial amount of grading is proposed to be recognized and/or conducted, the grading has not substantially altered or degraded the visual character or quality of the site and surroundings relative to the overall expanse of the acreage.

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

Discussion: The project would contribute an incremental amount of night lighting to the visual environment. However, the following project conditions will reduce this potential impact to a less than significant level: All exterior lighting shall be directed away from the corridor and adjacent properties, light sources shall not be visible from the riparian area or surrounding properties, light sources must be shielded by landscaping, fixture design or other physical means, exterior lighting shall be high pressure sodium vapor, metal halide, fluorescent, or equivalent energy-efficient fixtures.

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

G. CULTURAL RESOURCES

Would the project:

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

Discussion: The existing structure(s) on the property is/are not designated as a historic resource on any federal, state or local inventory.

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

Discussion: According to the *Archeological Reconnaissance Survey Letter*, prepared by Archaeological Consulting, dated 8/31/2009, (Attachment 12), there is no evidence of pre-historic cultural resources. However, pursuant to Section 16.40.040 of the Santa Cruz County Code, if archeological resources are uncovered during construction, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in County Code Chapter 16.40.040.

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

Discussion: Pursuant to Section 16.40.040 of the Santa Cruz County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the sheriff-coroner and the Planning Director. If the coroner determines that the remains are not of recent origin, a full archeological report shall be prepared and representatives of the local Native California Indian group shall be contacted. Disturbance shall not resume until the significance of the archeological resource is determined and appropriate mitigations to preserve the resource on the site are established.

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

Discussion: No known paleontological resources or geologic features exist on the site.

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

H. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

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

Discussion: The project does not include any uses which would be expected to generate any hazardous materials. See B-5 for a discussion of project conditions related to temporary construction vehicles and equipment in the stream channel.

2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Discussion: See the discussion in H-1 above.

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

Discussion: See H-1. Additionally, the site is located more than two and one-half miles from the nearest school, Bonny Doon Elementary to the north.

4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐

Discussion: The project site is not included on the 9/3/10 list of hazardous sites in Santa Cruz County compiled pursuant to the specified code.

5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

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

Discussion: The closest airport, Bonny Doon Airport, is not a public use airport and is located approximately three miles to the north of the project site.

6.	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐

Discussion: The project site is located approximately three miles south of the nearest private airstrip, Bonny Doon Airport.

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

Discussion: The proposed residential development does not conflict with the County's adopted Emergency Management Plan (April 2002). Specific countywide evacuation routes are not designated in the Emergency Management Plan; rather feasible routes are determined based on particular events.

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

Discussion: The proposed residential development would not include the installation of electrical transmission lines; therefore there is no impact.

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

Discussion: The project design incorporates all applicable fire safety code requirements and includes fire protection devices as required by the local fire agency. The closest fire station is located within a 10 minute response time and a new fire hydrant and 20,000 gallon water tank are required conditions of project approval. Therefore the impact of the proposed residential development on wildland fire safety is less than significant.

EXHIBIT

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

I. TRANSPORTATION/TRAFFIC

Would the project:

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

Discussion: The project would create a small incremental increase in traffic on nearby roads and intersections. However, given the small number of new trips created by the project, this increase is less than significant. Further, the increase would not cause the Level of Service at any nearby intersection to drop below Level of Service D. The horse facilities are not open to the public.

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

Discussion: The proposed residential project does not impact air traffic patterns, therefore there is no impact.

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

Discussion: The proposed residential development includes widening of the main entrance off of Smith Grade and improves the existing line of sight entering and exiting the subject property. The setting is rural residential uses, with timber production and agricultural uses in the vicinity. Therefore, there are no increased hazards as a result of design features or incompatible uses.

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

Discussion: The project's road access meets County standards and has been approved by the California Department of Forestry. Old Timber Drive is proposed to be improved widened and the visibility from Smith Grade intersection will be greater than

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

the current configuration. The existing, substandard bridge at Cojo Creek will be replaced with a bridge that meets all County fire and building code standards.

The proposal does not include any work on the County-maintained road, Smith Grade.

5.	Cause an increase in parking demand which cannot be accommodated by existing parking facilities?	☐	☐	☒	☐

Discussion: The project meets the code requirements for the required number of parking spaces and therefore new parking demand would be accommodated on site.

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

Discussion: The proposed project would comply with current road requirements to prevent potential hazards to motorists, bicyclists, and/or pedestrians.

The replacement of the substandard bridge and widening of the access road will result in an improvement to the current hazards that exist and will bring the road and bridge into compliance with current County and fire design standards.

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

Discussion: See response I-1 above.

J. NOISE

Would the project result in:

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

Discussion: The project would create an incremental increase in the existing noise environment. However, this increase would be small, and would be similar in character to noise generated by the surrounding existing rural residential uses.

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

Discussion:

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

Discussion: Per County policy, average hourly noise levels shall not exceed the General Plan threshold of 50 L_{eq} during the day and 45 L_{eq} during the nighttime. Impulsive noise levels shall not exceed 65 db during the day or 60 db at night. The addition of several nonhabitable structures, horse facilities and a mobile home are not expected to significantly impact noise levels on the site. No commercial uses are included in the proposal.

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

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

5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion: The project is not located within an airport land use plan or within two miles of a public airport or public use airport.

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

Discussion: The project site is not located within the vicinity of a private airstrip.

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

K. AIR QUALITY

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

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

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

Given the modest amount of new traffic that would be generated by an additional residence there is no indication that new emissions of VOCs or NO_x would exceed MBUAPCD thresholds for these pollutants and therefore there would not be a significant contribution to an existing air quality violation.

Project construction may result in a short-term, localized decrease in air quality due to generation of dust. However, standard dust control best management practices, such as periodic watering, will be implemented during construction to reduce impacts to a less than significant level.

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

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

3.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐

Discussion: See section K-1.

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

Discussion: The proposed residential development is not expected to generate any significant concentration of pollutants.

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

Discussion: Although the storage of horses on the parcel could potentially create objectionable odors, a Manure Management Plan has been submitted for the project, which would reduce the potential impacts due to odor. Specifically, the plan includes provisions for cleaning the horse stalls and paddocks daily, and for transporting all manure offsite once a week. Additionally, given that the parcel is approximately 152 acres in size and that the nearest residence is approximately one-quarter mile from the equestrian area , the likelihood that odors will impact surrounding properties is low.

L. GREENHOUSE GAS EMISSIONS

Would the project:

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

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

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

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

M. PUBLIC SERVICES

Would the project:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☒	☐
d. Parks or other recreational activities?	☐	☐	☒	☐
e. Other public facilities; including the maintenance of roads?	☐	☐	☒	☐

***Discussion (a through e)*:** While the project represents an incremental contribution to the need for services, the increase would be minimal. Moreover, the project meets all of the standards and requirements identified by the local fire agency or California Department of Forestry, as applicable, and school, park, and transportation fees to be paid by the applicant would be used to offset the incremental increase in demand for school and recreational facilities and public roads.

N. RECREATION

Would the project:

1. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐

***Discussion*:** The project includes recognizing horse facilities, therefore providing on-site recreational opportunities. Therefore no increased use of neighborhood or regional park recreational facilities is expected.

2. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

***Discussion*:** The proposed horse facilities serve only the friends and families of the property owner; therefore no construction or expansion of recreational facilities is

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

anticipated.

O. UTILITIES AND SERVICE SYSTEMS

Would the project:

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

Discussion: Drainage analysis of the project conducted by Robert DeWitt (Attachment 7) states that the post-development runoff rates would not exceed pre-development rates. Department of Public Works Drainage staff have reviewed the drainage information and have determined that downstream storm facilities are adequate to handle the increase in drainage associated with the project.

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

Discussion: The project would rely on an individual well for water supply. Public water delivery facilities would not have to be expanded.

The project would be served by an on-site sewage disposal system, which would be adequate to accommodate the relatively light demands of the residential project.

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

Discussion: The project's wastewater flows would not violate any wastewater treatment standards. A Manure Management Plan has been provided which ensures that the animal waste will not negatively impact the water quality of the streams located on site (see B-8) for discussion of water quality issues. Environmental Health Services staff has issues a preliminary environmental health clearance to apply for an enhanced individual sewage disposal permit for the proposed mobile home. The proposed development is not anticipated to significantly impact wastewater treatment requirements.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
4. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐

Discussion: See O-2 above and B-4 for a discussion of groundwater impacts.

5. Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

Discussion: See O-2 above.

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

Discussion: The project would make a one-time contribution to the reduced capacity of regional landfills during construction and grading activities. However, the scope of the bridge replacement proposal is relatively small with respect to the expected amount of generated waste material. Additionally, the Manure Management Plan (Attachment 13) states that a maximum of eight horses will boarded at the site and will generate four 64-gallon carts of manure per week. The manure would be transported to the Buena Vista Landfill, where it is accepted for composting. In that the compost is made available to other users, the impact of the transport of horse manure is not expected to significantly impact the capacity of the landfill.

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

Discussion: Solid waste accumulation is anticipated to increase slightly as a result of the new uses that would occur in conjunction with the proposed residential development. However, trash accumulation from the additional dwelling and nonhabitable structures would be modest and is not anticipated to result in a breach of federal, state or local statutes and regulations. Issues related to the equestrian facilities and manure management plan are discussed in Section O-6.

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

P. LAND USE AND PLANNING

Would the project:

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

Discussion: A Riparian Exception would be required for the construction of the removal of the existing culvert and construction of a replacement rail car bridge at the Old Timber Drive Cojo Creek crossing. Under Chapter 16.30.060(d) of the County Code, specific findings must be made in order to allow a Riparian Exception. These findings, as specified in Chapter 16.32 of the County Code can be made in that the existing stream crossing is inadequate, the replacement of the culvert is necessary for the proper functioning of the stream crossing, the granting of the exception will not be injurious to downstream property, the riparian corridor will not be adversely impacted and the exception conforms to the purpose of the Riparian Corridor and Wetland Protection Ordinance.

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

Discussion: No adopted Habitat Conservation Plan (HCP) or natural community conservation plan (NCCP) occurs within the project area.

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

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

Q. POPULATION AND HOUSING

Would the project:

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

Discussion: The proposed project would not induce substantial population growth in an area because the project does not propose any physical or regulatory change that

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

would remove a restriction to or encourage population growth in an area including, but limited to the following: new or extended infrastructure or public facilities; new commercial or industrial facilities; large-scale residential development; accelerated conversion of homes to commercial or multi-family use; or regulatory changes including General Plan amendments, specific plan amendments, zone reclassifications, sewer or water annexations; or LAFCO annexation actions.

The proposed project is designed at the density and intensity of development allowed by the General Plan and zoning designations for the parcel. Additionally, the project does not involve extensions of utilities (e.g., water, sewer, or new road systems) into areas previously not served. Consequently, it is not expected to have a significant growth-inducing effect.

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

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

Discussion: The proposed project would not displace any existing housing since the site would result in an additional unit.

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

Discussion: The proposed project would not displace a substantial number of people as no housing stock is being eliminated as a result of the project.

R. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Discussion: The potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory were considered in the response to each question in Section III of this Initial Study. Resources that have been evaluated as significant would be potentially impacted by the project, particularly riparian and aquatic resources. As a result of this evaluation, with the incorporation of the identified mitigation measures, there is no substantial evidence that significant effects associated with this project would result. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
2. Does the project have impacts that are individually limited, but cumulatively considerable? ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐

Discussion: In addition to project specific impacts, this evaluation considered the projects potential for incremental effects that are cumulatively considerable. As a result of this evaluation, there were determined to be no potentially significant cumulative effects

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

Discussion: In the evaluation of environmental impacts in this Initial Study, the potential for adverse direct or indirect impacts to human beings were considered in the response to specific questions in Section III. As a result of this evaluation, there were determined to be no potentially significant effects to human beings. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

IV. TECHNICAL REVIEW CHECKLIST

	REQUIRED	DATE COMPLETED
Agricultural Policy Advisory Commission (APAC) Review	Yes ☐ No ☒	
Archaeological Review	Yes ☒ No ☐	8/2009
Biotic Report/Assessment	Yes ☒ No ☐	11/2009
Geologic Hazards Assessment (GHA)	Yes ☐ No ☒	
Geologic Report	Yes ☒ No ☐	11/2008
Geotechnical (Soils) Report	Yes ☒ No ☐	11/2008
Riparian Pre-Site	Yes ☐ No ☒	
Septic Lot Check	Yes ☒ No ☐	4/2008
Other: (Timber Assessment)	Yes ☒ No ☐	11/2008

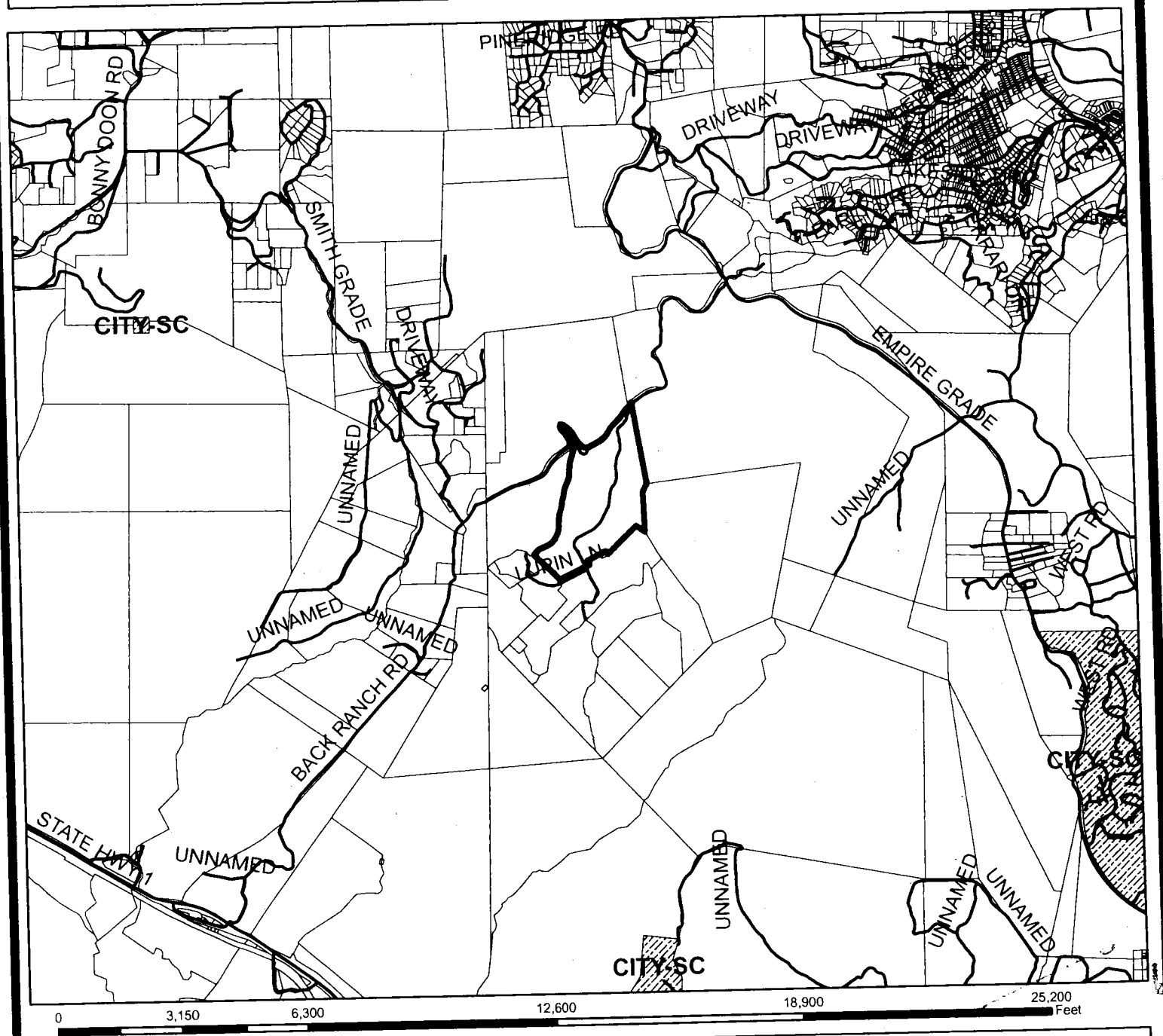
V. REFERENCES USED IN THE COMPLETION OF THIS ENVIRONMENTAL REVIEW INITIAL STUDY

County of Santa Cruz 1994.
1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. Adopted by the Board of Supervisors on May 24, 1994, and certified by the California Coastal Commission on December 15, 1994.

VI. ATTACHMENTS

1. *Vicinity Map, Map of Zoning Districts; Map of General Plan Designations; and Assessors Parcel Map.*
2. *Project Plans* prepared by Robert L. DeWitt & Associates, last revised 3/1/2010, Morris Engineering, dated 1/15/2010, Quilici Engineers, Inc., dated 5/14/2009, Terri L.N. Fisher, Architect, dated 2/15/2010,
3. *Preliminary Geologic Hazards Investigation (Report Summary, Conclusions, Recommendations, Map & Cross Sections)*, prepared by Nolan Associates, dated November 8, 2008, addendum October 23, 2009
4. *Geotechnical Investigation (Conclusions and Recommendations)*, prepared by Tharp & Associates, Inc. dated January 1999 (bridge), March 2008 (accessory structures and retaining walls, addendum dated November 3, 2008
5. *Geologic Review Letter*, prepared by Joe Hanna, County geologist, dated June 15, 2010
6. *Discretionary Application Comments*
7. *Drainage Report and Calculations*, prepared by Robert L. DeWitt, dated April 14, 2008, April 22, 2009, and March 1, 2010
8. *Water Sampling Report,* prepared by Water Sampling Services, dated May 13, 2009
9. *Aquatic Assessment*, prepared by D.W. Alley, dated November 13, 2008, and April 2, 2009.
10. *California Red-Legged Frog Preliminary Site Assessment*, prepared by <Bryan M. Mori, dated November 13, 2008
11. *Biotic Assessment Review,* prepared by Santa Cruz County Planning Department, dated March 23, 2009
12. *Archeological Reconnaissance Survey Letter*, prepared by Archaeological Consulting, dated 8/31/2009
13. *Manure Management Plan,* prepared by Patrizia Materassi, revised 3/4/2010
14. *Forester's Report on Timber Production Issues,* prepared by Stephen R. Staub, dated April 14, 2008, updated November 18, 2008.

Location Map



LEGEND

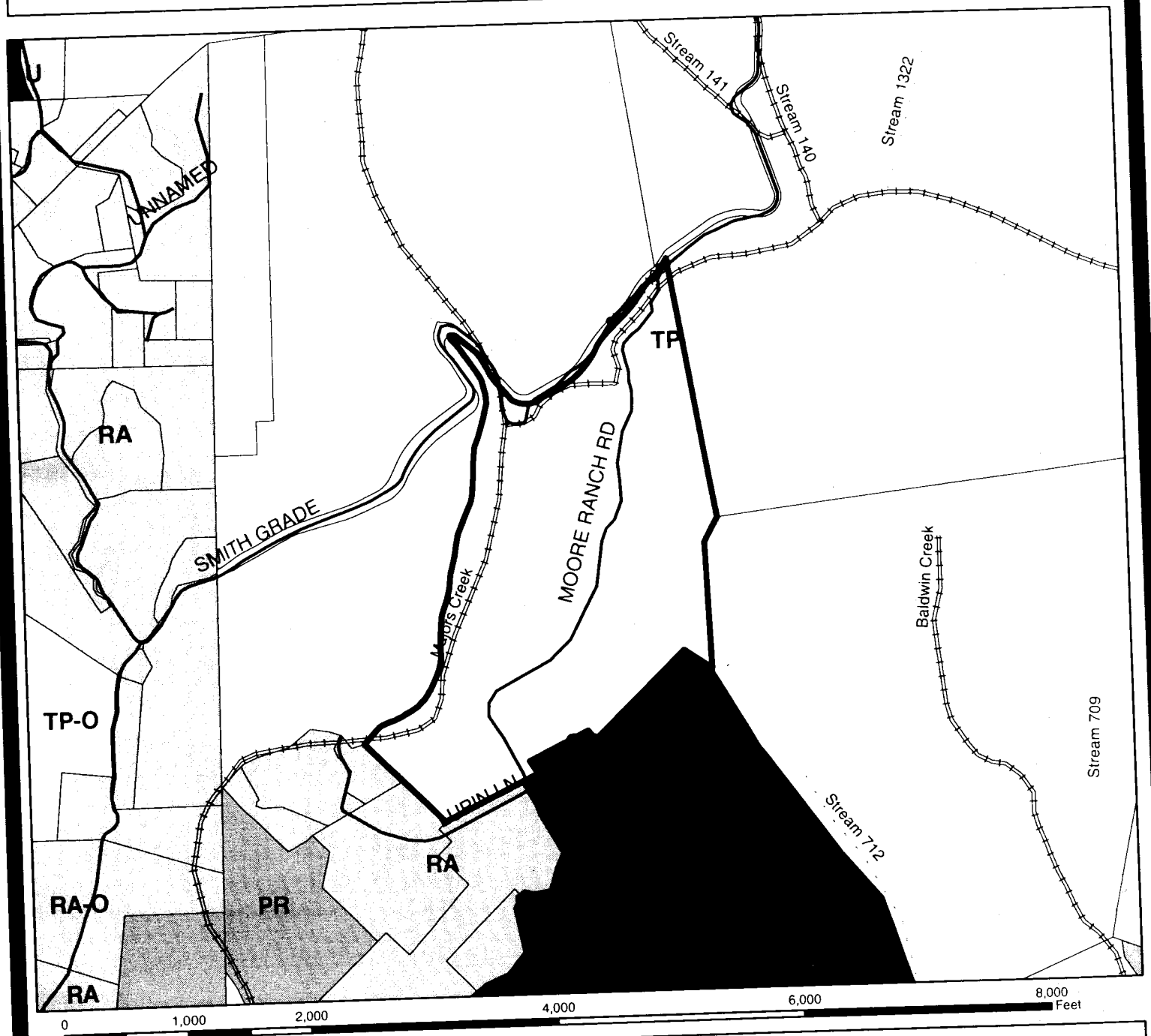
- APN: 062-251-01
- Assessors Parcels
- Streets
- SANTA CRUZ

N
W E
S

Map Created by
County of Santa Cruz
Planning Department
April 2008

ATTACHMENT 1

Zoning Map



LEGEND

- APN: 062-251-01
- Assessors Parcels
- Streets

STREAMTYPE

- PERENNIAL
- INTERMITTENT
- TIMBER PRODUCTION
- AGRICULTURE RESIDENTIAL
- PARK
- SPECIAL USE

N
W E
S

Map Created by
County of Santa Cruz
Planning Department
April 2008

ATTACHMENT 1

General Plan Designation Map

LEGEND

- APN: 062-251-01
- Assessors Parcels
- Streets

STREAMTYPE

- PERENNIAL
- INTERMITTENT
- Residential-Mountain
- Agriculture
- Parks and Recreation
- Residential-Rural

N
W E
S

Map Created by
County of Santa Cruz
Planning Department
April 2008

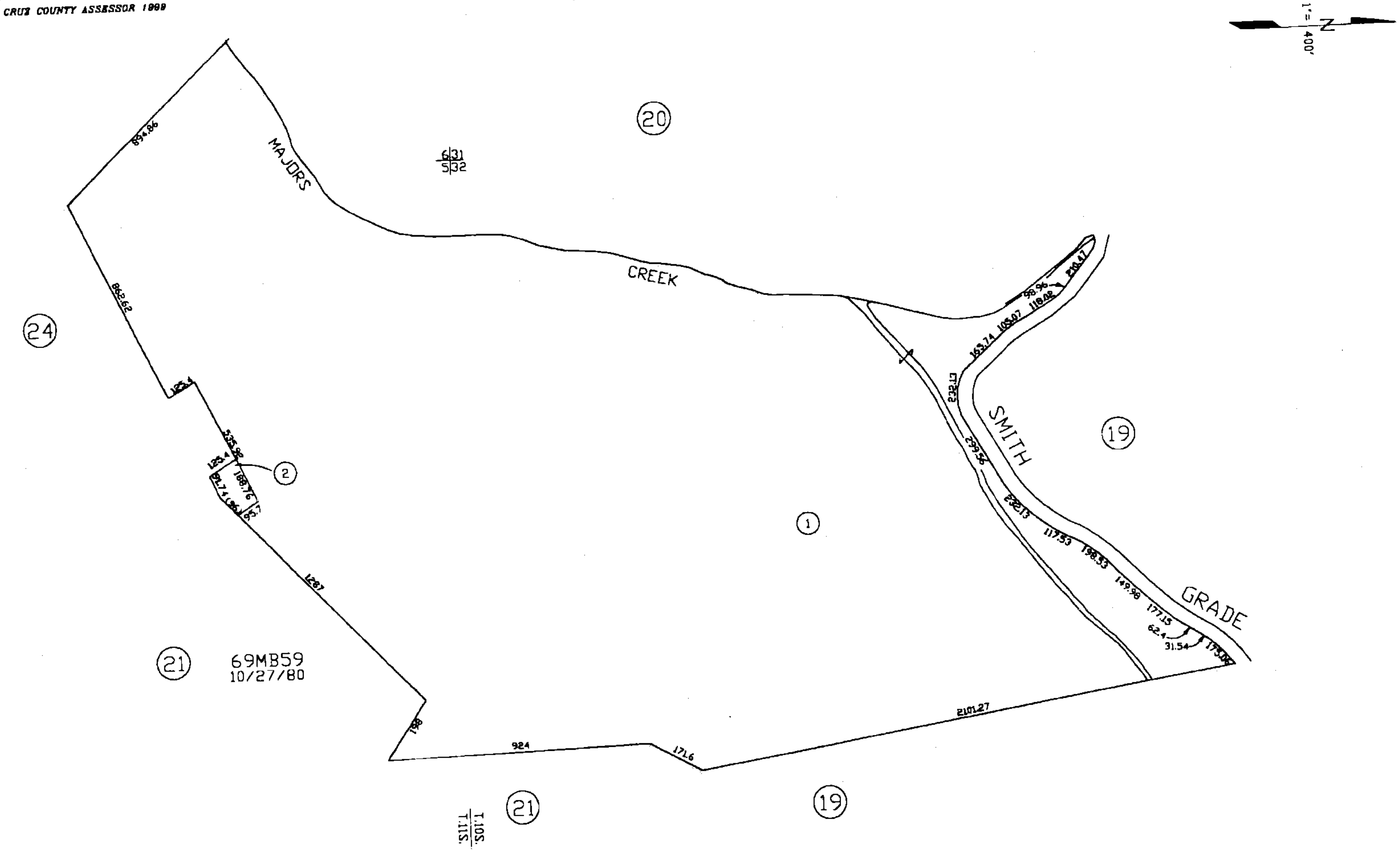
EXHIBIT D
ATTACHMENT 1

FOR TAX PURPOSES ONLY

POR. REFUGIO RANCHO
SECS. 31 & 32, T.10S., & SECS. 5 & 6,
T.11S., R.2W., M.D.B. & M.

Tax Area Code
58-001

62-25



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

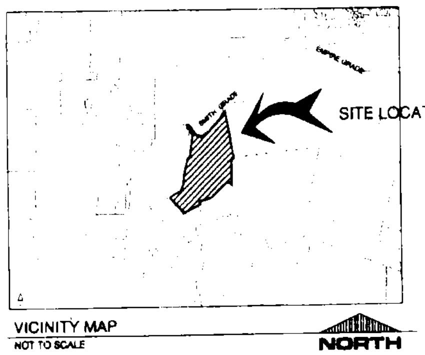
Assessor's Map No. 62-25
County of Santa Cruz, Calif.
Oct. 1999

Electronically Redrawn 10/7/99 kb
Rev 10/7/99 kb (Por of pg 62-20)
Rev 7/10/01 nvn (changed page refs.)

EXHIBIT D
ATTACHMENT 1

DRAEGER PROPERTY

APN: 062-251-01
831 Smith Grade
Santa Cruz County, CA

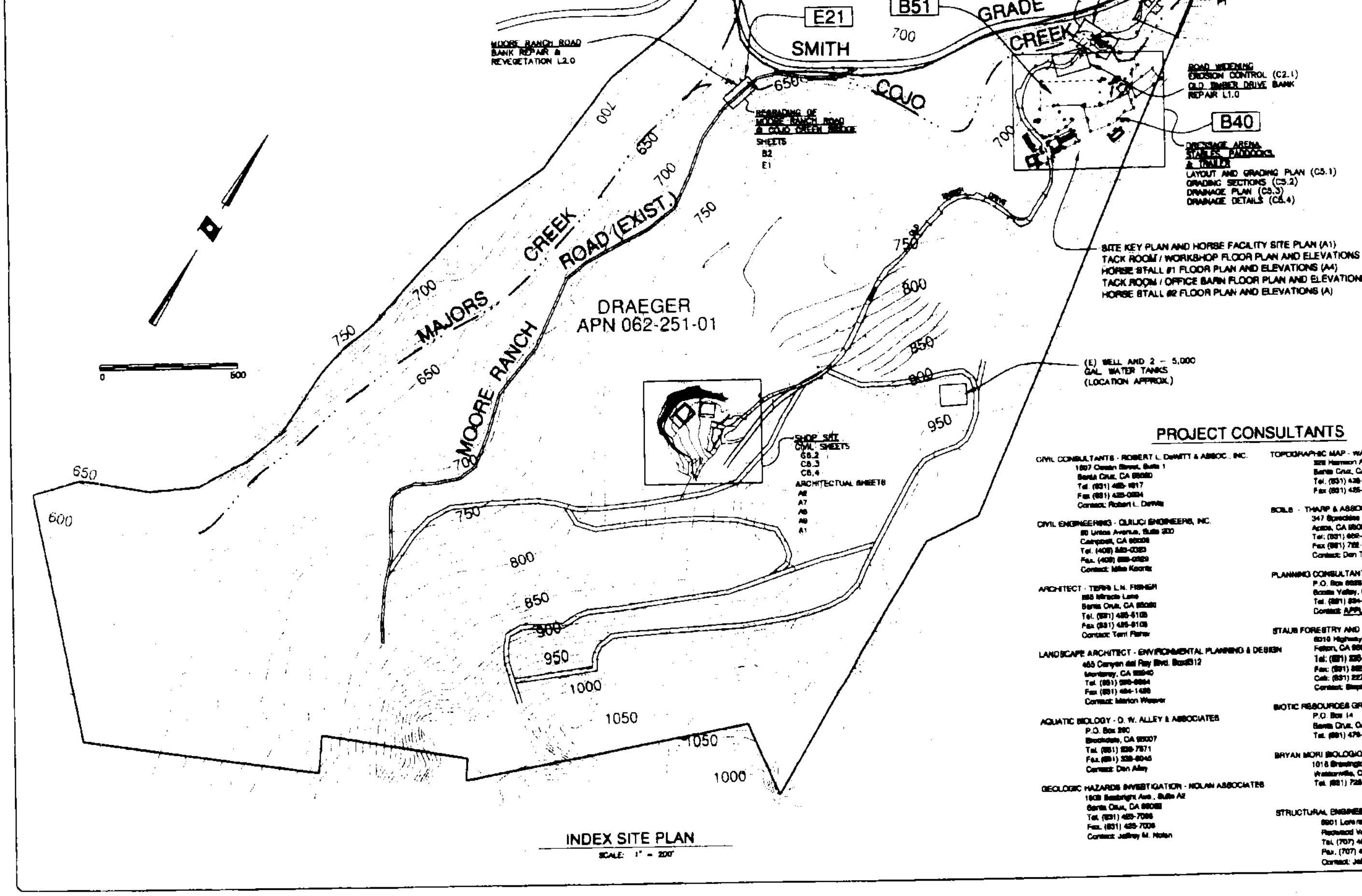


SUMMARY OF GRADING QUANTITIES.

SHEET	CUT	FILL	
P1	0 CU YDS	35 CU YDS	
E1	0 CU YDS	60 CU YDS	
C2.1	1 CU YDS	0 CU YDS	
C5.2	1,024 CU YDS	3,[illegible] CU YDS	
C8.2	1,234 CU YDS	3,200 CU YDS	(INTERIM GRADING)
C8.4	100 CU YDS	16 CU YDS	(FINAL GRADING)
TOTAL	2,3[illegible] CU YDS	7,20[illegible] CU YDS	

NET TOTAL = 4,[illegible]50 CU YDS (FILL)

NOTE:
E21, B40, B51, & E20 REPRESENT VIOLATIONS IDENTIFIED BY THE COUNTY OF SANTA CRUZ PLANNING DEPARTMENT. SEE SHEET T2 FOR CODE COMPLIANCE.



INDEX SITE PLAN

SCALE: 1" = 200'

PARCEL DATA:

OWNER:
John Draeger — 831 Smith Grade, Santa Cruz, CA 95060

APPLICANT'S REPRESENTATIVE:
Patrizia Materassi — SUSTAINABLE DEVELOPMENT & PLANNING, P.O. Box 66287, Scotts Valley, CA 95067, 831-334-2383

PARCEL CHARACTERISTICS:

- Zoning: TP
- General Plan: Mountain Residential
- Coastal Zone: Yes
- Estimated Acreage: 152.568 AC. (County GIS)
- Lot coverage: 5,390 S.F. (buildings and structures) < 0.1%

SHEET INDEX

Robert L. DeWitt & Assoc.

T1	PRELIMINARY SITE PLAN
T2	CODE COMPLIANCE DOCUMENTS
P1	DRIVEWAY ENTRY IMPROVEMENT PLAN
E1	BRIDGE REPLACEMENT EROSION CONTROL PLAN
B1	BIOLOGIST NOTES, WATER QUALITY NOTES AND DETAIL

Morris Engineering

B2	BRIDGE REPLACEMENT PLANS

Quilici Engineering

CO.2	SITE NOTES
C2.1	EROSION CONTROL AT ROAD WIDENING
C4.1	REGRADING OF MOORE RANCH ROAD AT COJO CREEK BRIDGE
C5.1	HORSE FACILITY LAYOUT AND GRADING PLAN
C5.2	HORSE FACILITY CUT AND FILL SECTIONS
C5.3	HORSE FACILITY DRAINAGE PLAN
C5.4	DETAILS AND SECTIONS
C8.1	INTERIM ESTIMATED SHOP SITE PRIOR TO FILL
C8.2	INTERIM ESTIMATED SHOP SITE PRIOR TO FILL, CUT & FILL SECTIONS
C8.3	FINAL EXISTING AND PROPOSED SHOP SITE GRADING & RETAINING WALL PLAN
C8.4	FINAL EXISTING AND PROPOSED SHOP SITE CUT & FILL SECTIONS
C8.5	SHOP SITE EROSION CONTROL AND DRAINAGE PLAN
C8.6	SHOP SITE DRAINAGE DETAILS

Terri L.N. Fisher

A1	SITE KEY PLAN AND HORSE FACILITY SITE PLAN
A2	SHOP SITE PLAN AND MANURE BUNKER LOCATION
A3	TACK ROOM / WORKSHOP FLOOR PLAN AND ELEVATIONS
A4	HORSE STALL #1 FLOOR PLAN AND ELEVATIONS
A5	TACK ROOM/OFFICE BARN FLOOR PLAN AND ELEVATIONS
A6	HORSE STALL #2 FLOOR PLAN AND ELEVATIONS
A7	PROPOSED EQUIPMENT STORAGE FLOOR PLAN
A8	PROPOSED EQUIPMENT STORAGE ELEVATIONS
A9	PROPOSED WORKSHOP / OFFICE FLOOR PLAN
A10	PROPOSED WORKSHOP / OFFICE ELEVATIONS
A11	PROPOSED MANURE BUNKER FLOOR PLAN, CROSS SECTION AND DETAILS
A12	PROPOSED MANURE BUNKER ELEVATION / ROOF PLAN

Environmental Planning & Design

L1.0	OLD TIMBER DRIVE BANK REPAIR
L1.1	SUPPORTING PHOTOGRAPHS
L2.0	MOORE RANCH ROAD BANK REPAIR & REVEGETATION
L2.1	SUPPORTING PHOTOGRAPHS

Biotic Resources Group

L3.0	BRIDGE REPLACEMENT REVEGETATION PLAN

PROJECT CONSULTANTS

CIVIL CONSULTANTS - ROBERT L. DeWITT & ASSOC., INC.
1607 Ocean Street, Suite 1
Santa Cruz, CA 95060
Tel. (831) 425-1617
Fax (831) 425-0224
Contact: Robert L. DeWitt

CIVIL ENGINEERING - QUILICI ENGINEERS, INC.
80 Union Avenue, Suite 200
Campbell, CA 95008
Tel. (408) [illegible]
Fax. (408) [illegible]
Contact: Mike Koontz

ARCHITECT - TERRI L.N. FISHER
[illegible] Miracle Lane
Santa Cruz, CA 95060
Tel. (831) 425-8105
Fax (831) 425-8105
Contact: Terri Fisher

LANDSCAPE ARCHITECT - ENVIRONMENTAL PLANNING & DESIGN
465 Canyon del Rey Blvd. Box 612
Monterey, CA 93940
Tel. (831) [illegible]
Fax (831) 484-1426
Contact: Marion Weaver

AQUATIC BIOLOGY - D. W. ALLEY & ASSOCIATES
P.O. Box 200
Brookdale, CA 95007
Tel. (831) 338-7971
Fax (831) 338-6045
Contact: Don Alley

GEOLOGIC HAZARDS INVESTIGATION - NOLAN ASSOCIATES
1509 Seabright Ave., Suite A2
Santa Cruz, CA 95062
Tel. (831) 425-7008
Fax. (831) 425-7008
Contact: Jeffrey M. Nolan

TOPOGRAPHIC MAP - WARD SURVEYING
325 Harrison Avenue
Santa Cruz, CA 95062
Tel. (831) 426-[illegible]
Fax (831) 425-[illegible]

SOILS - THARP & ASSOCIATES, INC.
347 Spreckles Drive
Aptos, CA 95003
Tel: (831) 662-8590
Fax (831) 722-1139
Contact: Dan Tharp

PLANNING CONSULTANT - SUSTAINABLE DEVELOPMENT & PLANNING
P.O. Box 66287
Scotts Valley, CA 95067
Tel. (831) 334-2383
Contact: APPLICANT REPRESENTATIVE Patrizia Materassi

STAUB FORESTRY AND ENVIRONMENTAL CONSULTING
6010 Highway 9, Suite 6
Felton, CA 95018
Tel: (831) 335-1452
Fax: (831) 335-1452
Cell: (831) 227-4655
Contact: Stephen R. Staub

BIOTIC RESOURCES GROUP
P.O. Box 14
Santa Cruz, CA 95063
Tel. (831) 476-4803

BRYAN MORI BIOLOGICAL CONSULTING SERVICES
1016 Brewington Ave.
Watsonville, CA 95076
Tel. (831) 728-1043

STRUCTURAL ENGINEER - MORRIS ENGINEERING
6901 Lorena Road
Redwood Valley, CA 95470
Tel. (707) 485-1193
Fax. (707) 4851177
Contact: Jeffrey S. Morris

TITLE SHEET
FOR THE
DRAEGER PROPERTY
PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
831 SMITH GRADE, SANTA CRUZ, CA
APN 062-251-01
SANTA CRUZ COUNTY, CALIFORNIA

Robert L. DeWitt & Associates, Inc.
Civil Engineers & Land Surveyors
1607 Ocean Street, Suite 1
Santa Cruz, California 95060
(831) 425-1617 TEL
(831) 425-0224 FAX

DESIGN: RLD
DRAWN: RLD
DATE: 4/21/[illegible]
DWG: [illegible]
REVISED:
ISSUED: 11/18/[illegible]
ISSUED: [illegible]
ISSUED: [illegible]
ISSUED: [illegible]
ISSUED: 3/1/10
PROJECT: [illegible]
SHEET: T1

EXHIBIT D

ATTACHMENT 2

DRAEGER PROPERTY

APN: 062-251-01
831 Smith Grade
Santa Cruz County, CA

RED TAGS

CODE COMPLIANCE PARCEL RESEARCH REPORT
APN: 062-251-01

E21

B40

B51

CODE COMPLIANCE PARCEL RESEARCH REPORT
APN: 062-251-01

E20

1 CTALS
4 INVESTIGATIONS

[E21] ROAD WIDENING AT MOORE RANCH ROAD
REGRADING OF MOORE RANCH ROAD RIGHT AFTER COJO CREEK BRIDGE C4.1
MOORE RANCH ROAD BANK REPAIR AND REVEGETAION L2.0

[B40] STRUCTURES WITOUT PERMIT
SITE KEY PLAN AND HORSE FACILITY SITE PLAN A1
TACK ROOM / WORKSHOP FLOOR PLAN AND ELEVTIONS A3
HORSE STALL #1 FLOOR PLAN AND ELEVATIONS A4
TACK ROOM / BARN OFFICE FLOOR PLAN AND ELEVATIONS A5
HORSE STALL #2 FLOOR PLAN AND ELEVATIONS A6
PLEASE REFER TO GEOTECHNICAL SOILS REPORT ATTACHED
PLEASE NOTE THAT EXISTING TWO STORAGE BAYS AT THE "PROPOSED SHOP SITE" HAVE NO RED TAGS AND NO PERMITS.
THEY ARE NOT RELATED TO THE HORSES.

[B51] DRESSAGE ARENA
DRESSAGE ARENA, HORSE STALLS, PADDOCKS AND MOBILE HOME
LAYOUT AND GRADING C6.1
GRADING SECTIONS C6.2
DRAINAGE PLAN C6.3
DRAINAGE DETAILS C6.4
PLEASE REFER TO HYDROLOGY STUDY ATTACHED
SITE KEY PLAN AND HORSE FACILITY SITE PLAN A1
PLEASE REFER TO MANURE MANAGEMENT PLAN ATTACHED

[E20] BRIDGE REPLACEMENT AT OLD TIMBER DRIVE (REFERED AS DRAEGER'S DRIVEWAY IN RED TAG DOCS.) IN RIPARIAN CORRIDOR
BRIDGE REPLACEMENT EROSION CONTROL AND DRAINAGE C3.1
BRIDGE REPLACEMENT GRADING AND SECTIONS C3.2
BRIDGE REPLACEMENT STRUCTURAL NOTES C3.3
BRIDGE REPLACEMENT PLANS AND DETAILS C3.4
CREEK FORTIFICATION PLAN C4.1
BRIDGE REPLACEMENT AND REVEGETATION PLAN L2.0
OLD TIMBER DRIVE BANK REPAIR L1.0
THIS RED TAG ALSO REFERS TO DRESSAGE ARENA- SEE SHEETS LISTED ABOVE C6.1-C6.4

STIPULATIONS

BEFORE THE ADMINISTRATIVE HEARING OFFICER
FOR THE COUNTY OF SANTA CRUZ

STIPULATION AND ORDER

STIPULATION ITEM A:
SITE NOTES C02
HORSE FACILITY LAYOUT AND GRADING C6.1
HORSE FACILITY CUT AND FILL C6.2

STIPULATION ITEM B:
BRIDGE REPLACEMENT EROSION CONTROL AND DRAINAGE C3.1
BRIDGE REPLACEMENT GRADING AND SECTIONS C3.2
BRIDGE REPLACEMENT STRUCTURAL NOTES C3.3
BRIDGE REPLACEMENT PLANS AND DETAILS C3.4
OLD TIMBER DRIVE BANK REPAIR L-1.0

STIPULATION ITEM C:
SITE KEY PLAN AND HORSE FACILITY A1
TACK ROOM WORKSHOP FLOOR PLAN AND ELEVATIONS A3
HORSE STALL #1 FLOOR PLAN AND ELEVATIONS A4
TACK ROOM / BARN OFFICE FLOOR PLAN AND ELEVATIONS A5
HORSE STALL #2 FLOOR PLAN AND ELEVATIONS A6
SEE PLANS FOR DESCRIPTIONS OF COLORS AND MATERIALS

STIPULATION ITEM D:
SITE PLAN AND HORSE FACILITY WHERE MOBILE HOME IS LOCATED A1
SEE CATALOGUE FOR PLAN, ELEVATIONS, COLORS AND MATERIALS

CODE COMPLIANCE DOCUMENTS
FOR THE
DRAEGER PROPERTY
PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
831 SMITH GRADE, SANTA CRUZ, CA
APN 062-251-01
SANTA CRUZ COUNTY, CALIFORNIA

Robert L. DeWitt & Associates, Inc.
Civil Engineers & Land Surveyors
1607 Ocean Street, Suite 1
Santa Cruz, California 95060
(831) 425-1617 TEL
(831) 425-0224 FAX

DESIGN: RLD
DRAWN: RLD
DATE: 4/21/08
ISSUED: 11/20/08
SHEET: T2

EXHIBIT D

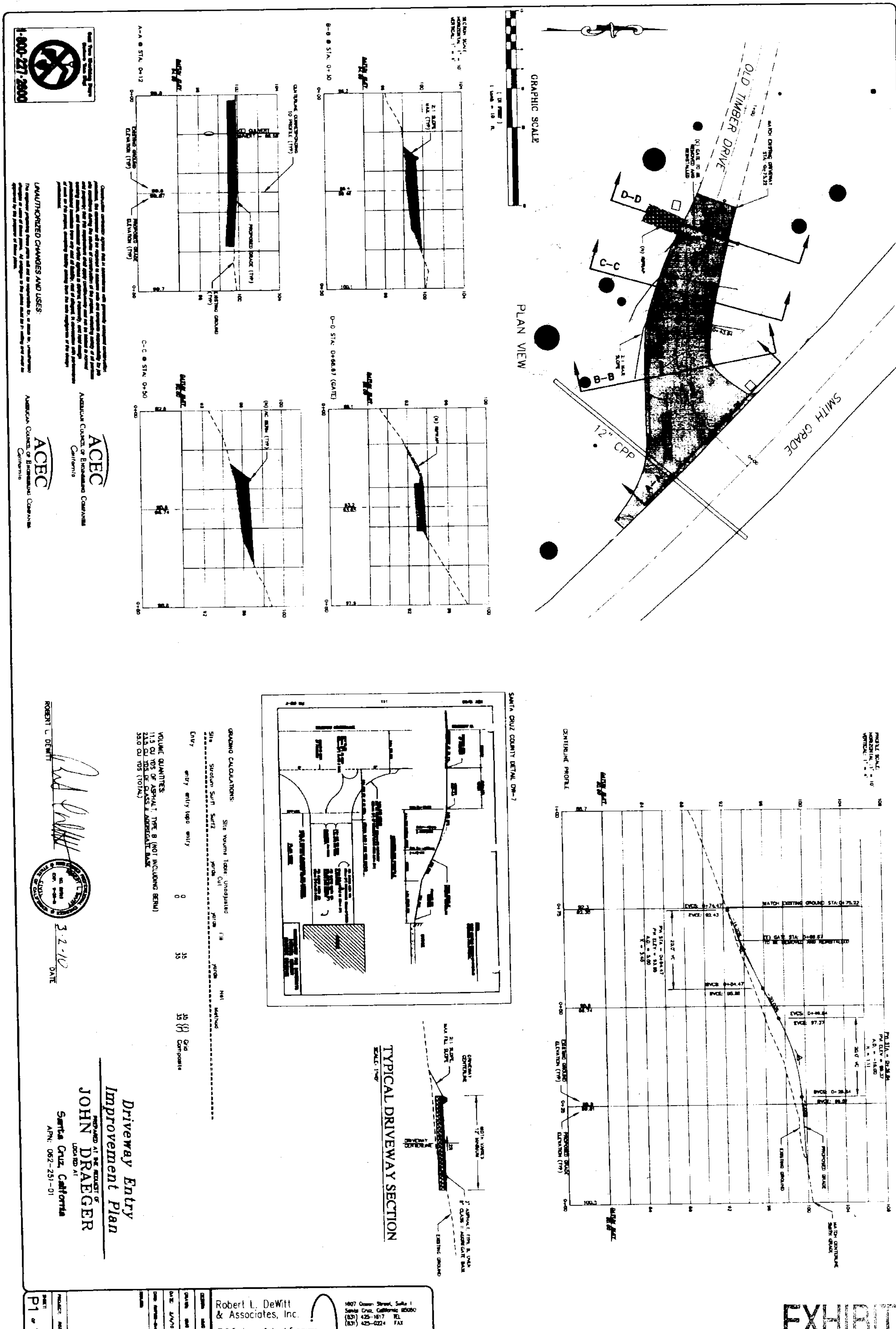
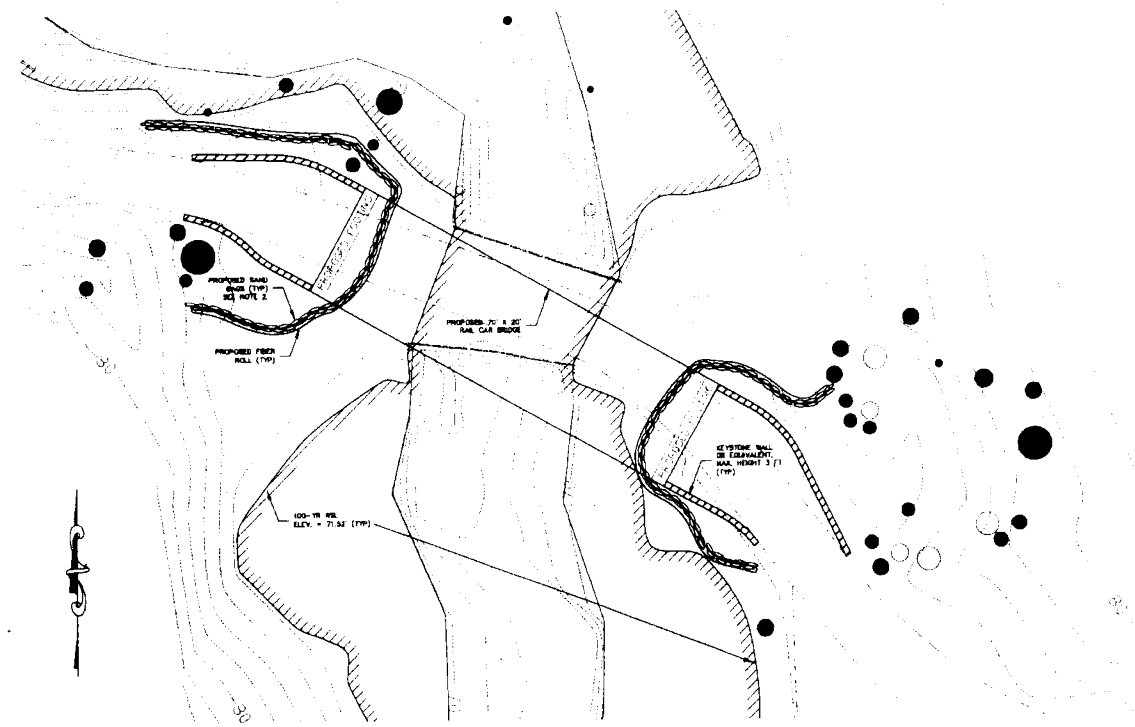


EXHIBIT D

ATTACHMENT 2



GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

PLAN VIEW

TREE PRESERVATION NOTES:

1. CONSTRUCTION PERIOD PROTECTION FOR TREES SHOULD BE PROVIDED BEFORE GRADING OR OTHER EQUIPMENT IS ALLOWED ON THE PROPERTY.
2. WHEN CONSTRUCTION IS TO TAKE PLACE BENEATH A TREE CANOPY ON ONE SIDE, THE FENCE SHOULD BE SIGHTED 2' TO 3' BEYOND THAT CONSTRUCTION, BUT BETWEEN CONSTRUCTION AND THE TREE TRUNK.
3. THE TOP OF THE FENCE HUNG WITH FLUORESCENT FLAGGING TAPE EVERY 10'.
4. 6' CHAIN LINK OR WELD WIRE MESH.
5. 6' FENCE POSTS OF 2" DIAMETER GI PIPE OR T-ANGLE POST.
6. INSTALL FENCE AT DRIP LINE TO PROTECT TREES DURING CONSTRUCTION.
7. IF CONSTRUCTION OR PAVING IS TO TAKE PLACE THROUGHOUT THE AREA BENEATH THE CANOPY AND DRIP LINE, FENCING IS NOT PRACTICAL. SNOW FENCING SHOULD BE USED TO PROTECT THE TRUNK FROM DAMAGE.
8. THREE LAYERS OF WIRE AND LATH SNOW FENCING TO 6' ABOVE GROUND ON TREES WHERE CONSTRUCTION WILL TAKE PLACE BENEATH THE CANOPY.

NOTES:

1. PROPOSED GRADING = 60 CU YDS (FILL) FOR BRIDGE APPROACHES
2. ALL SAND BAGS TO BE REMOVE UPON PROJECT COMPLETION. SAND BAGS ARE TO BE MAINTAINED DURING PROJECT DURATION. DETERIORATED SAND BAGS ARE TO BE REMOVED AND REPLACED AS NOT TO ENTER THE CREEK.

CONSTRUCTION SCHEDULING NOTES:

1. CONSTRUCTION MONITORING BY THE PROJECT GEOTECHNICAL ENGINEER AND PROJECT BIOLOGIST SHALL TAKE PLACE (2) TIMES PER WEEK DURING CONSTRUCTION.
2. THERE IS A (20) CONSTRUCTION DAY ALLOWANCE FOR REMOVAL OF THE CULVERT.
3. THERE IS A (30) CONSTRUCTION DAY ALLOWANCE FOR CONSTRUCTION OF THE BRIDGE FOUNDATION.
4. A DETAILED CONSTRUCTION SCHEDULE SHALL BE SUBMITTED WITH THE BUILDING PERMIT APPLICATION.

Call Two Working Days Before You Dig
1-800-227-2600

UNAUTHORIZED CHANGES AND USES:

ACEC
American Council of Engineering Companies
California

ACEC
American Council of Engineering Companies
California

ROBERT L DEWITT

5.24-10
DATE

Bridge Replacement
Erosion Control Plan

PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
Santa Cruz, California
APN: 062-251-01

Robert L. DeWitt & Associates, Inc.
Civil Engineers & Land Surveyors
1607 Ocean Street, Suite 1
Santa Cruz, California 95060
(831) 425-1617 TEL
(831) 425-0224 FAX

SHEET
E1 of 1

EXHIBIT D

PROJECT BIOLOGIST NOTES ON IMPACT MINIMIZATION MEASURES FOR FISHERY RESOURCES- DRAEGER BRIDGE PROJECT:

Specific Impact Minimization Measures For the Top-of-Bank Construction Scenario.

1. All bridge construction and in-channel work will occur during the dry/ low flow season.

2. A biological monitor will be present to assist the construction crew in following the mitigation recommendations during the removal of the old bridge and the placement of the new bridge on the concrete columns.

3. Block nets will be placed approximately 30 feet upstream and 150 feet downstream of the existing bridge. Before removal of the old dam, resident rainbow trout will be removed by electrofishing between the block nets and relocated to good pool habitat upstream. At least one experienced dip-netter and livecars for holding fish will be utilized during electrofishing.

4. The sandbar immediately upstream of the bridge will be excavated above the water line, sifted for gravel, with gravel re-introduced to the streambed upon completion of the new bridge, as a future source of spawning gravel.

5. The existing bridge will be removed, with its fill around the culverts and the culverts themselves from the top-of-bank. The walls of wooden planks will be retained while removing old fill. Old fill that contains fine sediment from the footprint of the old bridge will be deposited where it will not re-enter the stream channel. Erosion control measures will be implemented, as needed, to prevent future stream sedimentation from this material. The culvert containing the streamflow will be removed last. Any clean gravel that was observed between and under the existing culverts will be left in the channel after culvert removal. However, the filter fabric under the gravel will be removed from the channel.

6. In order to minimize sediment transport downstream of the project site, prior to removal of the old bridge and after the removal and relocation of fish, the project area will be isolated from the flowing stream and dewatered with cofferdams placed upstream and downstream of the construction area, with streamflow diverted through a culvert. The cofferdams shall have two pipe openings through them for two diversion pipes. One pipe will pass through the southerly bridge culvert to divert the streamflow while the northerly portion of the bridge and three culverts are removed. Then the second pipe will be used to divert the stream when the 4th bridge culvert is removed. To do this, first cap the northerly inlet pipe opening on the upstream cofferdam. Connect the southerly inlet pipe opening to a diversion pipe and run it through the lowest, southerly bridge culvert to the planned lower cofferdam location. Construct the lower cofferdam around this diversion pipe and make a second outlet opening in the lower cofferdam on the north side. After the other three culverts and fill have been removed from the old bridge, connect the capped northerly inlet of the upper cofferdam to the northerly outlet of the lower cofferdam with a second diversion pipe. Then cap the southerly pipe and uncap the northerly pipe to run the water through it instead. After removing the southerly diversion pipe, the 4th bridge culvert and remaining fill may be removed.

7. Two silt fences will be placed downstream of the lower cofferdam location prior to cofferdam construction in order to capture any suspended sediment.

8. After the fill that had surrounded the old bridge culverts is removed, the streambed will be contoured to the same channel configuration as up and downstream of the project site. The streambed will then be covered with clean gravel and cobble of similar size as exists on the streambed in the vicinity of the project site.

9. Since there is the potential for California red-legged frog (CRLF) at the project site, appropriate consultation will occur with the USFWS. Pre-construction surveys and surveys during construction will occur for CRLF. Pre-designated relocation sites will be chosen for CRLF in the event that they are observed in the construction site or captured during electrofishing to relocate aquatic species. Refer to the report by Bryan Mori regarding CRLF for more detailed mitigation measures.

10. Concrete caissons (abutments) for the new bridge will be constructed from the top-of-bank. Uncured cement and fill will be prevented from entering the stream during excavation and construction. Excavated material will be deposited away from the stream with necessary erosion control measures, as needed, to prevent its future sedimentation of the stream.

11. The new bridge will be placed atop the concrete caissons from the top-of-bank. No fill will be introduced to the stream channel during this process.

12. Silt fences and block nets will be removed after construction is completed, cofferdams are removed and water clarity is restored.

General Impact Minimization Measures For Bridge Construction.

13. The extent of temporary and permanent changes to the quality and quantity of instream and riparian habitat will be minimized.

14. Building materials and/or construction equipment will not be stockpiled or stored where they could be washed into the water or where they may cover aquatic or riparian vegetation that need not be removed.

15. During the construction period, the operator will not dump any trash or construction debris into the wetted channel. All such debris will be picked up daily and disposed of at an appropriate site.

16. During project activities, all trash that may attract potential predators of salmonids (e.g. raccoons, piscivores, etc.) will be properly contained, removed from the work site and disposed of daily. Workers will not litter and will manage their food wrappers by disposing of them properly. Trash containers will be provided by the operator at the jobsite and will be emptied daily.

17. Protective fencing will be placed so as to prevent construction vehicles and personnel from impacting vegetation adjacent to and outside the project site. The construction area will be clearly demarcated with flagging.

18. Disturbance or removal of woody vegetation will not exceed the minimum necessary to gain access to the stream. No riparian trees will be removed unless their removal is necessary for access to the construction areas or for construction of new facilities. Bulldozer/backhoe-type equipment will not be used to remove woody vegetation unless the root masses of such vegetation interfere with construction activities. The root mass of existing woody vegetation will be left undisturbed wherever possible.

19. Less destructive techniques of pruning tree branches in the lower 8 feet will be used where possible to accommodate project activities. Understory riparian vegetation such as blackberries, willows, etc., will be pruned only as needed to accommodate project activities. All pruned material will be removed from the site and properly disposed of.

20. A qualified fisheries biologist will be hired for the purposes of education, monitoring the action areas and for capturing and relocating salmonids from these areas.

21. Adequate sediment and turbidity control measures will be implemented. One or more fences of filter fabric will be constructed across the stream channel downstream of the bridge to reduce turbidity and sedimentation downstream of the stream construction site.

22. Project activities that may affect the stream channel will be scheduled to begin no earlier than August 1 (so as not to interfere with spawning movements and egg incubation of resident rainbow trout and at a time when baseflow is minimal) and end by October 15.

23. A pre-construction educational session will be provided by a qualified biologist for all members of the work crews regarding conditions of state or federal permits, habitat requirements of fish, amphibian and reptile species, the importance of stream shading and the adverse effects of toxic substances and sediment entering the stream channel.

24. All sandbags, plastic and construction materials and equipment will be removed from construction sites upon project completion.

Impact Minimization Measures Related to Toxic Fuels and Chemicals During Bridge Removal and Replacement.

25. Best management practices will be used to prevent spillage of hazardous materials into the watercourse. Oily or greasy substances originating from the Contractor's operations will not be allowed to enter Cojo Creek, or be placed where they will later enter the aquatic system. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life, wildlife, or riparian habitat. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be cleaned of all external oil, grease, and materials that, if introduced to water, could be deleterious to aquatic life, wildlife or riparian habitat.

26. All mechanized equipment working in the stream channel or within 25 ft of the wetted channel will have a double containment system for diesel and oil fluids. Equipment will be maintained in good working order to prevent leakage. Vegetable-oil-based hydraulic fluids will be used in equipment operated near the stream channel.

27. Fuel will be stored in a container with an impermeable membrane that can hold 125% of the volume of fuel being stored.

28. Any refueling or equipment maintenance will be accomplished in the staging area away from the creek to prevent fuel spillage to stream.

29. National Marine Fisheries Service will be notified promptly of any spill of one gallon or more at project sites.

30. All concrete structures will be isolated from the flowing stream until fully cured. Application of a water-base concrete sealer after a period of time will be applied to reduce the isolation time of the concrete from the stream.

Impact Minimization Measures Related to Erosion Control Measures for Bridge Construction.

31. Erosion control and sediment detention devices will be implemented at the time of construction. These devices will be in place during and after construction activities for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and of detaining sediment-laden water on site. The devices will be properly installed where the likelihood of sediment input exists.

32. At least 125 percent of the necessary erosion and (water) pollution control materials will be available on-site at all times during project construction.

33. All erosion-control practices will be inspected, repaired, and maintained prior to and after any storm event during the construction period. Inspections will occur at 24-hour intervals during extended storm events, and/or a minimum of every two weeks during the winter after bridge construction.

34. Erosion control measures will be utilized in order to prevent streambank erosion after the project is completed. Excavated areas will not be filled with gravels with less than a 0.5-inch diameter.

35. During the winter season (October 31 through May 15), all inactive areas will have all the necessary soil stabilization practices put in place before a rain event and two days after a period of inactivity (defined as 5 days) has elapsed.

36. Throughout the winter season (October 31 through May 15), soil-disturbed areas of the project site will not exceed 50 square feet in sum.

37. Mulching material will be on hand at the site as October 15 approaches, in the event of an early storm event. When activities are ended, all bare ground will be mulched to at least a 2-in thickness.

38. The site will be monitored through the winter, and additional mulching will occur where bare soil develops after storm runoff.

39. All artificial erosion control devices will be removed after the project area has fully stabilized.

Impact Minimization Measures Related to Fish Relocation from the Work Area Prior to Bridge Removal and Replacement

40. Fish will be captured by electrofishing in Cojo Creek. Other methods would be inadequate.

41. The fisheries biologist will have a minimum of three years field experience with electrofishing techniques.

42. The fisheries biologist will possess a valid State of California Scientific Collection Permit as issued by the CDFG.

43. All captured fish will be allowed to recover from electrofishing before being returned to the stream.

44. All captured native fish will be placed in suitable habitat either upstream or downstream of the project area. Suitable habitat will include instream escape cover and pools greater than one foot deep. Fish will be placed in the deepest pools in the vicinity. Fish will be transported in livecars, if possible. Otherwise, buckets of water will be used.

45. All captured native fish will be held in water with temperatures equivalent to ambient instream temperatures. All captured fish will be held in well-oxygenated water. Floating livecars will be used to hold the fish.

46. A minimum of three passes with the electrofisher will be utilized to ensure maximum capture probability of salmonids within the area proposed for dewatering.

47. All captured salmonids and other aquatic vertebrates will be processed and released prior to all subsequent electrofishing efforts.

48. A minimum of one assistant will aid the biologist during electrofishing by netting stunned fish and other aquatic vertebrates.

49. Any non-native fish will be removed from the aquatic system.

50. If California red-legged frog is encountered during electrofishing, fish relocation activities will cease, and the USFWS will be contacted for direction on relocating frogs to the pre-designated locations.

Impact Minimization Related to Cofferdams and Diversion Culverts

51. The Santa Cruz City Water Department will be notified of the timing of the initiation of the bridge culvert removal process and the day when the cofferdams will be removed to allow streamflow through where culverts had been removed.

52. Two silt fences will be constructed downstream of the lower cofferdam. The purpose of these silt fences will be to capture any suspended sediment that may escape from the bridge culvert removal zone. The silt fences will be made of filter fabric and constructed across the stream channel (and up the streambanks) in locations where tight seals along the bottom are achievable. The silt fence will be buried in the streambed with hand shovels and secured with concrete blocks to prevent silt leakage underneath.

53. Sufficient water will be allowed to pass downstream to maintain aquatic life at all times.

54. Block net mesh will be sized to ensure that salmonids do not enter the area prepared for dewatering between passes with the electrofisher.

55. Block nets will not be removed until cofferdam construction and culvert installation are completed.

56. Cofferdams will be placed immediately downstream of the upper block net and immediately upstream of the lower block net.

57. Sandbags and gravel bags will be used to construct the cofferdams. The fishery biologist will supervise the installation of cofferdams and diversion pipes. A visqueen plastic cover will be placed under the dam and over the upstream face of the upper dam and over the downstream face of the lower dam. Particular care will be taken to fill gaps around the culvert to minimize leakage. The thickness of the dams will be a minimum of 4 sandbags wide, with the bags laid lengthwise across the width of the channel.

58. Construct cofferdams in the shallowest, most regular streambed available to encompass the project area and minimize the distance of stream and amount of fish habitat disrupted. The fishery biologist will choose the best locations for cofferdam construction in terms of minimizing water seepage and habitat disruption.

59. Construction of cofferdams will cause little or no siltation and be sufficient to prevent seepage of water into the work area.

60. Cofferdam construction will take place by hand. No mechanized equipment will be used in the stream channel during cofferdam construction.

61. Culverts will be sized to allow upstream and downstream fish passage and will not exceed a slope of two percent.

62. Culvert outlets will be directed at instream locations greater than one foot in depth and preferably with nearby instream cover.

63. The maximum time for diversion structure installation will be two days, with the block nets maintained in place during the period to prevent re-entry of fish into the project area. Adequate security will be provided overnight to prevent vandalism of block nets. If block nets are compromised, the fish relocation process will be repeated between the cofferdams.

64. Water trapped between the cofferdams will be removed by pumping it to an off-stream basin where it will be filtered before returning to the stream channel, downstream.

65. Culvert inlets will be cleared daily once the diversion structure is installed.

66. Water turbidity will be measured upstream of the project area and downstream of the silt fences during bridge culvert removal and after cofferdam removal. The purpose of turbidity monitoring will be to protect other beneficial uses of water and to insure that turbidity does not exceed the Basin Plan Turbidity Objectives. If the Turbidity Objectives are exceeded during the bridge culvert-removal process or afterwards, construction activities will cease. To reduce and minimize turbidity, existing silt fences will be inspected for functionality and an additional silt fence will be installed downstream of the original silt fences. Then construction activities will resume with continued turbidity monitoring.

67. Normal flows will be restored upon completion of work by removing the cofferdams.

68. Remove the lower cofferdam by hand and empty sandbags away from the stream where it will not be subject to erosion. Then remove the upper cofferdam and diversion culverts by hand, emptying the sandbags away from the stream where the sand will not be subject to erosion. Cofferdams will be removed so that surface elevations of water impounded above the upper cofferdam will be reduced slowly. This will minimize the risk of beaching and stranding fish as the area upstream becomes dewatered. Checks for stranded fish will be made as the cofferdams are removed.

69. When cofferdams are removed, bags filled with sand will not be exposed within the 100-year flood channel.

70. The silt fences will remain in place until after the cofferdams and remaining pipes are removed to allow streamflow to pass through the site and until streamflow is clear again and all anticipated instream disturbance has been completed.

WATER QUALITY NOTES:

1. This project shall not include surface water diversion of any kind, not now or in the future. An Application Status Report on file with the SWRCB (ID# 8014099) reflecting this note as applicable will be sent to the Water Co of the City of Santa Cruz prior to Building Permit.

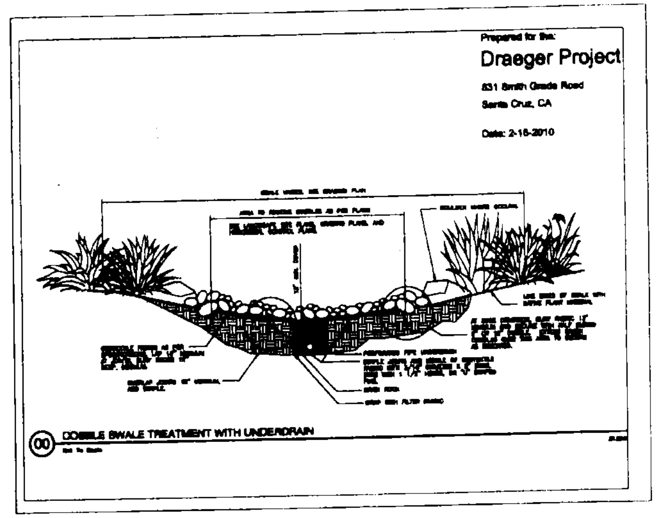
2. Please refer to Jeff Nolan's Water Quality Monitoring Plan. The Water Quality Monitoring Plan includes turbidity monitoring as well during the culverts removal and bridge construction.

3. The property owner will apply for a DFG 1600 permit for stream de-watering once the bridge plans have been accepted and/or the Application has been deemed complete, whichever is sooner.

4. The horse facilities proposed in this project fit a maximum of 8 horses. Regardless the large size of the parcel no more horse facilities, including barns, paddocks nor stalls are being proposed.

5. The Manure Bunker is located in the Storage Area of the site, where all property storage is clustered, away from the barns and more than 100 ft away from the creek. Manure from the paddocks and horse stalls is to be removed daily and transported to the Manure Bunker for temporary storage and hauling per the Manure Management Plan.

6. If run off is occurring causing water turbidity as shown by water quality monitoring, one or two vegetative swales, as detailed in this Sheet, will be installed in the horse facilities area in a manner to prevent mud run off and bring water quality up to required standards.



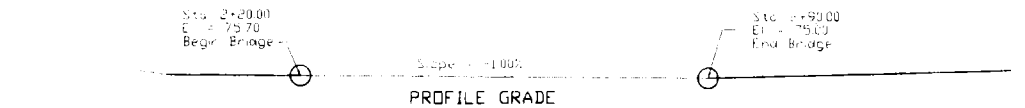
BIOLOGIST CONTACT:
Don Alley
D.W. ALLEY & Associates
P.O. Box 200
Brookdale, CA 95007
831-338-7971
alleybio@cruzio.com

Biologist Notes,
Water Quality Notes
and Detail

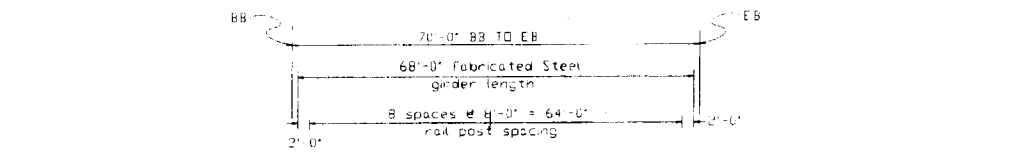
PREPARED AT THE REQUEST OF
JOHN DRAEGER
LOCATED AT
Santa Cruz, California
APN: 062-251-01

SHEET: B1 of 1

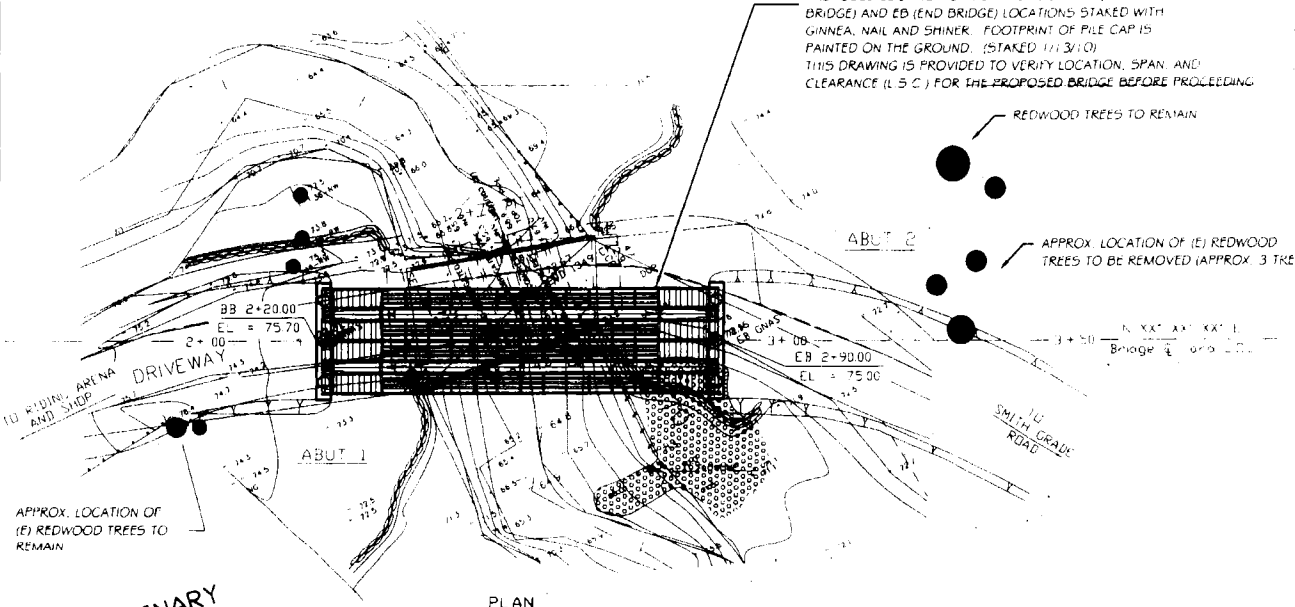
EXHIBIT D



PROFILE GRADE
1" = 10'



ELEVATION
1" = 10'-0"



PLAN
1" = 10'

PRELIMINARY
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Jeffrey S. Morris

Integral abutment note: backfill behind both abutments shall be placed after bridge is welded in place, and fills at abutments shall be within 2' elevation at each abutment during backfilling.

PRELIMINARY
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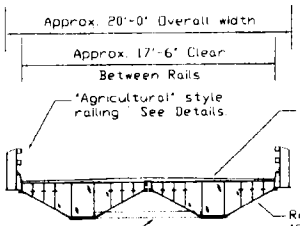
Jeffrey S. Morris
JEFFREY S. MORRIS - RCE 46005



Paving at owners option, as needed for traffic that will be on bridge. (May be placed, if necessary, at any time after completion of bridge). Paving thickness to vary from 3" at bridge centerline to 2" at railcar side sills.

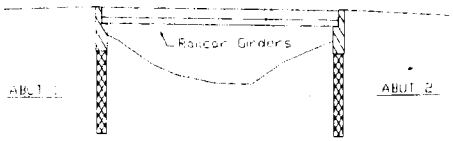
New 4" Steel channels between railcars supplied, installed and welded by fabricator.

TYPICAL SECTION AT CROSSBEARERS
1" = 4'

PILE DATA - CAST-IN DRILLED HOLE CONCRETE PILES

LOCATION	NUMBER	DESIGN LOADING (SERVICE LOAD)	SPECIFIED TIP ELEVATION
1 - B	4	50 Tons	51.00
A - B	4	50 Tons	50.00

① PILE CUT OFF ELEVATION IS 3" INTO ABUTMENT PILE CAPS
② TYP. "B" PILE REINFORCING STEEL IS 2'-6" INTO PILE CAPS
③ UNSUPPORTED PILE LENGTH IS DISTANCE ABOVE "BOX-D" ELEVATION ON FOUNDATION PLAN (BOTTOM OF PILE CAP ELEVATION)



CAST-IN-PLACE CONCRETE ABUTMENTS
CLASS "D" (6.5 SACK) - SEE 90-10D (CALTRANS STD SPECS)
MIX TO BE SUBMITTED TO MORRIS ENGINEERING AT LEAST 2 WEEKS BEFORE PLACING)
f'_c = 3,600 psi min.

CAST-IN-DRILLED-HOLE CONCRETE PILES
CLASS "D" (6.5 SACK) - SEE 90-10D (CALTRANS STD SPECS)
MIX TO BE SUBMITTED TO MORRIS ENGINEERING AT LEAST 2 WEEKS BEFORE PLACING)
f'_c = 3,600 psi min.

CONCRETE STRENGTH AND TYPE LIMITS
NO SCALE

REFERENCES	DATE 1/15/10	MORRIS ENGINEERING	BRIDGE NO.	DRAEGER ~~COHO~~ CREEK BRIDGE
② Ben Thorp and Assoc. HEC-RAS Hydraulics	SCALE SHOWN		POST MILE	GENERAL PLAN
	DRAWN JSM			
	CHECKED CNM			
	ME JOB NO 09-16			

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

Disregard prints bearing earlier revision dates

REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET	OF
	82	

50/176

GRADING NOTES

MATERIAL LIST:

ESTIMATED EARTHWORK QUANTITIES

SEE SHEET C6 SUMMARY SHEET T1

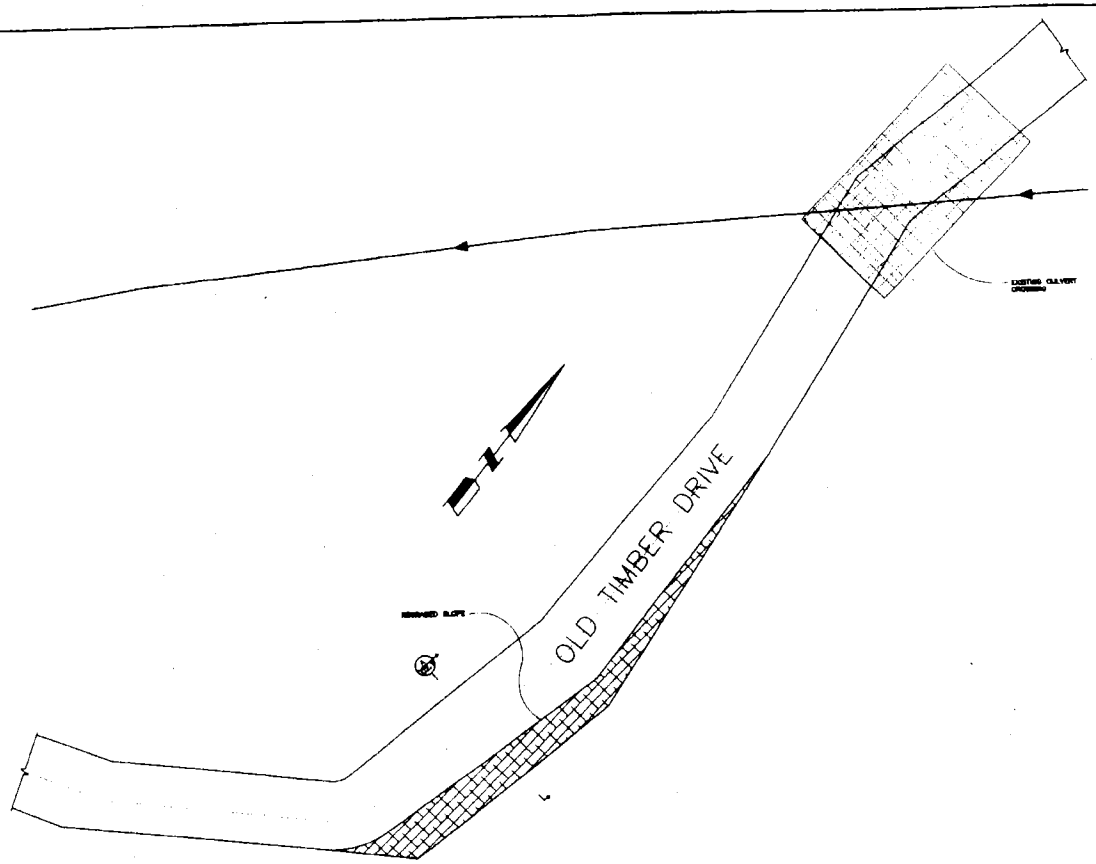
SITE NOTES

SITE NOTES	DRAEGER PROPERTY John Draeger 831 Swift Circle Santa Cruz, CA 95060

BUILICI ENGINEERS, INC.
130 Union Avenue, Suite 200
Campbell, California 95008
T(408)683-0823 F(408)683-0829

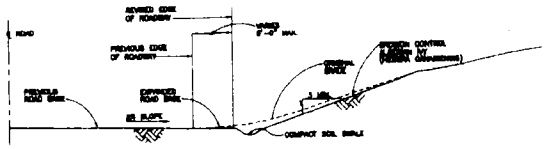
SUBMISSION FOR INCOMPLETE APPLICATION	3/19/08
RESUBMISSION FOR COMPLETENESS	11/19/08
DESIGN TEAM MEETING	
RESUBMISSION FOR COMPLETENESS	4/21/09
DESIGN TEAM MEETING	4/24/09
PLN APPROVAL	

ATTACHMENT 2



PARTIAL EROSION CONTROL AT ROAD WIDENING PLAN

NOTE: PLEASE REFER TO SHEET L-1.0 FOR REVEGETATION PLAN



A C2.1 AS BUILT

ESTIMATED EARTHWORK QUANTITIES

MAXIMUM EXCAVATION DEPTH	= 2.4 ft.
SITE EXCAVATION (WITHOUT FLUFF	= 1.5 cu. yd.
TOTAL EXCAVATION (WITHOUT FLUFF	= 1.5 cu. yd.
MAXIMUM FILL DEPTH	= 0 ft.
SITE FILL	= 0 cu. yd.
TOTAL FILL	= 0 cu. yd.
MAXIMUM CRACK ROCK DEPTH	= 0 ft.
CRACK ROCK EXPORT	= 0.2 cu. yd.
TOTAL EXPORT	= 0.5 cu. yd.

GRAPHIC SCALE

(IN FEET)
1 inch = 7.5 ft.

EROSION CONTROL AT ROAD WIDENING

JILICI ENGINEERS, INC.
90 Union Avenue, Suite 200
Campbell, California 95008

DANDER PROPERTY
John Danger
831 Smith Drive
Santa Cruz, CA 95060

EROSION CONTROL AT ROAD WIDENING

DATE 8/14/08
PROJECT NO. 030711
SHEET C2.1

GRADING NOTES:

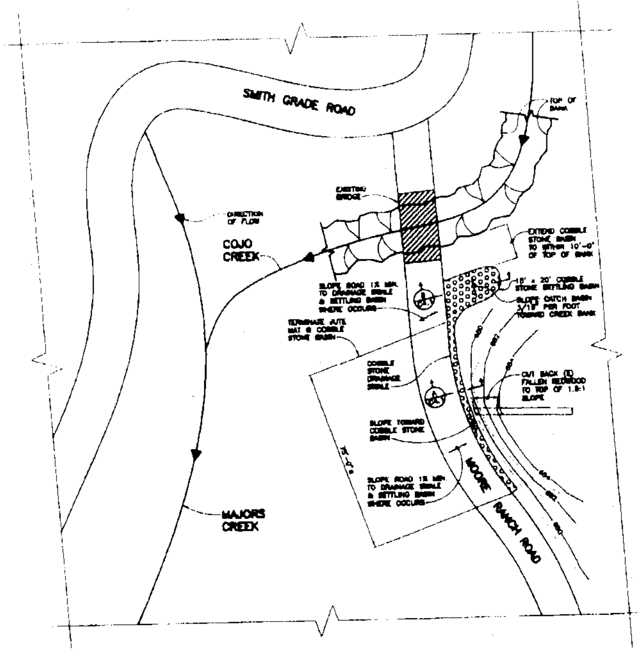
- ALL GRADING IS SUBJECT TO OBSERVATION BY THE COUNTY. PERMITTEE SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS BEFORE START OF ANY GRADING.
- APPROVAL OF THIS PLAN APPLIES ONLY TO THE EXCAVATION, PLACEMENT, AND COMPACTION OF NATURAL EARTH MATERIALS. THIS APPROVAL DOES NOT CONFER ANY RIGHTS OR ENTRY TO EITHER PUBLIC PROPERTY OR THE PRIVATE PROPERTY OF OTHERS. APPROVAL OF THIS PLAN ALSO DOES NOT CONSTITUTE APPROVAL OF ANY IMPROVEMENTS. PROPOSED IMPROVEMENTS ARE SUBJECT TO REVIEW AND APPROVAL BY THE RESPONSIBLE AUTHORITIES AND ALL OTHER REQUIRED PERMITS SHALL BE OBTAINED.
- ALL CONTRACTORS WILL BE RESPONSIBLE FOR VERIFICATION OF LOCATION OF ALL EXISTING UTILITIES IN THE FIELD. LOCATIONS SHOWN ON PLANS ARE APPROXIMATE AND FOR GENERAL INFORMATION ONLY.
- THE PERMITTEE SHALL MAINTAIN THE STREETS, SIDEWALKS, AND ALL OTHER PUBLIC RIGHTS-OF-WAY IN A CLEAN, SAFE, USABLE CONDITION. ALL SPILLS OF SOIL, ROCK, OR CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE, AND USABLE CONDITION.
- ALL GRADING SHALL BE PERFORMED IN SUCH A MANNER AS TO COMPLY WITH THE STANDARD ESTABLISHED BY AIR QUALITY MAINTENANCE DISTRICT FOR ALL AIRBORNE PARTICLES (DUST).
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE WITH THOSE SHOWN ON THIS PLAN. THE CONTRACTOR SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO START OF WORK.
- EXISTING CONTOURS, ELEVATIONS, TREE LOCATIONS, AND PROPERTY LINES WERE TAKEN FROM A CURSORY, VISUAL SITE OBSERVATION, AND ARE APPROXIMATE. NO TOPOGRAPHIC INSTRUMENT SURVEY HAS BEEN DONE.
- ALL GRADING SHALL CONFORM TO THE CITY MUNICIPAL CODE, ENTITLED "GRADING, EROSION AND SEDIMENT CONTROL."
- A PREJOB MEETING SHALL BE HELD WITH THE SENIOR INSPECTOR FROM THE DEPARTMENT OF PLANNING PRIOR TO ANY WORK BEING DONE.
- CALL THE SENIOR INSPECTOR AT LEAST 24 HOURS PRIOR TO GRADING.
- SLOPE ALL SURFACES TOWARD DRAIN INLETS.
- PRIOR TO THE CONTRACTOR REQUESTING A FINAL INSPECTION, THE CIVIL ENGINEER SHALL ADVISE THE BUILDING OFFICIAL IN WRITING THAT:
  - DRAINAGE SYSTEM IS IN ACCORDANCE WITH THE CIVIL ENGINEER'S DESIGN.

GRADING:

- EXCAVATED MATERIAL SHALL BE PLACED AND PROPERLY COMPACTED IN FILL AREAS DESIGNATED OR SHALL BE HAULED AWAY FROM THE SITE.
- ALL FILLS SHALL BE CONSTRUCTED IN LIFTS (6" TO 8") AND COMPACTED TO A MINIMUM 90% RELATIVE COMPACTION, UNLESS OTHERWISE DIRECTED BY SOILS ENGINEER.
- WHERE FILL MATERIAL IS TO BE PLACED ON NATURAL GRADE, IT SHALL BE STRIPPED OF ALL VEGETATION. TO ACHIEVE A PROPER BOND WITH THE FILL MATERIAL, THE SURFACE OF THE GROUND SHALL BE SCARIFIED TO A DEPTH OF 6" BEFORE FILL IS PLACED. WHERE NATURAL GROUND IS STEEPER THAN 5 TO 1, THE FILL SHALL BE LAYERED TO ACHIEVE STABILITY. WHERE NEW FILL IS TO BE PLACED ON EXISTING FILL, THE EXISTING FILL SHALL BE REMOVED UNTIL MATERIAL COMPACTED TO 90% RELATIVE COMPACTION IS EXPOSED. FILL MATERIAL SHALL BE PLACED IN UNIFORM LIFTS NOT TO EXCEED 6" IN COMPACTED THICKNESS. FOLLOW RECOMMENDATIONS OF GEOTECHNICAL ENGINEER.
- ALL EXCESS SOIL SHALL BE OFF-HAULED TO AN APPROVED SITE. NO EXCESS SOIL SHALL BE SPREAD ON THE SITE WITHOUT CLEARLY BEING SHOWN ON THE APPROVED GRADING PLAN.
- VERIFY POSITIVE DRAINAGE TO OUTFALL AT ALL CATCH BASINS.
- ALL NEW ELEVATIONS AND CONTOURS ARE APPROXIMATE.

EROSION CONTROL:

- IT IS THE RESPONSIBILITY OF THE OWNER/CONTRACTOR TO INSURE THAT NO MUD OR SILTATION LEAVES THE PROJECT SITE.
- THE CONTRACTOR SHALL ENSURE THAT ANY EROSION THAT OCCURS DOES NOT LEAVE THE SITE OR ENTER ANY WATERCOURSE, INCLUDING ON-SITE STORM DRAINAGE SYSTEMS. THIS REQUIREMENT SHALL REMAIN IN EFFECT ON A 24 HOUR PER DAY, 7 DAY PER WEEK BASIS AND SHALL NOT BE LIMITED IN ANY WAY TO THE HOURS OF WORK FOR THE PROJECT. IF, AT THE DISCRETION OF THE DIRECTOR OF PLANNING, ADDITIONAL EROSION CONTROL MEASURES ARE DEEMED TO BE REQUIRED, THE CONTRACTOR SHALL AT HIS/HER SOLE EXPENSE TAKE SUCH MEASURES AS DIRECTED BY THE DIRECTOR. IF THE CONTRACTOR IS DEEMED TO BE NON-RESPONSIVE TO THE DIRECTION OF THE DIRECTOR OF PLANNING, THE DIRECTOR SHALL HAVE THE AUTHORITY TO TAKE ALL MEASURES REQUIRED TO CORRECT ANY SITUATION WHICH HE/SHE DEEMS TO BE OUT OF COMPLIANCE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AND LIABLE TO THE COUNTY FOR ALL COSTS ASSOCIATED WITH THE ACTIONS TAKEN BY THE COUNTY TO CORRECT ANY NON-COMPLIANT SITUATION ARISING FROM THE WORK AREA.
- IF EROSION CONTROL MEASURES ARE NOT IN PLACE AS REQUIRED, ALL WORK SHALL CEASE UNTIL EROSION CONTROL MEASURES ARE RESTORED.
- ALL STREET GRATES SHALL BE PROTECTED FROM SEDIMENT DURING CONSTRUCTION.
- ALL FILL SLOPES SHALL BE COMPACTED AND LEFT IN A SMOOTH AND FIRM CONDITION CAPABLE OF WITHSTANDING WEATHERING.
- INSTALL DRAINAGE MEASURES INCLUDING CATCH BASINS, ENERGY DISSIPATORS, ETC. AS SHOWN ON PLANS AND NOTES.

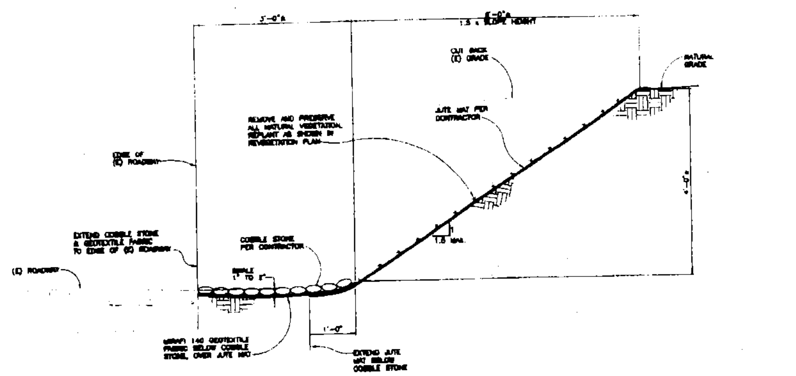


SITE PLAN

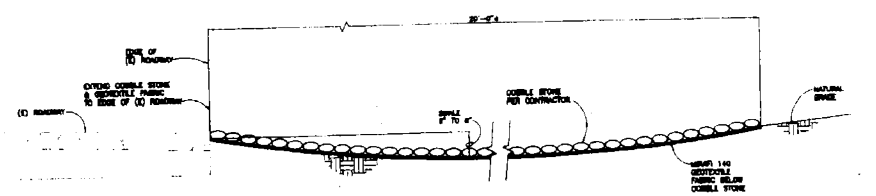
NOTE: PLEASE REFER TO SHEET L-2.1 FOR REVEGETATION PLAN

GRAPHIC SCALE

(IN FEET)
1 inch = 23.0 ft.



A C4.1 SCALE 1" = 1.5 ft



GRAPHIC SCALE

(IN FEET)
1 inch = 1.5 ft.

B C4.1

REGRADING OF MOORE RANCH ROAD AT COJO CREEK BRIDGE

GUILICI ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 95008
T(408)583-0323 F(408)583-0329 mail@gengineers.com

	Revision	Date
	REVISIONS PER INCOMPLETE APPLICATION	12/19/08
	REVISIONS PER COLLECTIVE DESIGN TEAM REVIEWS	11/18/08
	REVISIONS PER COLLECTIVE DESIGN TEAM REVIEWS	7/31/08
	FOR APPROVAL	4/3/08

DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

REGRADING OF MOORE RANCH ROAD AT COJO CREEK BRIDGE

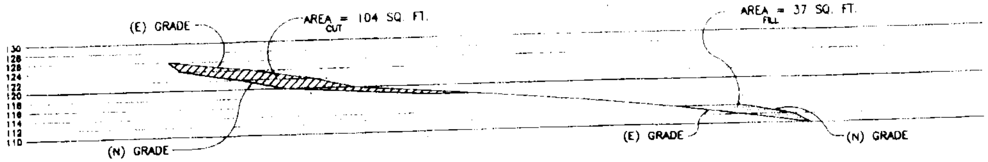
DATE 8/14/08
PROJECT NO. 089711
SHEET C4.1

2-9-11

ATTACHMENT
EXHIBIT D

EXHIBIT

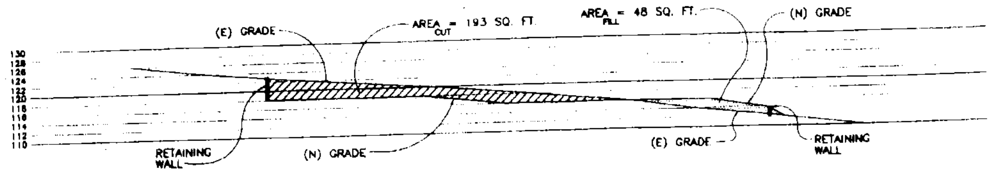
ATTACHMENT 9



CUT AREA A = 104 sq. ft.
CUT AREA OVER 84 LINEAL FT. = 8736 cubic ft. = 324 cu. yd.

FILL AREA A = 37 sq. ft.
FILL AREA OVER 95 LINEAL FT. = 3515 cubic ft. = 130 cu. yd.

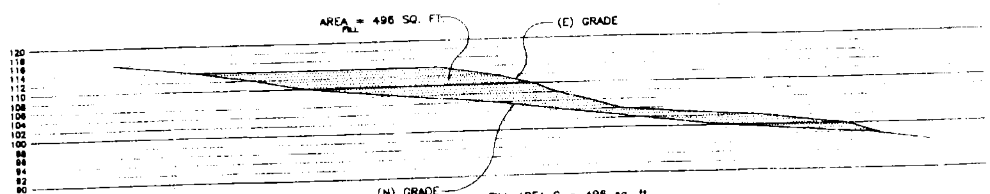
A / C5.2



CUT AREA B = 193 sq. ft.
CUT AREA OVER 56 LINEAL FT. = 10808 cubic ft. = 400 cu. yd.

FILL AREA B = 48 sq. ft.
FILL AREA OVER 43 LINEAL FT. = 2064 cubic ft. = 76 cu. yd.

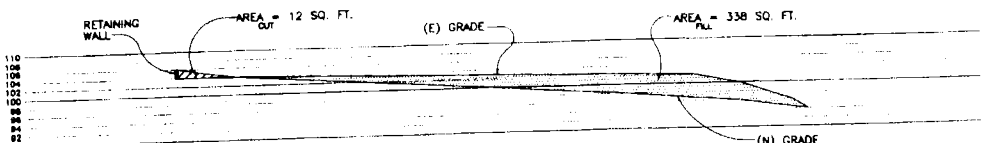
B / C5.2



CUT AREA B = 193 sq. ft.
CUT AREA OVER 56 LINEAL FT. = 10808 cubic ft. = 400 cu. yd.

FILL AREA C = 496 sq. ft.
FILL AREA OVER 100 LINEAL FT. = 49600 cubic ft. = 1837 cu. yd.

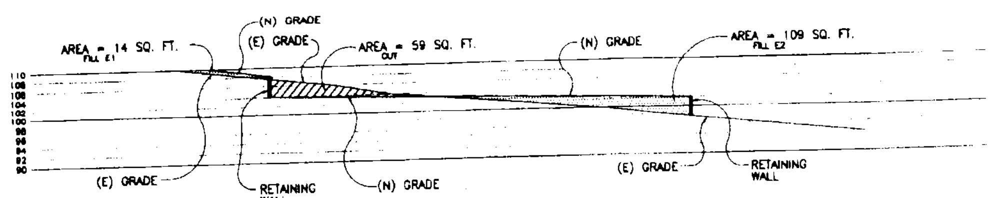
C / C5.2



CUT AREA D = 12 sq. ft.
CUT AREA OVER 56 LINEAL FT. = 672 cubic ft. = 25 cu. yd.

FILL AREA D = 338 sq. ft.
FILL AREA OVER 108 LINEAL FT. = 36504 cubic ft. = 1352 cu. yd.

D / C5.2



CUT AREA E = 59 sq. ft.
CUT AREA OVER 126 LINEAL FT. = 7434 cubic ft. = 275 cu. yd.

FILL AREA E1 = 14 sq. ft.
FILL AREA OVER 70 LINEAL FT. = 980 cubic ft. = 36 cu. yd.

FILL AREA E2 = 109 sq. ft.
FILL AREA OVER 116 LINEAL FT. = 12644 cubic ft. = 468 cu. yd.

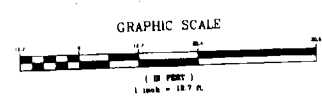
TOTAL FILL AREA E = 504 cu. yd.

E / C5.2

ESTIMATED EARTHWORK QUANTITIES

MAXIMUM EXCAVATION DEPTH	= 5± ft.
TOTAL SITE EXCAVATION WITHOUT FLUFF	= 1024 ± cu. yd.
MAXIMUM FILL DEPTH	= 7 ± ft.
SITE FILL	= 3899 ± cu yd.
TOTAL IMPORT WITHOUT FLUFF	= 2875 ± cu. yd.

THE EARTHWORK QUANTITIES ARE APPROXIMATE ONLY, AND ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT, FILL, EXPORT, AND DEWATERING OPERATIONS NECESSARY TO MEET THE DESIGN GRADES AND CONSTRUCTION OF SUBSURFACE FACILITIES SHOWN ON THE PLANS. THE EXCESS WASTE MATERIAL SHALL BE HAULED OFF-SITE AND DISPOSED OF IN A LEGAL MANNER.



GUILICI ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 95008

DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

HORSE FACILITY
CUT & FILL SECTIONS

C5.2

HORSE FACILITY
CUT & FILL SECTIONS

EXHIBIT D

ATTACHMENT 2

ATTACHMENT 2

1 C5.4 TYPICAL DOWNSPOUT CONNECTION PLAN
A C5.4
B C5.4 MODULAR BLOCK WALL
5 C5.4 TYPICAL DRAIN INLET
1 C5.4 RIP-RAP ENERGY DISSIPATOR
SECTION
PLAN
6 C5.4 MULTIPLE PIPE CLEANOUT
2 C5.4 SINGLE PIPE CLEANOUT
3 C5.4 DRAIN PIPE FITTINGS
C C5.4
DETAILS & SECTIONS
DRAEGER PROPERTY
John Draeger
831 Smith Brode
Santa Cruz, CA 95060
DETAILS & SECTIONS
C5.4
ULICI ENGINEERS, INC.
30 Union Avenue Suite 200
Campbell California 95008

ATTACHMENT

INTERIM
ESTIMATED SHOP SITE
PRIOR TO FILL

DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

BULICI ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 95008
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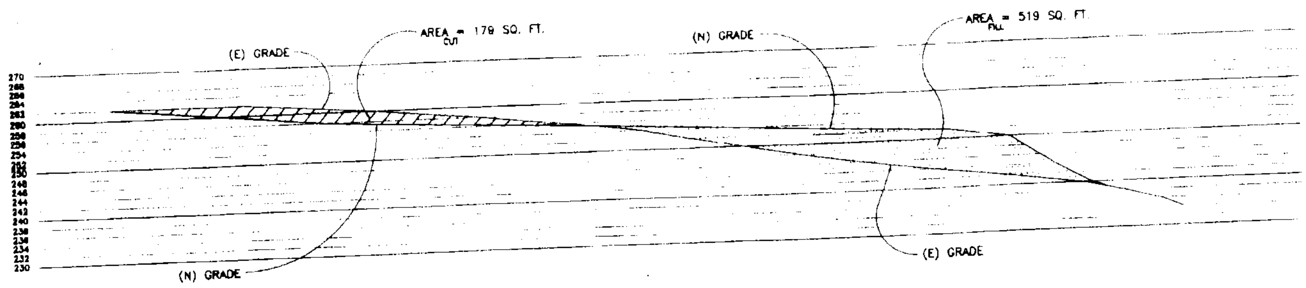
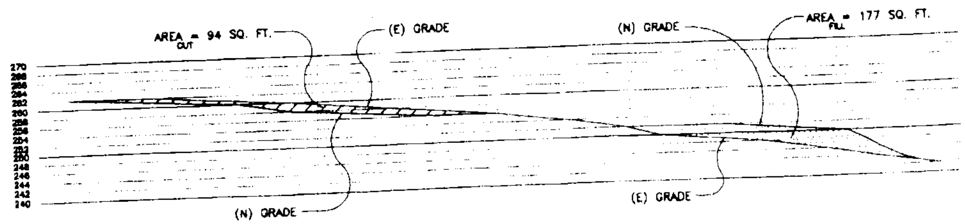
C6.1



CUT AREA A= 179 sq. ft.
CUT AREA OVER 48 LINEAL FT. = 8234 cubic ft. = 305 cu. yd.

FILL AREA A = 519 sq. ft.
FILL AREA OVER 91 LINEAL FT. = 47229 cubic ft. = 1749 cu. yd.

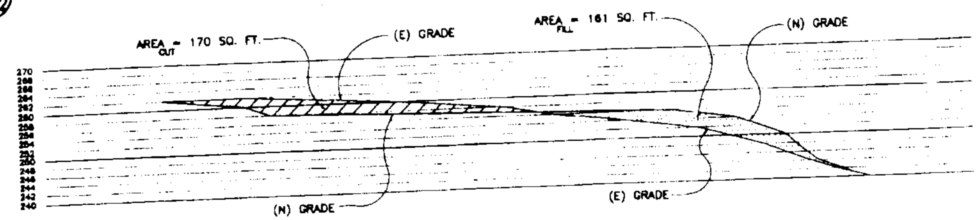
A / C6.2



CUT AREA B = 94 sq. ft.
CUT AREA OVER 50 LINEAL FT. = 4700 cubic ft. = 174 cu. yd.

FILL AREA B = 177 sq. ft.
FILL AREA OVER 113 LINEAL FT. = 20001 cubic ft. = 741 cu. yd.

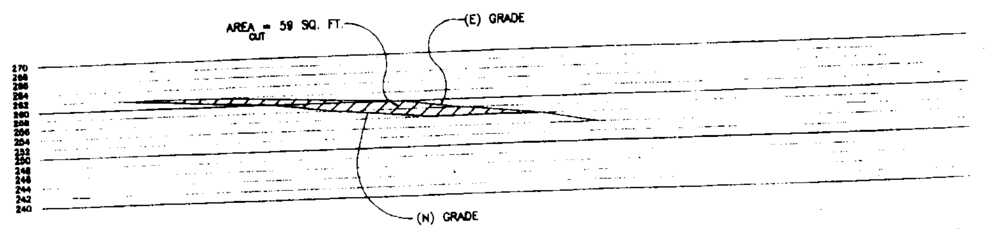
B / C6.2



CUT AREA C = 170 sq. ft.
CUT AREA OVER 52 LINEAL FT. = 8840 cubic ft. = 327 cu. yd.

FILL AREA C = 161 sq. ft.
FILL AREA OVER 119 LINEAL FT. = 19159 cubic ft. = 710 cu. yd.

C / C6.2



CUT AREA D = 154 sq. ft.
CUT AREA OVER 75 LINEAL FT. = 11550 cubic ft. = 428 cu. yd.

D / C6.2

(INTERIM) ESTIMATED EARTHWORK QUANTITIES

MAXIMUM EXCAVATION DEPTH	= 2 ± ft.
SITE EXCAVATION WITHOUT FLUFF	= 1234 ± cu. yd.
TOTAL OFFHAUL WITHOUT FLUFF	= 0 ± cu. yd.
MAXIMUM FILL DEPTH	= 8 ± ft.
SITE FILL	= 3200 ± cu yd.
TOTAL IMPORT	= 1966 ± cu. yd

THE EARTHWORK QUANTITIES ARE APPROXIMATE ONLY, AND ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT, FILL, EXPORT, AND DEWATERING OPERATIONS NECESSARY TO MEET THE DESIGN GRADES AND CONSTRUCTION OF SUBSURFACE FACILITIES SHOWN ON THE PLANS. THE EXCESS WASTE MATERIAL SHALL BE HAULED OFF-SITE AND DISPOSED OF IN A LEGAL MANNER.

GRAPHIC SCALE

(IN FEET)

INTERIM ESTIMATED SHOP SITE PRIOR TO FILL CUT & FILL SECTIONS

GUILICI ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 95008

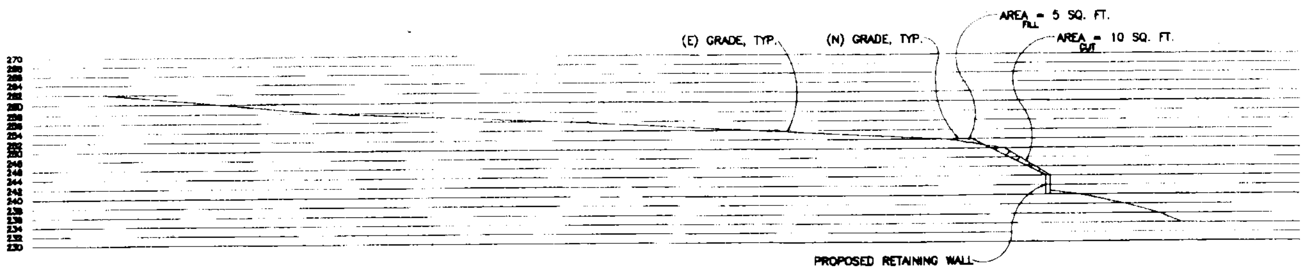
DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

INTERIM ESTIMATED SHOP SITE PRIOR TO FILL CUT & FILL SECTIONS

SHEET NO. C6.2

ATTACHMENT D

ATTACHMENT
EXHIBIT D



FILL AREA = 5 sq. ft.
FILL AREA OVER 80 LINEAL FT. = 400 cubic ft. = 15 cu. yd.

CUT AREA = 10 sq. ft.
CUT AREA OVER 270 LINEAL FT. = 2700 cubic ft. = 100 cu. yd.

A
C6.4

FINAL ESTIMATED EARTHWORK QUANTITIES

MAXIMUM EXCAVATION DEPTH	= 3 ± ft.
SITE EXCAVATION WITHOUT FLUFF	= 100 ± cu. yd.
TOTAL OFFHAUL WITHOUT FLUFF	= 85 ± cu. yd.
MAXIMUM FILL DEPTH	= 1 ± ft.
SITE FILL	= 15 ± cu yd.
TOTAL IMPORT	= 0 ± cu. yd

THE EARTHWORK QUANTITIES ARE APPROXIMATE ONLY, AND ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT, FILL, EXPORT, AND DEWATERING OPERATIONS NECESSARY TO MEET THE DESIGN GRADES AND CONSTRUCTION OF SUBSURFACE FACILITIES SHOWN ON THE PLANS. THE EXCESS WASTE MATERIAL SHALL BE HAULED OFF-SITE AND DISPOSED OF IN A LEGAL MANNER.

GRAPHIC SCALE
(IN FEET)
1 inch = 12.0 ft.

FINAL
EXISTING AND PROPOSED
SHOP SITE
CUT & FILL SECTIONS

QUILICI ENGINEERS, INC.
30 Union Avenue, Suite 200
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T(408)583-0323 F(408)583-0329

DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

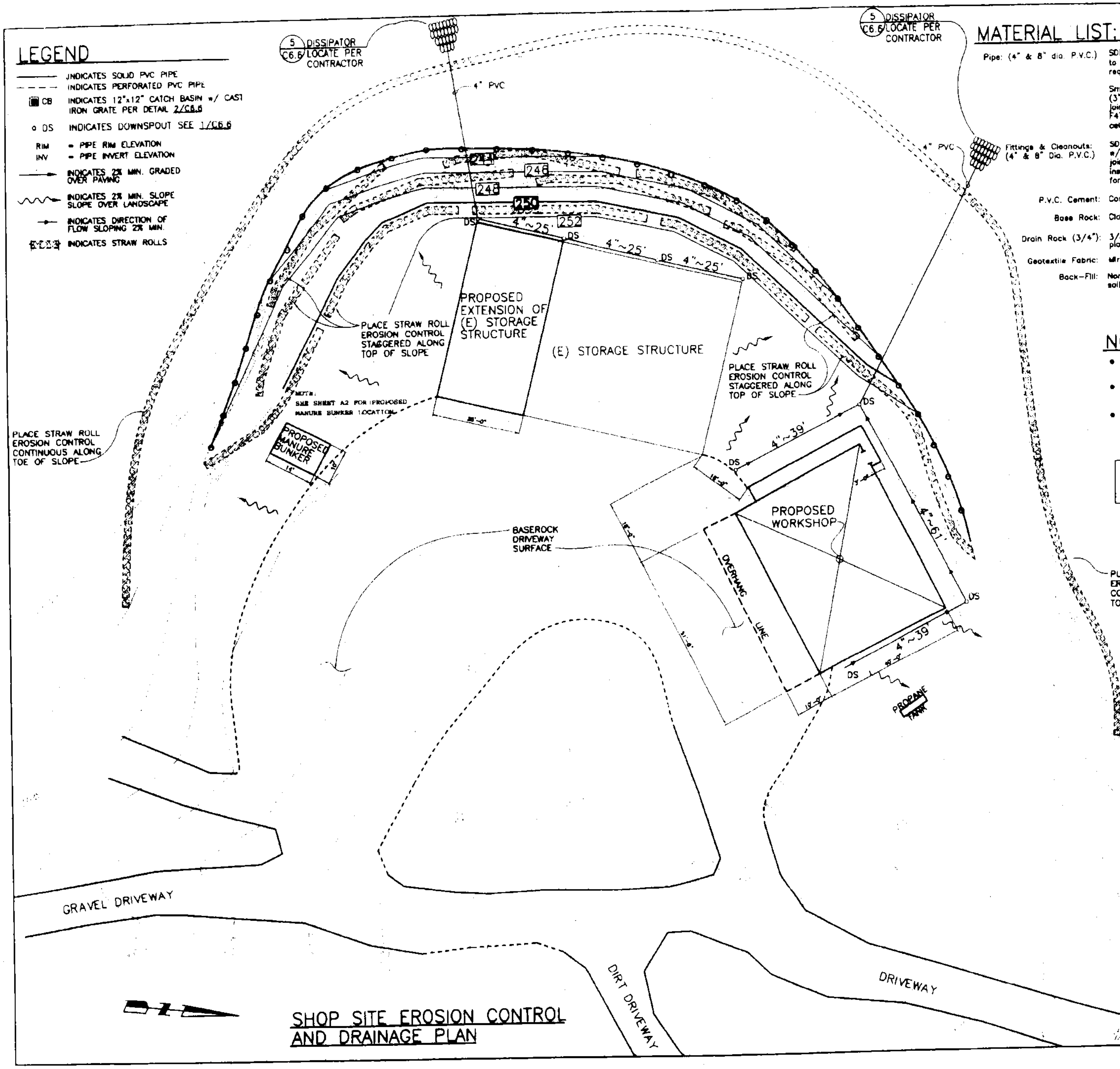
FINAL EXISTING AND PROPOSED SHOP SITE CUT & FILL SECTIONS

SHEET NO. C6.4

ATTACHMENT
EXHIBIT D

LEGEND

- ——— INDICATES SOLID PVC PIPE
- - - - INDICATES PERFORATED PVC PIPE
- CB INDICATES 12"x12" CATCH BASIN w/ CAST IRON GRATE PER DETAIL 2/C6.6
- o DS INDICATES DOWNSPOUT SEE 1/C6.6
- RIM = PIPE RIM ELEVATION
- INV = PIPE INVERT ELEVATION
- INDICATES 2% MIN. GRADED OVER PAVING
- INDICATES 2% MIN. SLOPE SLOPE OVER LANDSCAPE
- INDICATES DIRECTION OF FLOW SLOPING 2% MIN.
- INDICATES STRAW ROLLS



SHOP SITE EROSION CONTROL AND DRAINAGE PLAN

MATERIAL LIST:

Pipe: (4" & 8" dia. P.V.C.)	SDR 35 smooth, solid wall PVC pipe conforming to ATSM D3034, perforated or non-perforated, as required. Perforated pipe shall have holes at 4 and Smaller Dia. holes (1/4" Min.) on shorter spacing (3" Min.) are preferred. Pipe shall have integral bell joint gaskets, factory installed, conforming w/ ASTM F477. Pipe shall be made of PVC plastic having a cell classification of 12454B or 12364B as defined
Fittings & Cleanouts: (4" & 8" Dia. P.V.C.)	SDR 35 smooth, solid wall pipe fittings conforming w/ ASTM D3034, w/ integral bell or bell & spigot joints, and bell joints having an integral factory-installed gasket conforming w/ ASTM F477- except for cleanouts and downspout adapters which may be
P.V.C. Cement:	Conform w/ ASTM 2564.
Base Rock:	Class II permeable
Drain Rock (3/4"):	3/8" to 3/4" clean drain rock for subdrains and planting areas.
Geotextile Fabric:	Mirafi 140N or engineer approved equal.
Back-Fill:	Non-expansive on site soil or non-expansive imported soil, free and clean of organic material.

NOTES

- DO NOT CONNECT SURFACE DRAIN SYSTEM TO SUB-SURFACE DRAIN SYSTEM.
- CLEAN DRAINAGE SYSTEM OF ALL DEBRIS & TEST DRAIN SYSTEM AT LEAST ANNUALLY.
- SEE SHEET C6.8 FOR EROSION CONTROL NOTES.

NOTE: SEE GRADING PLAN FOR GRADING INFORMATION

GRAPHIC SCALE

(IN FEET)

QUILICI ENGINEERS, INC.
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Campbell, California 95008
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DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

SHOP SITE EROSION CONTROL AND DRAINAGE PLAN

SHEET NO. C6.5

ATTACHMENT 2

1 C6.6 TYPICAL DOWNSPOUT CONNECTION PLAN
N.T.S.
2 C6.6 TYPICAL DRAIN INLET
N.T.S.
3 C6.6 SINGLE PIPE CLEANOUT
N.T.S.
4 C6.6 MULTIPLE PIPE CLEANOUT
N.T.S.
5 C6.6 RIP-RAP ENERGY DISSIPATOR
N.T.S.
SECTION
PLAN
EROSION CONTROL NOTES:

DRAINAGE DETAILS

SHOP SITE DRAINAGE DETAILS

DRAEGER PROPERTY
John Draeger
831 Smith Grade
Santa Cruz, CA 95060

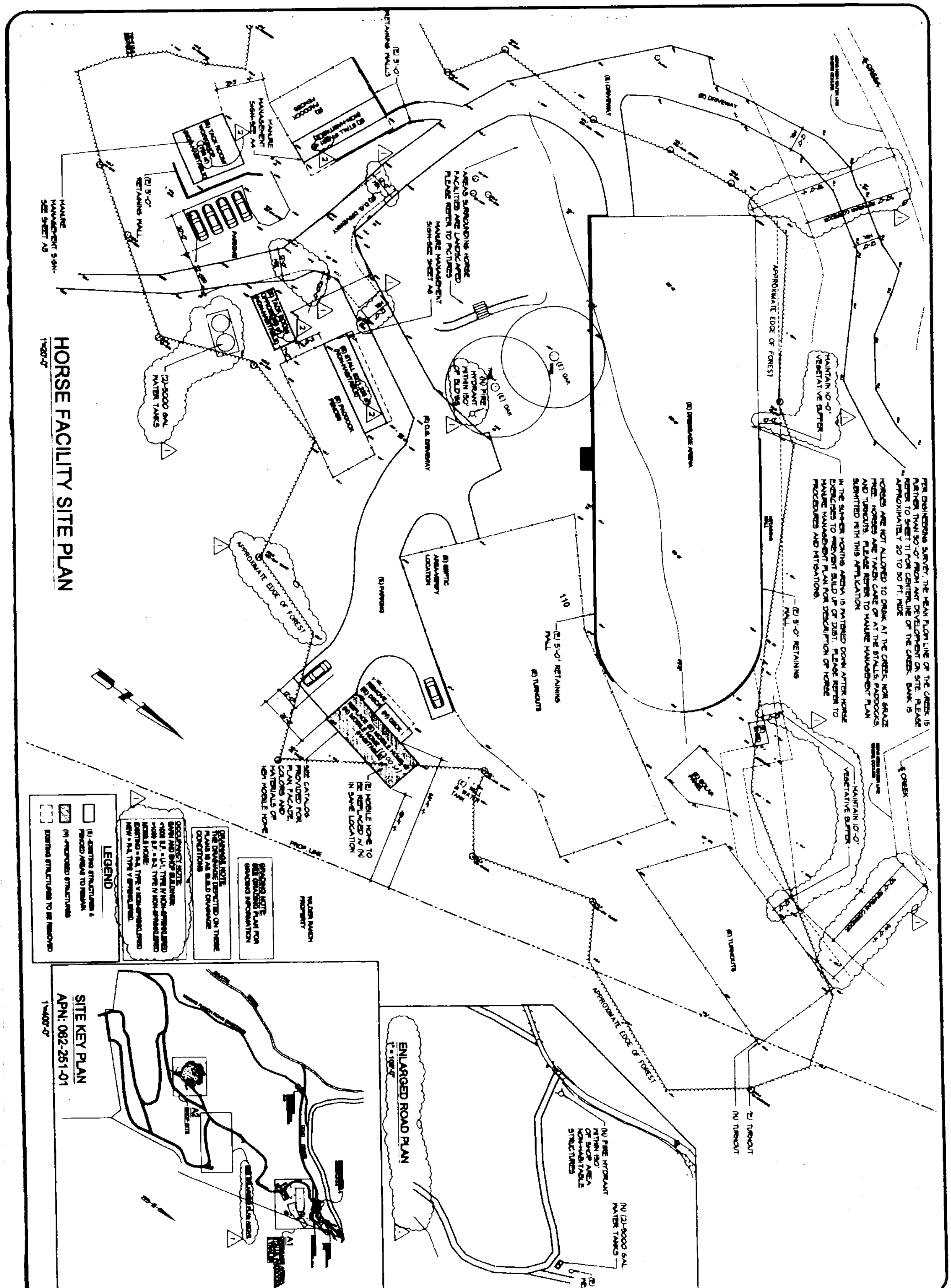
UILICI ENGINEERS, INC.
30 Union Avenue, Suite 200
Campbell, California 96008
T(408)683-0823 F(408)683-0329

1	REVISIONS PER INCOMPLETE APPLICATION	12/19/08
2	REVISIONS PER COUNTY DESIGN REVIEW COMMENTS	11/19/08
3	REVISIONS PER COUNTY DESIGN REVIEW COMMENTS	4/21/09
4	FOR APPROVAL	4/2/09
NO.	REVISION	DATE

C6.6

EXHIBIT D

ATTACHMENT



A1

4/21/2006

AS SHOWN

DRAEGER PROPERTY
JOHN DRAEGER, OWNER
831 SMITH GRADE
BONNY DOON, CA
SITE PLAN

TERRI L.N. FISHER
ARCHITECT

EXHIBIT D

ATTACHMENT

FIRE COMPLIANCE NOTES:

THESE PLANS ARE IN COMPLIANCE WITH CALIFORNIA BUILDING AND FIRE CODES (2008) AS AMENDED BY THE AUTHORITY HAVING JURISDICTION. EACH APN (LOT) SHALL HAVE SEPARATE SUBMITTALS FOR BUILDING AND SPRINKLER SYSTEM PLANS. THE JOB COPIES OF THE BUILDING AND FIRE SYSTEM PLANS AND PERMITS MUST BE ONSITE DURING INSPECTIONS.

FIRE HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH THE STATE OF CALIFORNIA HEALTH AND SAFETY CODE. SEE PLANS FOR LOCATION OF (4)-5,000 GALLON WATER TANKS, AND FIRE HYDRANTS LOCATED WITHIN 150 FEET OF BUILDINGS. A MINIMUM FIRE FLOW OF 500 GPM IS REQUIRED FROM HYDRANTS.

THE MOBILE HOME SHALL BE PROTECTED BY AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM COMPLYING WITH THE CURRENTLY ADOPTED EDITION OF NFPA 13D AND CHAPTER 35 OF CALIFORNIA BUILDING CODE AND ADOPTED STANDARDS OF THE AUTHORITY HAVING JURISDICTION.

THE SPRINKLER SYSTEM DESIGNER/INSTALLER SHALL SUBMIT THREE (3) SETS OF PLANS AND CALCULATIONS FOR THE UNDERGROUND AND OVERHEAD RESIDENTIAL AUTOMATIC FIRE SPRINKLER SYSTEM TO CDF/COUNTY FIRE FOR APPROVAL. INSTALLATION SHALL FOLLOW THEIR GUIDE SHEET.

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.

BUILDING NUMBERS SHALL BE PROVIDED. NUMBERS SHALL BE A MINIMUM OF 4 INCHES IN HEIGHT ON A CONTRASTING BACKGROUND AND VISIBLE FROM THE STREET. ADDITIONAL NUMBERS SHALL BE INSTALLED ON A DIRECTIONAL SIGN AT THE PROPERTY DRIVEWAY AND STREET.

AN APPROVED SPARK ARRESTER SHALL BE INSTALLED ON THE TOP OF THE CHIMNEY. THE WIRE MESH SHALL BE 1/2 INCH.

THE ROOF COVERING SHALL BE NO LESS THAN CLASS "B" RATED ROOF.

A 100 FOOT CLEARANCE WILL BE MAINTAINED WITH NON-COMBUSTIBLE VEGETATION AROUND ALL STRUCTURES OR TO THE PROPERTY LINE (WHICHEVER IS A SHORTER DISTANCE). SINGLE SPECIMENS OF TREES, ORNAMENTAL SHRUBBERY OR SIMILAR PLANTS USED AS GROUND COVERS, PROVIDED THEY DO NOT FORM A MEANS OF RAPIDLY TRANSMITTING FIRE FROM NATIVE GROWTH TO ANY STRUCTURE ARE EXEMPT.

ACCESS ROAD NOTES:

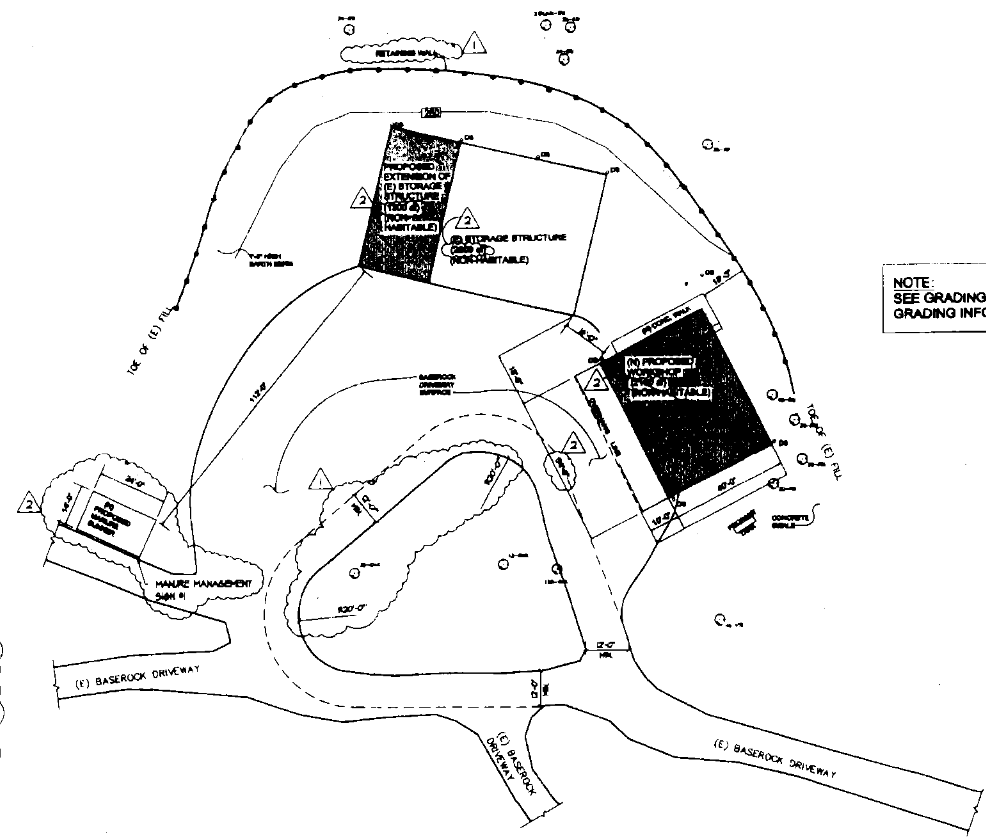
THE ACCESS ROAD SHALL BE 12 FEET MINIMUM AND MAXIMUM TWENTY PERCENT SLOPE. ALL BRIDGES, CULVERTS AND CROSSINGS SHALL BE CERTIFIED BY A REGISTERED ENGINEER. MINIMUM CAPACITY OF 25 TONS. CAL-TRANS H-20 LOADING STANDARD.

THE ACCESS ROAD SHALL BE IN PLACE TO THE FOLLOWING STANDARDS PRIOR TO ANY FRAMING CONSTRUCTION, OR CONSTRUCTION WILL BE STOPPED.

THE ACCESS ROAD SURFACE SHALL BE "ALL WEATHER," A MINIMUM 6" OF COMPACTED AGGREGATE BASE ROCK. CLASS 2 OR EQUIVALENT, CERTIFIED BY A LICENSED ENGINEER TO 95% COMPACTION AND SHALL BE MAINTAINED. ALL WEATHER SURFACE SHALL BE MINIMUM OF 6" OF COMPACTED CLASS II BASE ROCK FOR GRADES UP TO AND INCLUDING 5%, OIL AND SCREENED FOR GRADES UP TO AND INCLUDING 15% AND ASPHALTIC CONCRETE FOR GRADES EXCEEDING 15%, BUT IN NO CASE EXCEEDING 20%. THE MAXIMUM GRADE OF THE ACCESS ROAD SHALL NOT EXCEED 20%, WITH GRADES GREATER THAN 15% NOT PERMITTED FOR DISTANCES OF MORE THAN 200 FEET AT A TIME. THE ACCESS ROAD SHALL HAVE A VERTICAL CLEARANCE OF 14 FEET FOR ITS ENTIRE WIDTH AND LENGTH, INCLUDING TURNOUTS.

A TURN-AROUND AREA WHICH MEETS THE REQUIREMENTS OF THE FIRE DEPARTMENT SHALL BE PROVIDED FOR ACCESS ROADS AND DRIVEWAYS SHALL CONFORM TO CURRENT ENGINEERING PRACTICES, INCLUDING EROSION CONTROL MEASURES.

ALL PRIVATE ACCESS ROADS, DRIVEWAYS, TURN-AROUND AND BRIDGES ARE THE RESPONSIBILITY OF THE OWNER(S) OF RECORD AND SHALL BE MAINTAINED TO ENSURE THE FIRE DEPARTMENT SAFE AND EXPEDIENT PASSAGE AT ALL TIMES.



NOTE:
SEE GRADING PLAN FOR GRADING INFORMATION

SHOP SITE PLAN

1"=20'-0"

LEGEND

☐	(E) EXISTING STRUCTURES & FENCED AREAS TO REMAIN
■	(N) PROPOSED STRUCTURES
⬚	EXISTING STRUCTURES TO BE REMOVED

Revisions	By
1 11/14/2008	LB
2 2/16/2010	LB

TERRI L.N. FISHER
ARCHITECT
LICENSE NO. C14680
(831) 426-5105
SANTA CRUZ, CA 95060
380 MIRACLE LN.

DRAEGER PROPERTY
JOHN DRAEGER, OWNER
831 SMITH GRADE
BONNY DOON, CA
SITE PLAN

Drawn: TF
Date: 4/14/2008
Scale: AS SHOWN
Sheet: A2

EXHIBIT D

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES

November 8, 2008

Job No. 08032

Mr. John Draeger
831 Smith Grade
Santa Cruz, CA 95060

SUBJECT: PRELIMINARY GEOLOGIC HAZARDS INVESTIGATION
PROJECT: Geologic hazards evaluation to support red tag removal from existing development
APN 062-225-01
831 Smith Grade
Santa Cruz County, California

Dear Mr. Draeger:

We have completed our geologic hazards investigation at the above-referenced project site. Our investigation addressed potential geologic hazards associated with existing development on the parcel.

Geologic hazards that may affect the project within its design life include strong seismic shaking, and landsliding. We have evaluated these geologic hazards with respect to existing and proposed structures associated with the horse facilities and the equipment barns. We have made engineering geologic recommendations for project design in order to mitigate risks from these hazards to ordinary levels. Your project engineers and designers should carefully review and incorporate our conclusions and recommendations into the project plans.

Our recommendations are intended principally to lower the risks posed to habitable structures by geologic hazards. This report in no way implies that the subject property will not be subject to earthquake shaking, landsliding, faulting or other acts of nature. Such events could damage the property and affect the property's value or its viability in ways other than damage to habitable structures. We have not attempted to investigate or mitigate all such risks and we do not warrant the project against them. We would be happy to discuss such risks with you, at your request.

If you have any questions or comments regarding this report, please contact us at your earliest convenience.

Sincerely,
Nolan Associates

Jeffrey M. Nolan
Principal Geologist
C.E.G. #2247

Aaron Powers
Staff Geologist
M.S.

EXHIBIT D

1509 Seabright Ave. Suite A2 • P.O. Box 597 Santa Cruz, California 95061 Tel. 831-423-7006 Fax 831-423-7008
Email: 66/176ology.com

INTRODUCTION

This report presents the results of our geologic hazards investigation for the Draeger property located on Smith Grade, approximately 5 miles northwest of the city of Santa Cruz, in Santa Cruz County, California. The project site is located on Assessor's Parcel Number (APN) 062-225-01. Figure 1, Topographic Index Map, depicts the location and topographic setting of the project site.

PURPOSE OF INVESTIGATION

The purpose of our investigation was to provide an assessment of geologic hazards at the site relevant to the removal of red tags issued for unpermitted development of structures associated with horse facilities and equipment barns and to provide recommendations for prudent development of the site. Where particular geologic hazards were found to present greater than acceptable risks to the project, we developed recommendations to reduce these risks. Our geologic hazards analysis was based on an assumed 50-year design life span for the project.

SCOPE OF SERVICES

Work performed during this study included:

1. A review of geologic literature and maps pertinent to the project site, including prior geologic reports for the property:

   a. "Preliminary Landslide Investigation, Lands of Carey, Assessor's Parcel No. 62-201-02, 150 Acres on Smith Grade, Santa Cruz County, California." Report by Foxx, Nielsen and Associates, Santa Cruz, California, dated August 1990.

   b. "Slope Evaluation, Draeger Property, Smith Grade Road, Santa Cruz, Santa Cruz County, California." Memo by Nolan Associates, Santa Cruz, California, dated December 8, 1998.

2. Examination and interpretation of stereo pair vertical aerial photographs to assess the recent geologic history of the project site.

3. Field reconnaissance and geologic mapping around the project site, completed on November 4, 2008.

4. Advancing and logging three backhoe test pits on November 5, 2008

5. Preparation of a geologic base map and geologic cross sections for the project site, to be used for the geologic and geotechnical evaluations.

6. Analysis and interpretation of the geologic data and preparation of this report.

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Tularcitos, San Gregorio and Zayante-Vergeles fault systems are considered to be active. These faults present the greatest seismic hazard to the project.

SITE DESCRIPTION

The Geologic Site Map (Plate 1), Geologic Cross Sections (Plate 2), and Geologic Test Pit Logs (Plate 3) depict geologic information collected for the project site. Refer also to Figure 4, Local Geologic Map, and Figure 5, Santa Cruz County Landslide Map for generalized, smaller-scale geologic information for the project site and vicinity.

Physiographic Setting

The project site occupies roughly 136 acres of land on a west facing, moderately to steeply sloping hillside which drains to Majors and Cojo creeks, along the western and northwestern property boundaries, respectively. Elevations range from about 640 feet above mean sea level (amsl) at the northwest corner of the property, to about 1060 feet amsl on a ridge top near the southeast corner. The elevation of the horse facilities and related structures are approximately 700 feet amsl and are located in the northeastern portion of the property (Plate 1). The elevation of the equipment barn is roughly 850 feet amsl. It is built on a large fill prism laid down on a west trending spur ridge located in the center of the subject property (Plate 1).

Slope Gradients on the subject property range from approximately horizontal to almost vertical along the banks of Majors and Cojo creeks and along the flanks of the ridgecrest on the southeastern property boundary, where rock outcrops form steep cliffs. The majority of the natural slope gradients measured on the subject property during our survey ranged between 20% and 40%.

There are three broad, gently sloping areas arranged from north to south through the central portion of the property (Plate 1). The northernmost and southernmost of these three areas were used for development of the horse facilities and the equipment barn, respectively. The central flat forms a wide, open meadow that is presently undeveloped. These areas are a result of the contrast between the highly erodable Santa Margarita Sandstone and the harder, underlying Lompico Sandstone, as will be discussed in more detail in the Site Geology section.

We did observe one large fill prism in the central portion of the property located under the equipment barn, as well as a number of small cuts and fills associated with the horse facilities and access roads that traverse the subject property. We noted several incised channels on the western slopes of the fill prism due to erosion from surface water runoff. We also noted a number of transverse cracks on the fill slope, indicating some incipient, shallow failures on the face of the fill slope. We did not evaluate the density or stability of the fill prisms in the detail needed to comment on their overall stability.

The project site is vegetated chiefly with fir, redwood, oak, bay laurel, and madrone trees with moderate to dense underbrush.

EXHIBIT D

Table 1 contains a list of active faults near the subject property. The distances and directions shown on Table 1 were measured using the most recent available database of Quaternary-active faults (Bryant, 2005). See Figure 3 for locations of these faults, and Appendix B for discussions of each fault. Locally, the San Gregorio, Monterey Bay, Zayante-Vergeles, and San Andreas fault systems are considered active seismic sources (Peterson et al., 1996; Cao et al., 2003).

Table 1: Distances and Directions to Local Faults

Fault	Distance from site (km)	Distance from site (miles)	Direction from site
Monterey Bay/Tularcitos	8.8	5.5	Southeast
San Gregorio	10.3	6.4	Southwest
Zayante-Vergeles	12.2	7.6	Northeast
San Andreas	20.1	12.5	Northeast

We did not find any published maps that depict faults intersecting the project site (Hall et al., 1974; Brabb, 1989; Bryant, 2005). We did not find evidence for faulting at the project site in our aerial photo reconnaissance, during our ground mapping, or within any subsurface exposures.

Landsliding

The Santa Cruz County landslide map (Figure 5; Cooper-Clark and Associates, 1975) shows four uncertain landslides on or adjacent to the subject property. The largest of these landslides is shown to cover the majority of the central portion of the subject property. The County landslide map was prepared using stereographic aerial photographs and did not involve any ground verification of the landslide mapping. Consequently, much of the landslide mapping is approximate, particularly in areas of heavy tree cover. Figure 4 (Brabb, 1989) does not depict any landslides around the property; however, this map was intended to display major geologic units, and many property-scale landslides can be too small to be included.

In our investigation we found evidence of three pre-existing landslides on the west-facing slopes above the horse facilities and related structures (Plate 1). These landslides are inferred to be relatively moderate in depth, reaching a maximum depth of approximately 30 feet (Plate 2). We did see any evidence for the large uncertain landslide shown in the central portion of the subject property on the County landslide map, either in our aerial photo review or in our field reconnaissance. Our Test Pit 2 was excavated in the central portion of this suspected landslide. The test pit revealed intact rock. Based on these observations, we are therefore of the opinion that this landslide does not exist. The two earlier geologic investigations on the parcel (Foxx, Nielsen, 1990; Nolan Associates, 1998) reached the same conclusion. In our opinion, the broad, gently sloping area identified as a possible landslide unit surface on the County landslide map is a result of erosion of the friable Santa Margarita Sandstone from the top of the more resistant Lompico Sandtstone. No other evidence for landsliding was found around the developed sites. It should be noted, that we did not perform significant field observations on portions of the

EXHIBIT D

property not relevant to the developed sites; additional landsliding may exist outside areas studied for this investigation.

GEOLOGIC HAZARDS

The following section summarizes geologic hazards with respect to development around the subject property. We have included discussions of strong seismic shaking, ridge-top ground cracking, and landsliding. In our opinion, other geologic hazards are not likely to affect the project sites. Recommendations for mitigating geologic hazards to acceptable levels are presented in the following section. Any structures designed for habitation should have risks reduced to "ordinary" levels. An "ordinary" risk level attributable to geologic hazards is defined in Appendix C.

Seismic Shaking

Seismic shaking at the subject site will be intense during the next major earthquake along one of the local fault systems. Modified Mercalli Intensities (see Appendix B, Table B1) of up to VIII (8) are possible at the site, based on the intensities reported by Lawson et al. (1908) for the 1906 earthquake and by Stover et al. (1990) for the 1989 Loma Prieta earthquake. It is important that our recommendations regarding seismic shaking be considered in the design for habitable structures and site improvements.

We have estimated expected deterministic seismic shaking intensities for the site. A deterministic assessment considers only the effects of the largest ground motion that can be expected at a given site, regardless of how likely it is to occur within the typical 50-year design life of a single family residence.

For comparison, we have included the results of a statewide probabilistic assessment, applied to the project site. A probabilistic seismic analysis differs from a deterministic analysis in that it evaluates the probability for shaking of a certain intensity to occur at a particular site within a given time frame (50 years for residential development).

The intensity of seismic ground shaking is typically characterized as the peak acceleration that a point on the ground experiences during the shaking. Acceleration is measured as a proportion of the acceleration of the Earth's gravity, g.

Deterministic Seismic Shaking Analysis

For the purpose of evaluating deterministic peak ground accelerations for the site, we have considered the faults listed in Table 1 as potential seismic sources. All four of the faults listed in the Table 1 are considered to be active seismic sources by the State of California (Peterson et al., 1996; Cao et al., 2003). While other faults in this region may be active, their potential contribution to seismic hazards at the site is overshadowed by these closer and/or larger faults.

Table 2 shows estimated magnitudes ($M_{W(MAX)}$) and rupture geometries for the maximum expected earthquakes on each of the above-listed fault systems (Cao et al., 2003). Estimated

development at ridge top sites should be independently evaluated for ridge top ground cracking hazards.

Landsliding

We observed landsliding in the northeast portion of the subject property (Plate 1). Judging from the geomorphology of these slides, they are moderate in depth and size and can be mitigated by avoidance. The largest of the landslides does appear to cross under the access road leading from the horse facility to the equipment barn. This landslide displays muted geomorphic expression and is therefore considered to be of relatively great age. Renewed movement of this landslide is considered to be unlikely, but we recommend that no habitable structures be sited on or near the landslide mass without further investigation. The existing mobile home site is situated on intact bedrock, as demonstrated by our observations in Test Pit 3 (Located on Plate 1; Log depicted on Plate 3). The mobile home is situated away from steep slopes and is therefore not at significant risk of landsliding.

We did not observe any other evidence for landsliding on or adjacent to the other developments on the subject property. Provided that our recommendations are followed and that habitable structures are situated a minimum of 50 feet away from any recognized landslide masses, risks to the project from landsliding hazards should be considered ordinary (Appendix C). There is a possibility that movement of the large landslide near the horse facilities could damage the access road or some of the horse facilities, although we consider the risk posed by renewed movement of this landslide to be low.

CONCLUSIONS

Based on our investigation, we have identified potential hazards at the site from strong seismic shaking and landsliding. Our recommendations include measures to reduce risks to habitable structures to ordinary levels, as defined in Appendix C.

Our recommendations are intended principally to lower the risks posed to habitable structures by geologic hazards. This report in no way implies that the subject property will not be subject to earthquake shaking, landsliding, faulting or other acts of nature. Such events could damage the property and affect the property's value or its viability in ways other than damage to habitable structures. We have not attempted to investigate or mitigate all such risks and we do not warrant the project against them. We would be happy to discuss such risks with you, at your request.

RECOMMENDATIONS

1. We recommend that the project geotechnical engineer provide foundation design recommendations for any habitable structures.

2. We recommend that the project engineers consider the findings of our seismic shaking analysis in project design. Given the potential for strong seismic shaking to occur during the design life span of the proposed retaining structures, all structures should be designed to the most current standards of the California Building Code, at a minimum.

3. We recommend that any foundations constructed over artificial fill be designed to accommodate settlement of the fill. Fill materials at the site include geologic trench backfill. Alternatively, the fill may be removed and re-compacted or foundations deepened to derive support from underlying earth materials. Engineering specifications for the re-compaction of the backfill should be provided by the project geotechnical engineer.

4. Any improvements to access roads on the property should be performed under the supervision of a geotechnical engineer.

5. We recommend that all drainage from improved surfaces be captured by closed pipe or lined ditches and dispersed on site in such a way as to maintain the pre-development runoff patterns as much as possible. At no time should any concentrated discharge be allowed to spill directly onto the ground adjacent to structures or to fall directly onto steep slopes. It is particularly important to protect steep fill slopes in the area of the equipment barn from runoff. The control of runoff is essential for erosion control and prevention of water ponding against foundations and other improvements.

6. This report is issued with the understanding that it is the duty and responsibility of the owner, or of his representative or agent, to ensure that this report is provided to and brought to the attention of the architect, engineer(s) and general contractor for the project, and that all recommendations made in the report are incorporated into the plans and specifications, and that the necessary steps are taken to see that the contractor and subcontractors carry out the report's recommendations in the field.

7. We request the privilege of reviewing final project plans for conformance with our recommendations. If we are not permitted such a review, we cannot be held responsible for misinterpretation or omission of our recommendations.

8. If any unexpected variations in soil conditions, or if any unanticipated geologic conditions are encountered during construction, or if the proposed project will differ from that discussed or illustrated in this report, Nolan Associates should be notified so that supplemental recommendations can be given. Our conclusions and recommendations shall not be considered valid unless the changes are reviewed and the conclusions in this report are modified or verified in writing by a representative of Nolan Associates.

9. We recommend that home owners implement the simple safety procedures outlined by Peter Yanev in his book, *Peace of Mind in Earthquake Country*. This book contains a wealth of information regarding earthquakes, seismic design and precautions that the individual home owner can take to reduce the potential for loss of life, injury and property damage.

EXHIBIT D

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES

October 23, 2009

Job No. 08032

Mr. John Draeger
831 Smith Grade
Santa Cruz, CA 95060

SUBJECT: **Addendum Report**
Draeger Property
831 Smith Grade, Santa Cruz, CA
APN 062-251-01
Santa Cruz County, California"

REFERENCE: ***"PRELIMINARY GEOLOGIC HAZARDS INVESTIGATION***
APN 062-251-01
831 Smith Grade
Santa Cruz County, California"
Report by Nolan Associates, Santa Cruz, California
Dated November 8, 2008

Dear Mr. Draeger:

At your request, we have performed some historical research and planimetric mapping for the stream crossing on the access road to your property. The stream crossing is subject to code compliance proceedings by Santa Cruz County. This letter summarizes our findings and conclusions.

The services covered by this letter are an addendum to an earlier geologic investigation performed for the property. The historical research is meant to identify the age of the existing stream crossing based on inspection of historical aerial photos. The planimetric mapping is intended to help establish potential impacts that failure of a retaining wall in the stream channel may have on the stream crossing and on water quality in Cojo Creek.

P.O. Box 597 Santa Cruz, CA 95061 ◊ 1509 Seabright Ave. Ste. A2 ◊ Tel. 831-423-7006 Fax 831-423-7008 email na@nolanassociates.com

EXHIBIT D

Our scope of services included:

1. Review of 15 sets of stereographic aerial photos taken of the subject property between 1940 and 2003.

2. Surveying of the stream channel above the stream crossing.

3. Hand augering five test holes in the area of the retaining wall in Cojo Creek, upstream from the stream crossing.

Historical Research

We reviewed stereographic aerial photos of the subject property taken in 1940, 1941, 1943, 1948, 1953, 1956, 1957, 1963, 1968, 1973, 1975, 1982, 1989, 1997, and 2003. The stereographic aerial photo review indicates that the existing road crossing Cojo creek has been in existence at least since 1940. The area of the road and stream crossing is partially obscured by the forest canopy in all photos, so only portions of the road are visible on most photos.

Portions of the road, but not the stream crossing, are visible on the south side of Cojo Creek in the 1940 and 1941 photos, and on both sides of the creek in the 1943 photos. The stream crossing itself is clearly visible on the 1963 and 1973 photos. On the 1973 photos, an elevated road bed can be observed crossing the creek. The elevated road bed suggests that the crossing is probably a culvert or set of culverts covered with fill, as at present. In the 1963 photos, the road bed appears truncated at the creek bank due to the crossing having been removed, either on purpose or by creek erosion. The cabin that presently exists on the access road leading from Smith Grade to the stream crossing is first visible on the 1956 aerial photos.

Plannimetric Mapping

We prepared a planimetric map of a portion of the Cojo Creek upstream from the stream crossing, depicted on Plate 1. The purpose of the map is to show the distance and stream channel configuration between the retaining wall and the stream crossing ("bridge" on Plate 1), and to provide surveyed dimensions for the retaining wall and backfill. We also hand drilled five exploratory borings in the area of the wall up to 2 feet deep to help determine the lateral extent and character of the wall backfill.

The structure in question has been described as a retaining wall, although it might be more properly described as a fence. It consists of 1-1/2" diameter steel fence posts driven into the stream bank at intervals of a few feet. Welded wire mesh has been placed between the fence

EXHIBIT D

ATTACHMENT 3

posts to help retain angular rip rap placed behind the wall. Photographs showing the wall are included on Figure 1. The wall is situated about 350 feet upstream from the stream crossing.

The wall backfill consists entirely of angular rock rip rap ranging in size from about 4 inches to 24 inches in average dimension. The rip rap appears to be a mixture of sandstone and concrete clasts, with the larger pieces concentrated near the base of the wall. An apron of large rip rap pieces extends down the bank from the base of the wall to the creek bed.

We hand augered five exploratory borings to find the back edge of the rip rap fill above the top of bank. The line between native soil and rip rap was clearly demarcated by the borings. The rip rap extends about 5 feet back from the top of bank. Plate 1 shows the plan extent of the rip rap. Cross section A-A' shows a vertical section through the mid-point of the wall. The rip rap fill appears to have been merely stacked on the existing stream bank, without any sort of keying or benching (the rip rap/native contact is exposed at the ends of the wall). The rip rap fill behind the wall is calculated to be about 16 to 18 cubic yards in volume.

Conclusions

1. The present site access road has been in existence at least since the early 1940's. We infer that the stream crossing has been in use for that time. The stream crossing is visible on the 1963 and 1973 aerial photos, so we can confirm its existence at least since 1963.

2. Based on the planimetric map of the retaining wall, the wall backfill, and the stream channel, we are of the opinion that there is no potential for failure of the retaining wall to impact the proposed bridge at the stream crossing, and no potential for failure of the wall to impact water quality in the creek. The wall backfill is composed of rip rap and will not contribute to turbidity or sedimentation in the creek, were it to be exposed to erosion. We anticipate that the rip rap would be gradually transported down stream by saltation should the wall fail. The distance between the wall and the bridge, 350 feet, is such that the rip rap debris would be well spread out along the channel before reaching the stream crossing, particularly given the variation in clast size.

   Should the wall fail, the stream bank would revert to its natural configuration and hydraulic character. Any hazard posed to the adjacent cabin by lateral erosion of the creek would be the same as that which existed prior to construction of the wall. We would anticipate some local reduction in flow velocities if the wall were to fail, due to a slight increase in channel roughness from the rip rap left on the bank and a slight increase in the channel curvature at the wall site. However, in our opinion, any impacts on water velocity or erosion potential would be minor and temporary. In any case, such impacts

would dissipate a short distance downstream due to the sharp channel bends directly downstream from the wall site.

If you have any questions or comments regarding this material, please contact us at your earliest convenience.

Sincerely,
Nolan Associates

Jeffrey M. Nolan
Principal Geologist
C.E.G. #2247

Aaron Powers
Staff Geologist
M.S.

attachements: Figure 1
Plate 1

REFERENCES

Aerial Photographs

6-17-40, City of Santa Cruz 1940, frames 6472-51 to 6472-52, black and white, nominal scale 1:18,000.

4-16-41, County of San Mateo 1940A 6660, frames 7054-282 to 7054-283, black and white, nominal scale 1:24,000.

10-11-43, CJA 1943, frames 2B-23 to 2B-24, black and white, nominal scale 1:10,000.

5-5-48, CDF5 1948, frames 2-60 to 2-61, black and white, nominal scale 1:10,000.

8-6-53, USGS 1953B GS-XY, frames 4-09 to 4-10, black and white, nominal scale 1:23,000.

6-5-56, CJA 1956B, frames 5R-35 to 5R-36, black and white, nominal scale 1:10,000.

T H A R P & A S S O C I A T E S, INC.
SITE ASSESSMENTS • FOUNDATION ENGINEERING • CONSTRUCTION MONITORING

347 SPRECKELS DRIVE • APTOS • CALIFORNIA • 95003 • Tel: (831) 662-8590 Fax: (831) 662-8592

January 15, 1999
Job No. 98-104

Mr. John Dreager
4433 Merlin Way
Soquel, CA 95073

SUBJECT: **GEOTECHNICAL INVESTIGATION - ANALYSIS/DESIGN**
Draeger Residence--Bridge
Smith Grade, Santa Cruz County, CA 95060

REFERENCES: See Attached List

Dear Mr. Dreager:

1. INTRODUCTION

1.1 Purpose

a. This report presents the results of our geotechnical investigation for the proposed bridge and associated improvements located on Smith Grade Road, Santa Cruz, California.

b. The purpose of our investigation is to provide preliminary geotechnical design parameters and recommendations for the proposed bridge and associated improvements. Conclusions and recommendations related to site grading, foundations, and slabs-on-grade are presented herein.

c. Final grading, structural, and foundation plans are unavailable as of the date of this report. The intention, as we understand it, is to use the findings and recommendations of this report as a basis for developing such plans.

EXHIBIT D

2. FIELD EXPLORATION PROGRAM

Details of the field exploration, including the Boring Logs, Figures A-3 through A-4, are presented in Appendix A.

3. LABORATORY TESTING PROGRAM

Laboratory testing was performed on relatively undisturbed and bulk samples considered representative of subsurface conditions. Details of the laboratory testing program are presented in Appendix B. Test results are presented on the Boring Logs and in Appendix B.

4. SITE DESCRIPTION

4.1 Location

The project site is located geographically at 37° 0' 52" North Latitude and 122° 6' 26" East Longitude. The site is located on a driveway off of Smith Grade approximately 1 mile south west of the intersection of Empire Grade and Smith Grade near Bonny Doon, California. The site location is shown on the Location Map, Figure 1.

4.2 Surface Conditions

a. The subject site is located in a narrow valley. The banks of the creek descend steeply, approximately 7-9 feet to the creek bottom. Immediately south of the bridge are mild to steep slopes.

b. Near the creek bottom vegetation is sparse while in the upper banks it consists of small trees and brush. Above the creek banks vegetation consists of grass, thick brush and redwood groves.

c. The surface soils in the creek overbanks (generally 6± feet above the creek bottom) are composed mainly of brown silty sand and are generally medium dense, dry, and non-plastic. The creek bottom consists of sand and gravel which is loose, saturated and non-plastic.

e. Liquefaction, lateral spreading, and differential compaction tend to occur in loose, poorly graded, sands below the water table. The results of our investigation laboratory testing and engineering analysis indicate that such a layer exists in the area of Borings B-2 at a depth of 7-10± feet. The potential for these hazards to occur within the limits of the subject site are considered high. The Factor of Safety against liquefaction was found to be below the limits generally accepted as the standard of practice in Santa Cruz County. The standard value is considered to be 1.2 in Santa Cruz County. The results of our liquefaction analysis are presented in Appendix E. Mitigation measures, consisting of supporting the bridge on drilled, cast-in-place, concrete shafts which penetrate through the liquefiable layers found beneath this site, are presented in subsection 7.3 of this report.

6. HYDROLOGY AND CHANNEL HYDRAULICS

a. A 100 year flow rate of 900 cubic feet per second was calculated by means of the Soil Conservation Service Unit Hydrograph Method (SCS 1985). The unit hydrograph was generated using the computer program Visual HEC-1, a windows-based version of HEC-1, originally developed by the U.S. Army Corps of Engineers Hydrologic Engineering Center. Refer to Appendix C for details regarding methodology, a summation of the input parameters, and results.

b. Channel hydraulic analyses were performed for 3 cross-sections considered representative of the subject creek channel. The analysis was performed using the Army Corps Of Engineers HEC-RAS computer program. The analysis was performed for the existing, pre-mitigation configuration. Mitigation measures applied to creek banks consist of grading the banks back sufficiently so that the application of Reno Mattresses does not restrict the channel. Mitigation measures under the bridge are designed to reduce the potential for erosion to occur in the overbanks around the bridge piers during unforeseeable storm events such as debris blocking the channel and raising the flood elevation.

c. Methodology and results of the hydraulic calculations are presented in Appendix D. The cross sections analyzed are shown in Appendix D, Figures D-1 through D-4. The locations of the cross sections are presented on the Boring\Cross-Section Location Plan, Appendix A, Figure A-1.

EXHIBIT D

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

a. Based on the results of our investigation, it is our opinion that from the geotechnical standpoint, the subject site is suitable for the proposed bridge provided the following recommendations are implemented.

b. If these recommendations are implemented during design and construction, the danger to life and property is considered an ordinary risk (General Plan).

c. No active faults are known to exist through the site although published maps indicate the presence of faults nearby.

d. The steep banks in the area of the proposed bridge should be graded back to a minimum of 1:1 (H:V). Reno mattresses will be placed along the banks and grading should be sufficient so that the final configuration does not constrict the channel. This should be performed per the recommendations of Subsection 7.2.2.

e. It is our opinion that a foundation system composed of drilled, cast-in-place concrete shafts and grade beams will be suitable for the support of the proposed bridge.

f. The results of our hydraulic analysis indicate that the 100 year water surface elevation for the creek section beneath the bridge occurs at approximately 6 feet above the stream bed. This material is loose to medium dense silty and clayey sand. We recommend that the area beneath the bridge be graded back to a minimum slope of 1:1 and be protected with Reno mattresses. Refer to Subsection 7.4 for more detailed discussion and recommendations.

g. The results of our laboratory testing indicate that the soluble sulfate content of the on-site soils likely to come into contact with concrete is below the 0.2% generally considered to constitute an adverse sulfate condition. Therefore, it is not anticipated that sulfate attack will occur to concrete in contact with on site soils provided Type II cement was used during construction. Type II cement is considered suitable for any concrete to be used in association with improvements recommended herein or by the Project Structural Engineer.

h. A potentially liquefiable layer exists in the area of Boring B-2. Our analysis suggests that for our design earthquake and corresponding peak horizontal ground acceleration, the factor of safety against liquefaction is below the limits considered the standard of practice in Santa Cruz County. Mitigation measures consist of supporting the bridge on drilled, cast-in-place, concrete shafts which penetrate through the liquefiable layers found beneath this site.

i. We consider that the anticipated grading will not adversely affect, nor be adversely affected by, adjoining property, with due precautions being taken.

j. It is assumed that final grades will not vary more than 4± feet from current grades. Significant variations will require that these recommendations be reviewed.

k. The final Grading Plans, Foundation Plans and design loads should be reviewed by this office during their preparation, prior to contract bidding.

l. The design recommendations of this report must be reviewed during the grading phase when subsurface conditions in the excavations become exposed.

m. Field observation and testing must be provided by a representative of Donald M. Tharp & Associates to enable them to form an opinion regarding the adequacy of the site preparation, the adequacy of fill materials, and the extent to which the earthwork is performed in accordance with the geotechnical conditions present, the requirements of the regulating agencies, the project specifications and the recommendations presented in this report. Any earthwork performed in connection with the subject project without the full knowledge of, and not under the direct observation of Donald M. Tharp & Associates, the Geotechnical Consultant, will render the recommendations of this report invalid.

n. The Geotechnical Consultant should be notified at least five (5) working days prior to any site clearing or other earthwork operations on the subject project in order to observe the stripping and disposal of unsuitable materials and to ensure coordination with the grading contractor. During this period, a preconstruction conference should be held on the site to discuss project specifications, observation/testing requirements and responsibilities, and scheduling. This conference should include at least the Grading Contractor, the Architect, and the Geotechnical Consultant.

EXHIBIT D
ATTACHMENT 4

7.2 Grading

7.2.1 General

All grading and earthwork should be performed in accordance with the recommendations presented herein and the requirements of the regulating agencies.

7.2.2 Creek Bank Improvements

a. The creek banks in the area of the existing bridge are considered overly steep and should be graded back to an inclination not exceeding 1:1 (H:V). The sections to be cut back should be tied into the existing natural grade. The extent of grading should allow for Reno Mattresses to be placed without constricting the channel.

b. A lined ditch should be placed at the top of the cut slopes in order to intercept surface run-off and prevent it from running over the face of the cut slopes. Surface runoff should not be allowed to discharge over slope faces. Cut slopes should be constructed so that surface runoff will not be allowed to discharge over the top of the slope face. This may require the construction of berms or ditches along the top of slopes. Runoff collected by berms and ditches should be routed to a drop box and carried by closed conduit to the creek bed at the base of the banks.

c. Any cut back banks whose vegetation was disturbed during grading and is not protected by Reno mattresses should be revegitated with native, erosion resistant plant species. A revegetation plan including specific plant species and revegitation method should be designed by a qualified revegitation expert.

d. Care should be taken during grading not to deposit excavated material into the creek channel or stream flow as this will cause undesirable siltation downstream.

7.2.3 Site Clearing

EXHIBIT D

7.2.3 Site Clearing

a. Prior to grading, the areas to be developed for structures, pavements and other improvements, should be stripped of any vegetation and cleared of any surface or subsurface obstructions, including any existing foundations, utility lines, basements, septic tanks, pavements, stockpiled fills, and miscellaneous debris.

b. All pipelines encountered during grading should be relocated as necessary to be completely removed from construction areas or be capped and plugged according to applicable code requirements.

c. Any wells encountered shall be capped in accordance with Santa Cruz County Health Department requirements. The strength of the cap shall be at least equal to the adjacent soil and shall not be located within 5 feet of any structural element.

d. Surface vegetation and organically contaminated topsoil should then be removed from the area to be graded. The required depth of stripping will vary with the time of year the work is done and must be observed by the Geotechnical Consultant. It is generally anticipated that the required depth of stripping will be 6 to 12 inches.

Note: If this work is done during or soon after the rainy season, or in the spring, the soil may be too wet to be used as engineered fill.

e. Holes resulting from the removal of buried obstructions that extend below finished site grades should be backfilled with compacted engineered fill.

7.2.4 Preparation of On-Site Soils

a. Significant earthwork other than that required to cut back the oversteep creek banks and to replace soil disturbed during construction is not anticipated at this juncture. However, detailed earthwork recommendations have been provided should the project requirements change.

b. Drilled, cast-in-place, concrete shafts and grade beams require no reworking of materials other than that necessary to rework materials disturbed during earthwork and construction.

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c. In pavement areas the native subgrade should be reworked to a depth sufficient to provide a zone of compacted fill extending at least 24 inches below the original ground surface and should result in at least 18 inches of reworked material below the aggregate base course. This zone of reworking should extend laterally a minimum of 5 feet beyond the pavement.

d. Due to the fact that the depth of reworking will be dependent of the final pavement, grades, etc., our office should be provided with a copy of the final, approved plans prior to the commencement of earthwork operations.

e. Prior to placing fill the exposed surface should be scarified to a depth of 6 to 8 inches, moisture conditioned, and compacted.

f. Settlements may need to be evaluated should the planned grades result in the ground surface being raised 4 or more feet above the existing grades. Should this occur, some reworking of existing compressible materials may be required beneath areas to receive fill.

g. The depths of overexcavation should be reviewed by the Geotechnical Consultant during the actual construction. Any surface or subsurface obstructions, of questionable material encountered during grading, should be brought immediately to the attention of the Geotechnical Consultant for proper processing as required.

7.2.5 Fill Placement and Compaction

a. With the exception of the upper 6 inches of subgrade in pavement and driveway areas, material to be compacted or reworked should be moisture-conditioned or dried to achieve near-optimum conditions, and compacted to achieve a minimum relative compaction of 90%. The upper 6 inches of subgrade in pavement and drive areas and all aggregate base and subbase shall be compacted to achieve a minimum relative compaction of 95%. The placement moisture content of imported material should be evaluated prior to grading.

b. The relative compaction and required moisture content shall be based on the maximum dry density and optimum moisture content obtained in accordance with ASTM D-1557.

c. Fill should be compacted by mechanical means in uniform horizontal loose lifts not exceeding 8 inches in thickness.

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d. Imported fill material should be approved by the Geotechnical Consultant prior to importing. Soils having a significant expansion potential should not be used as imported fill. The Geotechnical Consultant should be notified not less than 5 working days in advance of placing any fill or base course material proposed for import. Each proposed source of import material should be sampled, tested and approved by the Geotechnical Consultant prior to delivery of any soils imported for use on the site.

e. All fill should be placed and all grading performed in accordance applicable codes and the requirements of the regulating agency.

7.2.6 Fill Material

a. The on-site soils may be used as compacted fill.

b. All soils, both existing on-site and imported, to be used as fill, should contain less than 3% organics and be free of debris and cobbles over 6 inches in maximum dimension.

7.2.7 Shrinkage and Subsidence

a. Shrinkage due to the removal and recompaction of the existing on-site fill soils is estimated to be on the order of 8 percent. Subsidence may be assumed to be ½ to 1 inch.

b. These are preliminary estimates which may vary with depth of removal, stripping loss, and field conditions at the time of grading. Handling losses are not included.

7.2.8 Excavating Conditions

a. We anticipate that excavation of the on-site soils may be accomplished with standard earthmoving and trenching equipment.

b. Groundwater was encountered during the course of our field investigation at a depth of 9 feet in Boring B-1 and at a depth of 7 feet in Boring B-2. Casing may be necessary due to flowing sands at these depths.

c. Per the Santa Cruz County Planning Department, it should be noted that equipment is not allowed in the creek channel.

7.2.9 Cut and Fill Slopes

a. All fill slopes should be constructed with engineered fill meeting the minimum density requirements of this report and have a gradient no steeper than 2:1 (horizontal to vertical). Fill slopes should not exceed 15 feet in vertical height unless specifically reviewed by the Geotechnical Consultant. Where the vertical height exceeds 15 feet, intermediate benches must be provided. These benches should be at least 6 feet wide and sloped to control surface drainage. A lined ditch should be used on each bench.

b. Fill slopes shall be benched and keyed into the native slopes by providing a base keyway whose minimum width is 10 feet and which is sloped negatively at least 2% back into the slope. The depth of keyways will vary, depending on the materials encountered, but at all locations shall be at least 2 feet into firm material. This keyway should be combined with intermediate benching as required. Refer to Figure No.3 for general details.

c. Refer to Subsection 7.2.2 for recommendations regarding cut slopes.

d. If a fill slope is to be placed above a cut slope, the toe of the fill slope should be set back at least 8 feet horizontally from the top of the cut slope. A lateral surface drain should be placed in the area between the cut and fill slopes.

e. The above slope gradients are based on the strength characteristics of the materials under conditions of normal moisture content that would result from rainfall falling directly on the slope, and do not take into account the additional activating forces applied by seepage from spring areas. Therefore, in order to maintain stable slopes at the recommended gradients, it is important that any seepage forces and accompanying hydrostatic pressure encountered be relieved by adequate drainage. Drainage facilities may include subdrains, gravel blankets, rockfill surface trenches or horizontally drilled drains. Configurations and type of drainage will be determined by the Geotechnical Consultant during the grading operations.

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f. The surfaces of all cut and fill slopes should be worked to reduce erosion. This work, as a minimum, should include track rolling of the fill slopes and effective planting of all slopes. The protection of the slopes should be installed as soon as practicable so that a sufficient growth will be established prior to inclement weather conditions. It is vital that no slope be left standing through a winter season without the erosion control measures having been provided. Refer to Subsection 7.2.2, item c. for further recommendations regarding slope revegitation.

g. The above recommended gradients do not preclude periodic maintenance of the slopes, as minor sloughing and erosion may take place.

7.2.10 Sulfate Content

The results of our laboratory testing indicate that the soluble sulfate content of the on-site soils likely to into contact with concrete is below the 0.2% generally considered to constitute an adverse sulfate condition. Therefore, it is not anticipated that sulfate attack will occur to concrete in contact with on site soils. Type II cement is considered suitable for any concrete to be used in association with improvements recommended herein or by the Project Structural Engineer.

7.2.11 Expansive Soils

a. Due to their granular nature, the expansion potential of the near surface, on site soil is considered to be low.

b. Additional expansion testing may be required to evaluate the expansivity of material proposed for imported fill.

7.2.13 Surface Drainage

a. Site drainage should be designed to collect and direct surface water away from structures to approved drainage facilities. A minimum gradient of 2± percent should be maintained and drainage should be directed toward approved swales or drainage facilities. Concentrations of surface water runoff should be handled by providing the necessary structures, paved ditches, catch basins, etc.

b. Drainage patterns approved at the time of construction should be maintained throughout the life of the structures. Surface drainage facilities must not be altered nor any grading, filling, or excavation conducted in the area without prior review by the Geotechnical Consultant

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c. Cut and fill slopes shall be constructed so that surface runoff will not be allowed to discharge over the top of the slope face. This may require the construction of berms or ditches along the top of slopes. Runoff collected by berms and ditches should be routed to a drop box and carried by closed conduit to the creek bed at the base of the banks.

d. The surface soils are classified as erodible. Therefore, the finished ground surface should be planted with ground cover and continually maintained to minimize surface erosion.

7.3 Foundations

7.3.1 General

a. Based on the results of our field exploration and laboratory testing we recommend that the proposed bridge be founded on a system composed of drilled, cast-in-place, concrete shafts and grade beams. Cast-in-place concrete shafts will ensure that foundation members will remain embedded into competent material and minimize the potential for scour and damage from liquefaction to occur.

b. At the time we prepared this report, the grading plans and foundation details had not been finalized. We request an opportunity to review these items during the design stages to determine if supplemental recommendations will be required.

6.3.2 Drilled Cast-In-Place Concrete Shafts

a. Shaft depths in cut or fill areas should be reviewed by the Geotechnical Engineer. Minimum shaft embedment should be 4± feet into the gravelly sand found in borings B-1 and B-2. This equates to a depth of 16± feet below currently existing grade. The minimum depth of embedment should be 16 feet below lowest adjacent grade.

b. The minimum recommended shaft diameter is 18 inches.

c. The estimated allowable downward and upward axial shaft capacities for 1.5, 2, and 2.5 foot diameter, drilled, cast-in-place, concrete shafts are presented in Figures 4.1 and 4.2. These were computed assuming a minimum depth of embedment of 16 feet below existing grade, penetrating into the gravelly sand underlying the site. These capacities do not include the weight of the shaft.

d. The axial capacities shown apply to a single shaft, as this is the anticipated configuration. If multiple shafts are used, group efficiencies should be evaluated on the basis of actual structural configurations in order to assess possible reductions in capacity due to group influences.

e. In the event that all or part of the shaft is placed in structural fill consisting of imported materials, allowable bearing capacities will be influenced by the type of these materials and should be re-evaluated.

f. Active pressures, as shown in Table I, (See Subsection 7.6.), from the upper 2 feet of soil against the shaft, acting on a plane which is 1 ½ times the pier diameter may be assumed for design purposes.

g. Passive pressures, as shown in Table I, (See Subsection 7.6.) acting over a plane 1 ½ times the shaft diameter, may be assumed for design purposes. Neglect passive pressure as shown in Figure 5.

h. Shafts should be spaced no closer than 2.5 diameters, with a minimum 3.0 diameters preferred.

i. The caissons drilled for the installation of the shafts should be clean, dry and free of debris or loose soil. The caissons should not deviate more than 1% from vertical.

j. Based on the results of our field exploration, caving is anticipated to present problems during caisson drilling operations in the area of the residence. Flowing sands presented a problem during the drilling of the borings past a depth of 7-8 feet. Therefore it is anticipated that casing may be necessary during drilling operations.

n. If the contractor chooses to use casing, it must be pulled during the concrete pour. It must be pulled slowly with a minimum of 4 feet of casing remaining embedded within the concrete at all times.

o. For caisson depths in excess of 12 feet, concrete should be placed via a tremie. The end of the tube must remain embedded a minimum of 4 feet into the concrete at all times.

p. All shaft construction must be observed and approved by the Geotechnical Consultant. Any shafts constructed without the full knowledge and continuous observation of Donald Tharp & Associates will render the recommendations of this report invalid.

q. The shaft(s) should contain steel reinforcement as determined by the Project Structural Engineer in accordance with applicable UBC or ACI Standards.

7.4 Erosion Control Measures

7.4.1 Erosion Susceptibility

a. The 100 year water surface elevation for the creek section beneath the bridge was calculated to be approximately 6 feet above the stream bed elevation (see Appendix D). During periods of high flow such as a 100 year flow, it is typical for debris such as fallen trees and brush to become wedged in narrow creek channels. Such an event creates additional turbulence and friction in the channel and raises the water surface elevation further. For these reasons it is considered likely that storm water flow may come in contact with the colluvial material during significant storm events such as a 100 year storm.

b. The colluvial sand with trace clay and silt that composes the banks of the stream is considered erodible for the flow velocities produced by a 100 year storm.

c. The scour depth was calculated to be 3 feet in the stream channel. Structures should be designed to accommodate for this factor.

d. Structures should be located a minimum distance of 1 foot above the 100 year water surface elevation. However, we recommend that this distance be increased to a minimum of 3 feet above the water surface elevation for the bridge height to allow for debris in the stream channel.

7.4.2 Mitigation

In order to mitigate the possibility of erosion of the exposed colluvium beneath the bridge, resulting in possible degradation in the capacity of these soils to adequately support foundation elements, we recommend that the area beneath and around the bridge be protected against erosion by the application of Reno Mattresses. The Reno Mattresses should be applied per the following recommendations.

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a. The area of application for the Reno mattresses should extend from the toe of slope, up the overbanks to the bridge foundations. The area to be protected should extend laterally beyond the bridge a distance of 15± feet in either direction. In addition, the Reno mattresses should tie into the bank a distance of 3', so as to prevent scour from behind.

b. The area of application should be graded back to provide a minimum 1:1 slope. The placement of Reno Mattresses should not encroach into the channel.

c. Beneath Reno Mattresses placed for scour protection, the native soil surface should be proof rolled to provide a firm, uniform surface.

d. The Reno Mattresses should be installed on the prepared subgrade in accordance with the manufacturer's recommendations.

e. The Reno Mattresses should be underlain by a layer of Mirafi 500X, or equivalent, woven geofabric.

7.5 Settlements

In general, very little settlement occurs with cast-in-place concrete piers. It is our opinion that little to no settlement will occur in the future under the anticipated loads.

Deformation due to seismically induced liquefaction is expected to be ± 1.5 inches. Mitigation measures consist of supporting the bridge on drilled, cast-in-place concrete shafts which penetrate through the liquefiable layers below the site.

7.6 Lateral Earth Pressures

a. The lateral earth pressures presented in Table I are recommended for use in the lateral force analysis for the existing bridge to be performed by the Project Structural Engineer.

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March 31, 2008
Project No. 08-02

Mr. John Draeger
c/o Draeger Construction
831 Smith Grade Road
Santa Cruz County, CA 95060

SUBJECT: **GEOTECHNICAL INVESTIGATION**
Geotechnical Adequacy of Existing Fills, Foundations and Retaining Walls
831 Smith Grade Road, Santa Cruz County, California
APN 062-251-01

Dear Mr. Draeger,

1. INTRODUCTION

1.1 Purpose

a. This report presents the results of our geotechnical investigation for the proposed single family residence, to be located on A.P.N. 062-251-01, 831 Smith Grade Road, Santa Cruz County, California.

b. The purpose of our investigation is to provide geotechnical design parameters and recommendations related to various existing improvements at the subject site. Conclusions and recommendations related to site grading, foundations, slabs-on-grade, retaining structures, and drainage improvements are presented herein.

c. Final grading, structural, and foundation plans are unavailable as of the date of this report. The intention, as we understand it, is to use the findings and recommendations of this report as a basis for developing such plans.

1.2 Project Description

a. Based on our discussions with you, it is our understanding that the subject project consists of the evaluation of the geotechnical adequacy of several existing improvements on a parcel in a rural residential area.

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b. The existing improvements to be evaluated include:

i. An existing wood wall retaining soil for the dressage arena.

ii. An existing cut / native pad supporting a mobile home.

iii. Existing minor fill placed behind the western horse stalls.

iv. Fill supporting an existing storage barn, it's proposed extension, and a proposed new metal workshop.

v. An existing keystone retaining wall supporting a cut slope above the dressage arena.

vi. Visual assessment of the condition of an existing logging road leading from the main entry near fill pad supporting the metal storage barn to the top of the ridge to the southeast.

c. It is our understanding, based on our discussions, that the County of Santa Cruz is not requiring that the stability of the native slopes be analyzed as part of this phase of the project. Analysis of the stability of the native slopes is therefore specifically excluded from the scope of our services on this phase of the project.

1.3 Scope of Services

The scope of services provided during the course of our investigation included:

a. Review of previous geotechnical, geologic, and seismological reports and maps pertinent to the site.

b. Field exploration consisting of 8 borings, drilled to depths of 6.5 ± to 26.5± feet below existing grade.

c. Logging and sampling of the boring by our Field Engineer, including the collection of soil samples for laboratory testing.

d. Laboratory testing of soil samples considered representative of subsurface conditions.

e. Geotechnical analyses of field and laboratory data.

f. Preparation of a report (6 copies) presenting our findings, conclusions and recommendations.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 General

a. Based on the results of our investigation, it is our opinion that from the geotechnical standpoint, the subject site is suitable for the existing improvements.

b. If these recommendations are implemented in the design and construction, the danger to human life is considered an ordinary risk (General Plan).

c. No active faults are known to exist through the site although published maps indicate the presence of faults nearby.

d. The existing wall along the northeast portion of the dressage arena is constructed of steel I-beams and wood lagging supported by drilled, cast-in-place, concrete shafts. This wall retains approximately 7 feet of soil at its highest point. The wall generally appears to be performing as designed and appears suitable for the intended use from a the geotechnical perspective. The internal stability of the wall should be verified by a Structural Engineer registered in the State of California. See Section 6.2 for further discussion.

e. The cut / native pad supporting the mobile home appears to have been constructed by cutting sufficient soil beneath the southeastern portion of the mobile home to level the pad. The resulting cuts do not appear to exceed 18 inches. The existing mobile home foundation appears to be performing generally as designed and the pad appears to be suitable for the intended use from the geotechnical perspective. The existing foundation should be verified to be in conformance with HCD guidelines. See Section 6.3 for further discussion.

f. A minor amount of fill has been placed in connection with the construction of the western horse stalls. The maximum depth of fill appears to be approximately 5 feet. This fill is retained by a small landscape wall along the northern end and by small keystone walls along the entry drive. Placement of the fill has resulted in fill slopes approximately 5 feet high trending along the eastern bank of a small drainage which runs north - south behind the stalls. The results of our field investigation and laboratory testing indicate that this area would likely be subject to both liquefaction and lateral spreading during the design seismic event. Consequent damage to the structures and injury to livestock may occur. See Section 6.4 for further discussion.

j. It is assumed that final grades will not vary more than 3± feet from current grades. Significant variations will require that these recommendations be reviewed.

k. The final Grading Plans, Foundation Plans and design loads should be reviewed by this office during their preparation, prior to contract bidding.

l. The design recommendations of this report must be reviewed during the grading phase when subsurface conditions in the excavations become exposed.

m. Field observation and testing must be provided by a representative of Tharp & Associates, Inc. to enable them to form an opinion regarding the adequacy of the site preparation, the adequacy of fill materials, and the extent to which the earthwork is performed in accordance with the geotechnical conditions present, the requirements of the regulating agencies, the project specifications and the recommendations presented in this report. Any earthwork performed in connection with the subject project without the full knowledge of, and not under the direct observation of Tharp & Associates, Inc., the Geotechnical Consultant, will render the recommendations of this report invalid.

n. The Geotechnical Consultant should be notified at least five (5) working days prior to any site clearing or other earthwork operations on the subject project in order to observe the stripping and disposal of unsuitable materials and to ensure coordination with the grading contractor. During this period, a preconstruction conference should be held on the site to discuss project specifications, observation/testing requirements and responsibilities, and scheduling. This conference should include at least the Grading Contractor, the Architect, and the Geotechnical Consultant.

6.2 Existing Wood Wall Retaining Soil along the Northern Side of the Dressage Arena

a. The existing wall along the northeast portion of the dressage arena is constructed of steel I-beams and wood lagging supported by drilled, cast-in-place, concrete shafts. This wall retains approximately 7 feet of soil at its highest point. Photographs taken during construction of this wall are presented in Figures 2 and 3.

b. The wall generally appears to be performing as designed and appears suitable for the intended use from the geotechnical perspective. The internal stability of the wall should be verified by a Structural Engineer registered in the State of California.

c. Based on the results of our field exploration, laboratory testing and review of photographs taken during construction, the following geotechnical parameters may be assumed for analysis of the wall.

d. The drilled, cast-in-place, concrete shafts may be assumed to be 1.5 ± feet in diameter.

e. Photographs taken during construction indicate that the shafts may be assumed to be approximately 10 to 12 feet deep. See Figures 2 and 3.

f. An allowable downward axial shaft capacity of 25 Kips may be assumed for analysis.

g. An allowable upward axial shaft capacity of 4 Kips may be assumed for analysis.

h. An active pressure of 45 pcf (equivalent fluid pressure) may be assumed to be imposed by the wall backfill and the upper 2 feet of soil against the shaft, acting on a plane which is 1 ½ times the pier diameter.

i. A passive pressure, of 400 pcf (equivalent fluid pressure) acting over a plane 1 ½ times the shaft diameter, may be assumed for analysis. Neglect passive pressure in the top 2 feet of soil. Passive pressures may be increased by one-third for seismic loading.

j. A seismic loading of 22 H^2 should be applied as a rectangular distribution behind the wall whose resultant acts at a point 0.6 H from the bottom of the wall.

6.3 Existing Cut / Native Pad Supporting a Mobile Home

a. The cut / native pad supporting the mobile home appears to have been constructed by cutting sufficient soil beneath the southeastern portion of the mobile home to level the pad. The resulting cuts do not appear to exceed 18 inches.

b. The results of our field exploration indicate that the soils composing the pad are generally brown sands with trace to some silt. The results of our laboratory testing indicate that the soil supporting the mobile home foundations may be considered of very low expansivity and only very slightly compressible under the loads anticipated for a mobile home.

c. Based on material type and the results of our laboratory testing this material is not considered collapsible and settlements due to imposed loads should be elastic. Further total and differential settlements beneath foundation elements are expected to be within tolerable limits. Further vertical movements are not expected to exceed 1 inch. Further differential movements are expected to be within the normal range (½ inch) for the estimated loads and existing spacings.

d. Mobile home foundations generally fall under the jurisdiction of the California Department of Housing & Community Development. (HCD) Allowable soil bearing capacities of 1000 psf are generally assumed for design. Based on the results of our investigation this value is considered acceptable for the pad as graded.

e. The existing mobile home foundation is composed of 8 x 16 masonry blocks supporting the coach rails and appears to be performing generally as designed.

f. The pad appears to be suitable for the intended use from the geotechnical perspective.

g. The existing foundation should be verified to be in conformance with HCD guidelines.

6.4 Existing Minor Fill Placed Behind the Western Horse Stalls

a. A minor amount of fill has been placed in connection with the construction of the western horse stalls. The maximum depth of fill appears to be approximately 5 feet. This fill is retained by small landscape walls at the northern end and along the entry drive. Placement of the fill has resulted in fill slopes approximately 5 feet high trending along the eastern bank of a small drainage which runs north - south behind the stalls.

b. The results of our field investigation and laboratory testing indicate that both the fill and the underlying subgrade are in a very loose to loose in-situ condition. Groundwater was encountered at a depth of 9 ± feet in this area.

c. This area would likely be subject to both liquefaction and lateral spreading during the design seismic event. The resulting differential settlements are impossible to quantify as failure of the fill slopes and consequent loss of support beneath the stall foundations and slabs could result. As the stalls are not considered habitable structures, liquefaction and lateral spreading is not considered to constitute a threat to human safety, however, damage to the structures and injury to livestock may occur.

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6.5. Fill Supporting an Existing Storage Barn, It's Proposed Extension, and a Proposed New Metal Workshop.

a. A significant amount of fill has been placed to construct a building pad in the area supporting an existing storage barn, it's proposed extension, and a proposed new metal frame workshop. The fill is composed of compacted, imported, aggregate base.

b. The maximum depth of fill encountered in our exploratory borings was about 8 feet in the area proposed for the storage barn extension, represented by boring B-2. The resulting fill slope has an angle of inclination of approximately 1.5 : 1 horizontal to vertical.

c. The average relative compaction of the in-place fill is approximately 95%.

d. The results of our field exploration suggests that the native material below the fill is composed of very dense gravelly sand. We were unable to determine if the fill has been keyed and benched into the native soil. No subdrainage appears to have been installed. Erosion rills are present near the base of the fill slope.

e. In general the fill in this area seems to have been uniformly placed and compacted to commonly specified engineering standards. However, the resulting fill slopes are steeper than the 2 : 1 horizontal to vertical inclination commonly recommended, and specified in Santa Cruz County. This, combined with the lack of subdrainage at the contact between the fill and the dense, relatively impervious, native material underlying it, raises concern over the potential for instability. While, as in the case of the fill supporting the horse stalls discussed in 6.3 above, the improvements are non-habitable structures, and therefore any instability would not constitute a threat to human safety, significant damage to the structures and their contents may occur.

f. We therefore recommend that the inclination of the fill slopes be reduced to a maximum of 2 : 1 horizontal to vertical and that subdrainage be provided. This may be accomplished either by buttressing the slopes with further fill and providing a subdrain in the requisite keyway or by constructing retaining walls at the base of the fill slopes and providing the walls with backdrains.

g. Further fill placed in this area should be keyed and benched into the existing fill and / or native soils as required and compacted by mechanical means in uniform horizontal loose lifts not exceeding 8 inches in thickness to achieve a minimum relative compaction of 90%. The relative compaction and required moisture content shall be based on the maximum dry density and optimum moisture content obtained in accordance with ASTM D-1557.

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h. The final prepared surface of the fill slopes should be provided with erosion protection.

i. Structures placed on this fill may be founded on a system composed of conventional, shallow, continuous and pad footings or a slab-on-grade with thickened edge sections.

j. The allowable bearing capacity may be determined from the following equation:

$$q_{all} = 2000 + 1000D + 100B$$

where:

q_{all} = allowable bearing capacity (lb/ft^2)

D = Depth of embedment (ft) measured from the lowest adjacent grade.

B = minimum footing width (ft)

k. The allowable bearing capacity used should not exceed 3500 lbs/ft^2.

l. The allowable bearing capacity values above may be increased by one-third in the case of short duration loads, such as those induced by wind or seismic forces.

m. The allowable bearing capacity values above apply to both square pad footings and shallow strip footings, although they are slightly conservative for the pad footing case.

n. In computing the pressures transmitted to the soil by the footings, the embedded weight of the footing may be neglected.

o. The footings should contain steel reinforcement as determined by the Project Structural Engineer in accordance with applicable UBC or ACI standards.

p. No footing should be placed closer than 8 feet to the top of a fill slope nor 6 feet from the base of a cut slope.

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q. Further total and differential settlements beneath existing foundation elements are expected to be within tolerable limits. Further vertical movements are not expected to exceed 1 inch. Further differential movements are expected to be within the normal range (½ inch). Similar settlements are anticipated beneath proposed structures. These preliminary estimates should be reviewed by the Geotechnical Consultant when foundation plans for the proposed structures become available.

6.6 Existing Keystone Retaining Wall above the Dressage Arena

a. The existing keystone retaining wall supporting the cut slope along the southern edge of the dressage arena retains approximately 5 to 6 feet of landscape fill and native materials in the area explored. Photographs taken during construction of this wall are presented in Figures 4 and 5.

b. The wall generally appears to be performing as designed and appears suitable for the intended use from the geotechnical perspective. However, keystone retaining walls of this height usually require the placement of geofabric in the backfill behind them. While photographs taken during construction suggest that such geofabric was installed in the gravel placed directly behind the wall, the required development length of the fabric may be less than that recommended by the manufacturer. The internal stability of the wall should be verified by a Structural Engineer registered in the State of California.

c. Based on the results of our field exploration, laboratory testing and review of photographs taken during construction, the following geotechnical parameters may be assumed for analysis of the wall.

d. An active pressure of 45 pcf (equivalent fluid pressure) may be assumed to be imposed by the wall backfill.

e. A passive pressure, of 400 pcf (equivalent fluid pressure) may be assumed for analysis. Neglect passive pressure in the top 2 feet of soil. Passive pressures may be increased by one-third for seismic loading.

f. A layer of tensile Geofabric may be assumed to have been placed in the gravel backfill behind the wall at the elevation of the top of the first course of block above the grade of the dressage arena floor. This layer of geofabric may be assumed to extend 8 feet behind the wall.

g. The soil behind the gravel backfill may be assumed to have an angle of internal friction of 36 degrees and a cohesion of 130 lb/ft ^{2}.

h. A layer of filter fabric may be assumed to be in place behind the wall between the gravel and the soi

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ATTACHMENT

i. Backdrainage may be assumed to be adequate to prevent undue build-up of hydrostatic pressure behind the wall.

j. A seismic loading of 22 H^2 should be applied as a rectangular distribution behind the wall whose resultant acts at a point 0.6 H from the bottom of the wall.

6.7 Observation of the Existing Logging Road to the Top of the Ridge

During our field exploration our engineer observed the condition of an existing logging road leading from the main entry road to the top of the ridge to the southeast of the storage barn area. In addition, we have reviewed the preliminary alignment drawings for this road prepared by DeWitt Engineering. Based on our observations and review of the drawings provided, improvement of the road appears feasible from the geotechnical perspective, however, evaluation of the existing logging road was beyond the scope of our services on this phase of the project and further geotechnical investigation would be required to confirm the feasibility of any improvements.

7. LIMITATIONS

a. Our investigation was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in this report.

b. The samples taken and tested, and the observations made, are considered to be representative of the site; however, soil and geologic conditions can vary significantly between sample locations.

c. As in most projects, conditions revealed during construction excavation may be at variance with preliminary findings. If this occurs, the changed conditions must be evaluated by the Project Geotechnical Consultant and the Geologist, and revised recommendations be provided as required.

d. This report is issued with the understanding that it is the responsibility of the Owner, or of his Representative, to ensure that the information and recommendations contained herein are brought to the attention of the Architect and Engineer for the project and incorporated into the plans, and that it is ensured that the Contractor and Subcontractors implement such recommendations in the field.

ATTACHMENT 4

Item 5.2

THARP & ASSOCIATES, INC.
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November 3, 2008
Project No. 08-02

Mr. John Draeger
c/o Draeger Construction
831 Smith Grade Road
Santa Cruz County, CA 95060

SUBJECT: **ADDENDUM TO GEOTECHNICAL INVESTIGATION REPORT**
~~Option to Use Pier and Grade Beam Foundation~~
Retaining Walls Below Fill Slopes Supporting Storage Facilities
831 Smith Grade Road, Santa Cruz County, California
APN 062-251-01

REFERENCE: Tharp & Associates, Inc., 2008, Geotechnical Investigation, Geotechnical Adequacy of Red Tagged Improvements, Existing Fills, Foundations and Retaining Walls, 831 Smith Grade Road, Santa Cruz County, California, APN 062-251-01, March 31, 2008, Project No. 08-02.

Dear Mr. Draeger,

1. INTRODUCTION

a. Per our conversations with you and your structural engineer, this addendum is being provided in light of your desire to use pier and grade beam foundations to support pier-and-lagging retaining walls to be constructed at the base of the fill slopes supporting the existing storage barn, it's proposed extension, and a proposed new metal workshop. See reference, subsection 6.5.

b. As discussed, it is our opinion that the proposed retaining walls may be founded on a system composed of drilled, cast-in-place, concrete shafts and grade beams. The drilled, cast-in-place concrete shafts should be embedded **a minimum** of 8 feet below the bottom of the grade beams or 5 feet into the dense, native, gravelly sand, whichever is greater. See Section 2 for grading recommendations. See Section 3 for foundation recommendations.

c. Final grading, structural, and foundation plans are unavailable as of the date of this report. The intention, as we understand it, is to use the findings and recommendations of this report as a basis for developing such plans.

d. Except as amended herein, all recommendations presented in the referenced report generally continue to apply.

2. PREPARATION OF ON-SITE SOILS

a. With drilled cast-in-place concrete shafts and grade beams, no over excavation and recompaction of the native subgrade beneath the walls will be necessary, other than that required to recompact material disturbed during construction.

b. It is our understanding, based on our conversations that the inclination of the slopes in this area is to be reduced to a maximum of 2 horizontal to 1 vertical by placing additional fill on the face of the slopes behind the walls. Further fill placed in this area should be keyed and benched into the existing fill and / or native soils as required and compacted by mechanical means in uniform horizontal loose lifts not exceeding 8 inches in thickness to achieve a minimum relative compaction of 90%. The relative compaction and required moisture content shall be based on the maximum dry density and optimum moisture content obtained in accordance with ASTM D-1557.

3. FOUNDATIONS

3.1 General

a. Based on the results of our field exploration and laboratory testing, it is our opinion that the proposed pier-and-lagging retaining walls may be supported on a foundation system composed of drilled, cast-in-place concrete shafts and grade beams.

b. At the time we prepared this report, the grading plans and foundation details had not been finalized.

c. We request an opportunity to review these items during the design stages to determine if supplemental recommendations will be required.

3.2 Drilled Cast-In-Place Concrete Shafts

a. The drilled, cast-in-place concrete shafts should be embedded a minimum of 8 feet below the bottom of the grade beams or 5 feet into the dense, native, gravelly sand, whichever is greater.

b. The minimum recommended shaft diameter is 18 inches.

c. The estimated allowable downward and upward axial shaft capacities for 1.5, 2, and 2.5 foot diameter, drilled, cast-in-place, concrete shafts are presented in Figures 1.1 and 1.2. These capacities do not include the weight of the shaft.

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n. For caisson depths in excess of 8 feet, concrete should be placed via a tremie. The end of the tube must remain embedded a minimum of 4 feet into the concrete at all times.

o. All shaft construction must be observed and approved by the Geotechnical Consultant. Any shafts constructed without the full knowledge and continuous observation of Tharp & Associates, Inc. will render the recommendations of this report invalid.

4. LIMITATIONS

a. This addendum was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in this report.

b. The samples taken and tested during our original investigation, and the observations made, are considered to be representative of the site; however, soil and geologic conditions can vary significantly between sample locations.

c. As in most projects, conditions revealed during construction excavation may be at variance with preliminary findings. If this occurs, the changed conditions must be evaluated by the Project Geotechnical Consultant and the Geologist, and revised recommendations be provided as required.

d. This addendum is issued with the understanding that it is the responsibility of the Owner, or of his Representative, to ensure that the information and recommendations contained herein are brought to the attention of the Architect and Engineer for the project and incorporated into the plans, and that it is ensured that the Contractor and Subcontractors implement such recommendations in the field.

e. This firm does not practice or consult in the field of safety engineering. We do not direct the Contractor's operations, and we are not responsible for other than our own personnel on the site; therefore, the safety of others is the responsibility of the Contractor. The Contractor should notify the Owner if he considers any of the recommended actions presented herein to be unsafe.

f. The recommendations provided in this addendum are considered valid as of the present date. However, changes in the conditions of a site can occur with the passage of time, whether they be due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge.

EXHIBIT D

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
KATHY M. PREVISICH, PLANNING DIRECTOR

June 15, 2010

John Draeger Trustee
831 Smith Grade Road
Santa Cruz, CA 95060

And,

Patrizia Materassi
178 Nelson Road
Scotts Valley, CA 95066

Subject: Review of:

"Geotechnical Investigation Draeger Residence – Proposed Bridge", by Don Tharp & Associates, Job No. 98-104, dated January 1999;

"Geotechnical Report Update", by Don Tharp & Associates, Job No. 08-02, dated November 12, 2008;

"Geotechnical Adequacy of Existing Fill Beneath Shop and Storage Barn", Job No. 08-02, dated May 12, 2009;

"Geotechnical Plan Review – Application Set", Job No. 08-02, dated May 16, 2009;

"2nd Response to Review Comments", Job No. 08-02, dated February 15, 2010; and,

"Geotechnical Plan Review of Revised– Application Set", Job No. 08-02, dated May 25, 2010.

and,

"Preliminary Geologic Hazards Investigation", by Nolan Associates, Job No. 08032, dated November 8, 2008;

"Plan Review – Code Compliance Documents for the Draeger Property", by Nolan Associates, Job No. 080[illegible] May 13, 2009; and,

EXHIBIT D

"Response to Completeness Comments" ", by Nolan Associates, Job No. 08032, dated June 3, 2010.

APN: 062-251-01, Application #: 08-0150

Dear Ms. Materassi,

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

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

2. Final plans shall reference the reports and include a statement that the project shall conform to the reports' recommendations. Plans shall also provide a thorough and realistic representation of all grading necessary to complete this project

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

4. A final letter from the engineering geologist must be submitted at the end of the project before final building inspection. The letter must state the has been complete in accordance with his approved report.

5. Please provide an electronic copy of the reports in .pdf format. These documents may be submitted on compact disk or emailed to pln829@co.santa-cruz.ca.us .

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 note that this determination may be appealed. Please contact me if you would like to file an appeal and I will provide guidance on how to proceed.

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

Sincerely,

Joe Hanna
County Geologist

Cc:
Robert L. DeWitt and Associates
Nolan Associates
Jessica Duktig, Environmental Planning
Tharp and Assoicates, Inc.

EXHIBIT D

ATTACHMENT 5

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

After issuance of the building permit, the County requires 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 and per the requirements of the 2007 California Building Code. 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.

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County of Santa Cruz, PLANNING DEPARTMENT

Discretionary Application Comments 08-0150

APN 062-251-01

Code Compliance Review

Routing No:

COMPLETENESS COMMENT
REVIEW ON MAY 14, 2008 BY KEVIN M FITZPATRICK
this addresses all the code violations.

UPDATED ON JULY 17, 2009 BY KEVIN M FITZPATRICK
owner has a July 23, 2010 compliance deadline. (KMF) Application addresses code violations.

MISCELLANEOUS COMMENT:
REVIEW ON MAY 14, 2008 BY KEVIN M FITZPATRICK
Per Stipulation and Order, all permits to be obtained and finaled by 5/23/2009.

UPDATED ON JULY 17, 2009 BY KEVIN M FITZPATRICK
Owner has a July 23, 2010 compliance deadline.
Extension to compliance deadline has been granted. (KMF) =========

Coastal Commission Review

Routing No: 1 | Review Date:

NO COMMENT

Drainage Review

Routing No: 1 May 31, 2008

Application with preliminary site plan dated 4/21/08 (sheet T1), civil plans dated April 2, 2008 (sheets CO.2 - C6.4) and architectural plans dated 4/21/2008 (sheets A1- A10) have been received.

Please address the following:

1)Clarify on all sheets associated with drainage mitigation what exactly is:

- **a)Existing permitted**
- **b)Existing non permitted**
- **c)Proposed**

For drainage review this should include all impervious areas, such as driveway, parking areas, walkways as applicable not just structures. Review comments address primarily new construction however all non-permitted areas will be reviewed as new and will be subject to the

EXHIBIT D
ATTACHMENT 8

same drainage requirements. For all areas please provide pertinent drainage information on dedicated drainage plan sheets rather than parsed between A and C sheets.

2) Projects are required to maintain predevelopment rates where feasible. Mitigating measures should be used on-site to limit increases in post-development runoff leaving the site. Best Management Practices should be employed within the development to meet this goal as much as possible. Such measures include limiting impervious areas, using pervious or semi-pervious pavements, runoff surface spreading, dischargingrunoff from impervious areas into landscaping, retention facilities, etc.

Given the large size of this parcel and the high infiltration capability of site soils, it appears that you can retain on site all increases in runoff due to new impervious area. Please demonstrate that this requirement is being met and account for the affects in stormwater calculations.

Site retention will be deemed sufficient once it is demonstrated that the runoff rate (in cubic feet per second) from the proposed and non-permitted site improvements will not be any greater than the existing runoff rate. Calculations should include site specific soils data from a soils engineer or the more general values obtained from the USDA-NRCS Soil Survey for Santa Cruz County: http://www.ca.nrcs.usda.gov/mlra02/stcruz.html

3) Runoff from parking and driveways are required to go through water treatment prior to discharge. Outsloping areas to drain to landscaped areas for filtering prior to discharge from the site is also acceptable and preferable. If use of landscaped areas is not feasible and structural treatment is proposed, recorded maintenance agreements are required. Please clarify on the plans the method used for treatment.

4) More information is needed about drainage patterns in the watershed area containing the subject parcel. How much runoff is received onsite from upslope properties and how is this runoff to be controlled? Show (quantitatively, if necessary) that the proposed drainage plan is adequate in this respect. Include the drainage area map used to quantify the flow.

5) Road sections which were or will be re-graded, clarify how surface runoff is controlled. Details indicate compaction for swales. To what degree are the swales compacted? Does the compaction allow the swales remain semi-pervious / pervious such that it still allows runoff to infiltrate?

6) For all graded areas, proposed or non- permitted, both existing and proposed or modified drainage patterns should be clear on the plans. Existing drainage patterns should be maintained.

EXHIBIT D

7) The plans indicate that runoff will be collected and discharged to dissipators. Show how overflow from dissipators will be handled until it reaches a safe point of release such as an adequate drainage system or a water course. Demonstrate that runoff will not adversely impact roads or downslope properties.

8) If conditions allow please consider discharging runoff from impervious areas into landscaping or vegetated swales as the case may be rather than hard piping runoff or using concrete swales.

9) Submit a soil engineer review letter approving the location of the the dissipators. Letter must state that the dissipator locations are on a stable slope and would not be a factor of soil erosion. Also that the dissipator are suitable and capable of receiving expected velocity fro the project storm runoff.

10) Provide flood flow analysis for the bridge work.

11) Will existing bridge approaches be modified? If so, will the project result in an increase in impervious area?

12) Details on Sheet C5.4 are identified as being on Sheet C5.5.

Until further information is submitted addressing the above comments, including calculations for proposed drainage systems, a thorough review of this application cannot be completed. Once submitted, additional items may need to be addressed before the application can be deemed complete.

If you have questions, please contact me at 831-233-8083.

========= UPDATED ON DECEMBER 11, 2008 BY LOUISE B DION =========

COMMENTS:----------

Application with plans with revision dated 11/18/08 and Drainage Calculations by Robert DeWitt dated April 14, 2008 have been received.

While the previous completeness comments have not been completely addressed our concerns regarding feasibility for proposed drainage system have been and the application is deemed complete with respect to the discretionary permit application stage. Detailed review of drainage system

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design and calculations will occur during the building permit application stage.

Please see miscellaneous comments for additional guidance.

========= UPDATED ON AUGUST 3, 2009 BY LOUISE B DION =========
While DPW drainage has determined the proposed drainage plan is feasible and deferred detail review of the drainage calculation during the building permit application, planning staff had requested that all comments list in the miscellaneous comments be addressed by the appplicant then reviewed and approved by DPW drainage during the discretionary permit apllication stage. These comments have not been fully addressed.
========= UPDATED ON MARCH 25, 2010 BY LOUISE B DION =========
It is DPW drainage staff's understanding that based on a meeting with Matt Johnston a final overall drainage plan is unnecessary at this stage. Therefore the discretionary permit is acceptable from a feasibility standpoint and additional DPW drainage review is not required at this time. As such please note that Bob DeWitt's correspondence dated March 1, 2010 will be reviewed and commented on during the building permit application stage.

As an aside, page 5 of Patrizia Materassi's correspondence dated March 4, 2010 indicates that DPW drainage plan review corresponds to erosion control plan and restoration plan review. Please note DPW drainage review does not include erosion control plan nor restoration pla review or approval.

MISCELLANEOUS COMMENT:
========= REVIEW ON MAY 31, 2008 BY LOUISE B DION =========
NO COMMENT
========= UPDATED ON DECEMBER 11, 2008 BY LOUISE B DION =========

The following comments need to be addressed prior to building permit approval:

1) Clarify on all sheets associated with drainage mitigation what exactly is:

a)Existing permitted
b)Existing non permitted
c)Proposed

For drainage review this should include all impervious areas, such as driveway, parking areas, walkways as applicable not just structures. In addition to new construction all all non-permitted areas will be reviewed as new and will be subject to the same drainage requirements.

2) Provide calculations supporting soil infiltration as the proposed method to control runoff. Calculations should include site specific soils data from a soils engineer or the more general values obtained from the USDA-NRCS Soil Survey for Santa Cruz County: http://www.ca.nrcs.usda.gov/mlra02/stcruz.html

3) Include the drainage area map used to quantify the flow in the Drainage Study.

4)Remove all references to any road grading from plans as it is no longer proposed.

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5) If conditions allow please consider discharging runoff from impervious areas into landscaping or vegetated swales as the case may be rather than hard piping runoff or using concrete swales.

6)Provide calculations supporting Robert DeWitt statement in response #7 (correspondence dated 11/13/08), that flows will be fully dissipated prior to reaching the creek or other property lines. Overflow from larger storm events should be evaluated.

7) Submit a soil engineer review letter approving the location of the the dissipators. Letter must state that the dissipator locations are on a stable slope and would not be a factor of soil erosion. Also that the dissipator are suitable and capable of receiving expected velocity fro
COMMENTS:----------
the project storm runoff.

8) Unfortunately the Hydrology Study was not routed to us for review. The flood flow analysis for the bridge work will be evaluated during the building permit submit. Please submit the report again at that time.

9) Clarify whether the existing bridge approaches will be modified and how drainage will be controlled, provide calculations if necessary.

Driveway/Encroachment Review

Routing No: 1 | Review Date: 12/03/2008
DEBRA LOCATELLI (DLOCATELLI) : Complete

:Review Type= DPW DRIVEWAY/ENCROACHMENT NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 2 | Review Date: 03/12/2010
DEBRA LOCATELLI (DLOCATELLI) : Complete

:Review Type= DPW DRIVEWAY/ENCROACHMENT NO PROJECT REVIEW DESCRIPTION AVAILABLE

EXHIBIT D

Routing No: 3 | Review Date:

() :

:Review Type= DPW DRIVEWAY/ENCROACHMENT NO PROJECT REVIEW DESCRIPTION AVAILABLE

Environmental Health Review

Routing No: 1 | Review Date: 07/30/2009

Environmental Health Review

JIM SAFRANEK (JSafranek) : Complete

:Review Type= ENVIRONMENTAL HEALTH NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 2 | Review Date: 03/25/2010

JIM SAFRANEK (JSafranek) : Complete

:Review Type= ENVIRONMENTAL HEALTH NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 3 | Review Date: 06/16/2010

JIM SAFRANEK (JSafranek) : Complete

:Review Type= ENVIRONMENTAL HEALTH ========= REVIEW ON JUNE 3, 2008 BY JIM G SAFRANEK ========= Applicant must obtain a sewage disposal permit for the new development. Applicant will have to have an approved water supply prior to approval of the sewage disposal permit. Contact the septic/well specialist:454-2751 ========= UPDATED ON OCTOBER 2, 2008 BY JIM G SAFRANEK ========= Applicant received an approved onsite sewage disposal site evaluation and is in the process of developing an onsite water supply. The project is approved for 'completeness' with the condition that EH permits for septic and water supply are complete prior to the issuance of a BP. ========= UPDATED ON DECEMBER 1, 2008 BY JIM G SAFRANEK ========= Prior to the addtion of the 4 horses the applicant will need to obtain an EH building clearance for the proposed horse manure bunker which will need a building permit. Applicant needs to obtain Environmental Health approval for a complete manure management plan, including drainage plan in the horse area, and design for a manure bunker in the horse area. ========= UPDATED ON DECEMBER 19, 2008 BY JOHN A RICKER ========= ========= UPDATED ON DECEMBER 19, 2008 BY JOHN A RICKER ========= ========= UPDATED ON JULY 30, 2009 BY JIM G SAFRANEK ========= John Ricker examined the revised Manure Man. Plan. For completeness the applicant will need to address these issues: The location of the manure bunker so far from the horses is of concern; the bunker should be located next to the horses. The size of the bunker needs to be doubled to accomodate the anticipated amount of manure (especially for winter storage). The bunker design will require 2 bays and a roof. Bunker must be 100' from the creek. ========= UPDATED ON MARCH 9, 2010 BY JIM G SAFRANEK ========= ========= UPDATED ON MARCH 25, 2010 BY JIM G SAFRANEK ========= Project is approved by EHS for completeness. See misc for septic comment. ========= UPDATED ON JUNE 16, 2010 BY JIM G SAFRANEK ========= Project is approved by EHS for completeness. MISCELLANEOUS COMMENT: ========= REVIEW ON JUNE 3, 2008 BY JIM G SAFRANEK ========= As far as I know anything on septic going through Coastal is the larger EHS review fee; remainder that's due is payable to Planning. ========= UPDATED ON

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MARCH 25, 2010 BY JIM G SAFRANEK ========= The EHS program manager determined that an enhanced treatment sewage disposal system permit appl will be required for the mobile home based on the soil perc tests and parcel watershed location. This can be a condition to

Environmental Health Review

Routing No: 3 | Review Date: 06/16/2010
JIM SAFRANEK (JSafranek) : Complete

be met prior to the issuance of a BP. EHS Clearnce required at time of BP as well.

Environmental Planning

Routing No: 1 | Review Date: 06/04/2008
ANTONELLA GENTILE (AGENTILE) : Complete

:Review Type= ENVIRONMENTAL PLANNING NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 2 | Review Date: 03/29/2010
JESSICA DUKTIG (JDUKTIG) : Complete

:Review Type= ENVIRONMENTAL PLANNING NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 3 | Review Date: 07/09/2010
JESSICA DUKTIG (JDUKTIG) : Complete

:Review Type= ENVIRONMENTAL PLANNING ========= REVIEW ON JUNE 3, 2008 BY CAROLYN I BANTI ========= - Completeness Comments - Soils and Grading - First Review - These comments saved by Diane 8/4/09 ========= UPDATED ON JUNE 4, 2008 BY ANTONELLA GENTILE ========= First review comments continued - Biotic and Riparian issues --- These comments saved by Diane 8/4/09 ========= UPDATED ON DECEMBER 17, 2008 BY CAROLYN I BANTI ========= ++ Second Review Completeness Comments ++ 1. The geology report has been received (Nolan Associates, Job No. 08032, 11/8/08) and is currently in review status. 2. A geotechnical investigation for the proposed bridge prepared by Tharp and Associates, Inc. (1/15/99) has been received, along with an update for the report dated 11/12/08. The report includes a recommendation for -reno mattresses- to be installed to prevent erosion beneath the bridge. This recommendation has not been implemented on the plans, and would need to be reviewed for impacts to aquatic habitat prior to implementation. The current plans show bio-degradable -ballast bags- that do not meet the need for permanent erosion protection for the bridge and streambed restoration requirements. Our previous comment requested appropriate rock sizes to be determined for rocks to be used in the stream channel to ensure they will not move in high flow periods. Comment not addressed. See Completeness Comment No. 24 for additional information. 3. We have not received a letter from the structural engineer regarding the structural integrity of the existing retaining wall supporting the riding arena. Please submit this with the subsequent building permit application. Comment moved to Conditions of Approval. 4. The engineering geology report is currently under review; the soils report cannot be accepted until all technical reviews are complete. 5. Plan review letters from the soils engineer and engineering geologist not submitted at this time. Comment not addressed. 6-9. Comments 6-9 not addressed. Resubmitted information indicates that the cabin will be left as a non-habitable structure and the bank protection structure removed. The bank protection structure has not been authorized,

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Routing No: 3 | Review Date: 07/09/2010
JESSICA DUKTIG (JDUKTIG) : Complete

as well as the fill behind the structure. The removal of these items must be shown on the plans. Also, please submit additional technical information that demonstrates the cabin will not be undermined, potentially impacting aquatic habitat in Coho Creek. Additional hydrologic information must be submitted that states the upstream and downstream impacts of this removal and provides mitigation recommendations for any potential detrimental effects this may have on the channel. See Completeness Comment No. 24 for additional information. 10. Please also provide the date of the survey prepared by Ward Surveying. 11. Received: -Geotechnical Investigation, Draeger Residence - Proposed Bridge-, Tharp and Associates, 1/15/99, -Geotechnical Report Update, Bridge Over Tributary to Majors Creek-, Tharp and Associates, 11/12/08. Additional information required, see Completeness Comment No. 24. 12. Although the soils report establishes a 100-year base flood elevation and provides scour estimates in the vicinity of the bridge, the report does not provide rock sizes for streambed restoration, nor does the report analyze the effects of the removals of both the erosion protection wall and the four existing culverts on the channel configuration upstream/downstream of the improvements. (See Completeness Comments No. 2 and 24) 13. A cross section of the channel and bridge is provided on Sheet C3.2. The cross section should be revised to show the location of the proposed piers. Please see Compliance Comment No. 7 and 11 for additional bridge issues. 14-15. The contour lines have not been updated, nor is the top-of-wall and bottom-of-wall information complete. Current plans are sufficient for conceptual review, but additional details will be required at the building permit stage. Comments have been moved to Conditions of Approval. 16. As previously noted, please provide the survey date. 17. Comment addressed. 18. Location of the retaining structure labeled. Please add removal note to plans. 19. Tharp and Associates- response to this comment recommended that the bank along the inboard edge of the driveway should be graded back to 1.5H:1V or retained. The grading plans do not appear to incorporate either of these recommendations. Please provide additional information with regard to treatments for this area, along with additional survey data as necessary. The proposed restorative work must be approved by the soils engineer in their plan review letter. 20. The Biotic Report is currently under review. Further comments will be made once the report review has been completed. 21. Comment addressed, fee paid. 22. Environmental Health reviews the manure management plan, not Environmental Planning. 23. The 50-foot riparian buffer has been shown. The existing development is located at least 60-feet from the mean high water line. ADDITIONAL COMPLETENESS COMMENTS AFTER SECOND REVIEW 24. The information requested regarding hydraulics in the areas of the existing bank repair and bridge is insufficient to determine the effects of the removal of the bank repair and culverts on the channel configuration and depth. Both these activities will require permits from the Department of Fish and Game and Riparian Exceptions from the County of Santa Cruz. Please arrange a site consultation with the following attendees: County Planning staff, DFG representative, consulting civil and/or soils engineer (provided by applicant), and the applicant and/or owner. Please also pay the fee for the Riparian Exception. 25. Indicate the limits of fill material on Sheet C6.1 (note: according to borings

Environmental Planning

Routing No: 3 | Review Date: 07/09/2010
JESSICA DUKTIG (JDUKTIG) : Complete

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in this area, this line will extend beneath the existing buildings). 26. Revise the existing contours on Sheet C6.3 to reflect existing, as-built contours. Cut and fill areas should be revised to include the removal and replacement of all fill material placed to date. 27. Revise the cross section on Sheet C6.4 to indicate the complete removal of all fill material placed to date. Reflect these quantities in the estimated earthwork. ========= UPDATED ON MARCH 29, 2010 BY JESSICA L DUKTIG ========= Please submit plan review letters from all consultants on this project. ========= UPDATED ON JUNE 24, 2010 BY JESSICA L DUKTIG ========= Project complete. ========= UPDATED ON JULY 9, 2010 BY JESSICA L DUKTIG ========= MISCELLANEOUS COMMENT: ========= REVIEW ON JUNE 3, 2008 BY CAROLYN I BANTI ========= These comments saved by Diane 8/4/09 - Compliance Comments - Soils and Grading - First Review - ========= UPDATED ON JUNE 4, 2008 BY ANTONELLA GENTILE ========= These comments saved by Diane 8/4/09 Compliance comments continued - Riparian and Biotic issues ========= UPDATED ON DECEMBER 17, 2008 BY CAROLYN I BANTI ========= ++ Compliance Comments - Second Review ++ Comment numbers refer to first review comments: 1. Per meeting with soils engineer, senior civil engineer 6/23/08, removal and replacement of fill in the arena will not be required unless future improvements are planned. 2. The retaining wall and limits of fill are acceptable, but the following must be addressed: (a) quantities must reflect removal of existing fill material, and (b) the current fill slope is 1.5H:1V as opposed to 2H:1V as required by County Code. 3. See Compliance Comment 2 4. Comment addressed. 5. Not required. 6. Comment for informational purposes only. 7. Comment addressed. Erosion control plan shall be submitted with the building permit application. 8. The Biotic Report is currently under review. Further comments will be made once this review has been completed. 9. Applicable permits from Fish and Game and Army Corps shall be submitted prior to Environmental Review. 10. Comment addressed. All development meets the required 60-foot riparian corridor setback and vegetative buffer from the creek(s). Note that any future development shall be located at least 60-feet from the mean high water line of all creeks. 11. It appears from the pier location information on Sheet C3.4 that the piers may be affected by scour given the estimates provided by Tharp and Associates. Also, the cross section provided on Sheet C3.2 shows that the bottom of the bridge deck will be at the base flood elevation instead of 3 feet above, as recommended in the Tharp and Associates report for the proposed bridge. Please revise. 12. Earthwork quantities on Sheet C0.2 incorrectly indicates a -Shop Site Fill- total of 1966 cubic yards, while the estimated earthwork quantities on Sheet C6.2 indicate a shop area -Site Fill- total of 3200 cubic yards. Please revise. ADDITIONAL CONDITIONS OF APPROVAL 6. Please submit a letter from the structural engineer regarding the structural integrity of the existing retaining wall supporting the riding arena. Please submit this with the subsequent building permit application. 7. Please submit two copies of the soils and geology reports and all addendums at the time of building permit application. 8. Please submit plan review letters from the geotechnical engineer and engineering geologist at the time of building permit application that indicate the project plans are in

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Routing No: 3 | Review Date: 07/09/2010
JESSICA DUKTIG (JDUKTIG) : Complete

conformance with the recommendations of the reports. 9. Removal of vegetation within the creek channel or within the riparian corridor of all creeks shall not be allowed. 10. An extensive erosion and sediment control plan shall be submitted with the building permit application. 11. All conditions from the Biotic Report review and Riparian Exception shall be submitted with the building permit

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application. 12. Update grading plan contour lines to reflect existing contours as dashed and proposed as solid, bold lines. Provide complete top-of-wall and bottom-of-wall information for all proposed retaining walls, including landscape walls. ========= UPDATED ON MARCH 29, 2010 BY JESSICA L DUKTIG ========= ========= UPDATED ON JUNE 24, 2010 BY JESSICA L DUKTIG =========

Fire Review

Routing No: 1 | Review Date: 12/01/2008
COLLEEN BAXTER (CBAXTER) : Complete

:Review Type= CAL DEPT OF FORESTRY/COUNTY FIRE NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 2 | Review Date: 07/13/2010
COLLEEN BAXTER (CBAXTER) : Complete

:Review Type= CAL DEPT OF FORESTRY/COUNTY FIRE ========= REVIEW ON MAY 20, 2008 BY COLLEEN L BAXTER ========= DEPARTMENT NAME:CALFIRE Add the appropriate NOTES and DETAILS showing this information on your plans and RESUBMIT, with an annotated copy of this letter: Note on the plans that these plans are in compliance with California Building and Fire Codes (2008) as amended by the authority having jurisdiction. Each APN (lot) shall have separate submittals for building and sprinkler system plans. The job copies of the building and fire systems plans and permits must be onsite during inspections. NOTE on the plans the OCCUPANCY CLASSIFICATION, BUILDING CONSTRUCTION TYPE/FIRE RATING and SPRINKERED or NONSPRINKERED as determined by the building offical and outlined in Part IV of the California Building Code, e.g. R-3, Type V-N, Sprinklered. Fire hydrant shall be painted in accordance with the state of California Health and Safety Code. See authority having jurisdiction. A minimum fire flow _500__ GPM is required from 1 hydrant located within _150___ feet. SHOW on the plans a 20,000 gallon water tank for fire protection with a "fire hydrant" as located and approved by the Fire Department if your building is not serviced by a public water supply meeting fire flow requirements. For information regarding where the water tank and fire department connection should be located, contact the fire department in your jurisdiction. NOTE on the plans that the building shall be protected by an approved automatic fire sprinkler system complying with the currently adopted edition of NFPA __13D_____ and Chapter 35 of California Building Code and adopted standards of the authority having jurisdiction. NOTE that the designer/installer shall submit three (3) sets of plans and calculations for the underground

Fire Review

Routing No: 2 | Review Date: 07/13/2010
COLLEEN BAXTER (CBAXTER) : Complete

and overhead Residential Automatic Fire Sprinkler System to this agency for approval. Installation shall follow our guide sheet. NOTE on the plans that 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. Building numbers shall be provided. Numbers shall be a minimum of __4_____ inches in height on a contrasting background and visible from the street, additional numbers shall be installed on a directional sign at the property driveway and street. NOTE on the plans the installation of an approved spark arrester on the top of the chimney. The wire mesh shall

be 1/2 inch. NOTE on the plans that the roof covering shall be no less than Class _"B"____ rated roof. NOTE on the plans that a _100__ foot clearance will be maintained with non-combustible vegetation around all structures or to the property line (whichever is a shorter distance). Single specimens of trees, ornamental shrubbery or similar plants used as ground covers, provided they do not form a means of rapidly transmitting fire from native growth to any structure are exempt. The access road shall be _12_ feet minimum width and maximum twenty percent slope. All bridges, culverts and crossings shall be certified by a registered engineer. Minimum capacity of 25 tons. Cal-Trans H-20 loading standard. The access road shall be in place to the following standards prior to any framing construction, or construction will be stopped: - The access road surface shall be "all weather", a minimum 6" of compacted aggregate base rock, Class 2 or equivalent, certified by a licensed engineer to 95% compaction and shall be maintained. - ALL WEATHER SURFACE: shall be minimum of 6" of compacted Class II base rock for grades up to and including 5%, oil and screened for grades up to and including 15% and asphaltic concrete for grades exceeding 15%, but in no case exceeding 20%. The maximum grade of the access road shall not exceed 20%, with grades greater than 15% not permitted for distances of more than 200 feet at a time. The access road shall have a vertical clearance of 14 feet for its entire width and length, including turnouts. A turn-around area which meets the requirements of the fire department shall be provided for access roads and driveways in excess of 150 feet in length. Drainage details for the road or driveway shall conform to current engineering practices, including erosion control measures. All private access roads, driveways, turn-around and bridges are the responsibility of the owner(s) of record and shall be maintained to ensure the fire department safe and expedient passage at all times. SHOW on the plans, DETAILS of compliance with the driveway requirements. The driveway shall be _12___ feet minimum width and maximum twenty percent slope. The driveway shall be in place to the following standards prior to any framing construction, or construction will be stopped: - The driveway surface shall be "all weather", a minimum 6" of compacted aggregate base rock, Class 2 or equivalent certified by a licensed engineer to 95% compaction and shall be maintained. - ALL WEATHER SURFACE: shall be a minimum of 6" of compacted Class II base rock for grades up to and including 5%, oil and screened for grades up to and including 15% and asphaltic concrete for grades exceeding 15%, but in no case exceeding 20%. - The maximum grade of the driveway shall not exceed 20%, with grades of 15% not permitted for distances of more than 200 feet at a time. -

Fire Review

Routing No: 2 | Review Date: 07/13/2010
COLLEEN BAXTER (CBAXTER) : Complete

The driveway shall have an overhead clearance of 14 feet vertical distance for its entire width. - A turn-around area which meets the requirements of the fire department shall be provided for access roads and driveways in excess of 150 feet in length. - Drainage details for the road or driveway shall conform to current engineering practices, including erosion control measures. - All private access roads, driveways, turn-arounds and bridges are the responsibility of the owner(s) of record and shall be maintained to ensure the fire department safe and expedient passage at all times. - The driveway shall be thereafter maintained to these standards at all times. 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

EXHIBIT D

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. The habitable accessory structure requires the installation of a sprinkler system per NFPA 13D. If the "carport" is an open structure it will not be required to be sprinklerd if it has walls or is enclosed in any way or is attached to the residence it will also require a sprinkler system. Please provide square footage for both the tack room and the office. If office is habitable, a sprinkler system is required. If the office or tackroom are over a thousand square feet it will require a sprinkler system also. The turnaround must have turning radius' of 20 feet. If the mobile home was built and/or installed after 1989, it will require the installation of a sprinkler system, or need to be removed from the property. The new mobile home is required to have a 13D sprinkler system. The amount of water required for this project will be based on the total square footage of all structures and the types of sprinkler systems required for each structure. The water listed on this review is subject to change as all necessary information has not been provided by the applicant to the fire department.All sprinkler systems, hydrants and water tanks must have permits from CALFIRE prior to installation. ========= UPDATED ON MAY 20, 2008 BY COLLEEN L BAXTER ========= ========= UPDATED ON DECEMBER 1, 2008 BY COLLEEN L BAXTER ========= Your resubmittal shows that the detached structure over one thousand square feet is not sprinklered. The local ordinance requires all detached structures over 1,000 square feet are to be equipped with an automatic fire sprinkler system, show this note on the plans. All requirements listed above must be shown on the plans for approval. ========= UPDATED ON DECEMBER 2, 2008 BY COLLEEN L BAXTER ========= ========= UPDATED ON JULY 13, 2010 BY COLLEEN L BAXTER ========= The new mobile home, the non habitable structure of2505 square feet and an the workshop office all require the installation of an automatic residential sprinkler system complying with NFPA 13D. The road must comply with the standards for Santa Cruz County Fire. A turnaround is required for any driveway over 150 feet in

Fire Review

Routing No: 2 | Review Date: 07/13/2010
COLLEEN BAXTER (CBAXTER) : Complete

length. A residential fire hydrant is required within 150 of all portions of all buildings. The turnaround must comply with the standards for Santa Cruz County. The dimensions of the turnaround and installation guidelines for the hydrant, water tanks and turnaround can be found at our website at www.santacruzcountyfire.com. Permits for the residential sprinkler system, hydrant(s) and water tanks must be applied for and approved prior to installation to our office. A certificate for the bridge complying with Cal Trans standards must be presented to the fire marshal's office prior to final inspection. The bridge must be signed at both ends. The details of the road and driveway must be shown on the plans. All requirements listed above must be shown on the building plans for approval. ========= UPDATED ON JULY 13, 2010 BY COLLEEN L BAXTER ========= MISCELLANEOUS COMMENT: ========= REVIEW ON MAY 20, 2008 BY COLLEEN L BAXTER ========= ========= UPDATED ON DECEMBER 1, 2008 BY COLLEEN L BAXTER =========

Housing Review

Routing No: 1 | Review Date: 05/15/2008
PATRICK HEISINGER (PHEISINGER) : Complete

EXHIBIT D

ATTACHMENT 6

:Review Type= HOUSING ========= REVIEW ON MAY 15, 2008 BY PATRICK J HEISINGER ========= NO COMMENT none MISCELLANEOUS COMMENT: ========= REVIEW ON MAY 15, 2008 BY PATRICK J HEISINGER ========= NO COMMENT none

Project Review

Routing No: 1 | Review Date:
() :

:Review Type= PROJECT REVIEW NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 2 | Review Date:
() :

:Review Type= PROJECT REVIEW NO PROJECT REVIEW DESCRIPTION AVAILABLE

Road Engineering Review

Routing No: 1 | Review Date: 05/27/2008
GREG MARTIN (GMARTIN) : Complete

:Review Type= DPW ROAD ENGINEERING NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 2 | Review Date: 03/15/2010

Road Engineering Review

GREG MARTIN (GMARTIN) : Complete

:Review Type= DPW ROAD ENGINEERING NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 3 | Review Date: 06/25/2010
RODOLFO RIVAS (RRIVAS) : Complete

:Review Type= DPW ROAD ENGINEERING ========= REVIEW ON MAY 27, 2008 BY GREG J MARTIN ========= 08-0150 5/27/08 The plans are sufficiently complete for a discretionary permit. As a condition of approval: 1) The driveway is required to be paved with 2 inches of asphalt concrete over 6 inches of aggregate base to the gate. The drainage is required to be evaluated to see if a standard driveway at the encroachment with the County road can be accomodated. 2) A profile of the remaining driveway serving the new structures is required to determine the required structural section. Greg Martin 831-454-2811 ========= UPDATED ON MARCH 10, 2010 BY GREG J MARTIN ========= The driveway serving the improvements has been shown as being improved sufficiently to address previous comments. The profile for the remaining driveway in order to determine the structural section required doesn't appear present. This can be a condition of approval. ========= UPDATED ON JUNE 25, 2010 BY RODOLFO N RIVAS ========= The driveway serving the improvements has been shown as being improved sufficiently to address previous comments. The profile for the remaining driveway in order to determine the structural section required doesn't appear present. This can be a condition of approval. MISCELLANEOUS COMMENT: ========= REVIEW ON MAY 27, 2008 BY GREG J MARTIN ========= ========= UPDATED ON MARCH 15, 2010 BY

EXHIBIT D

GREG J MARTIN ========= ========= UPDATED ON JUNE 25, 2010 BY RODOLFO N RIVAS =========

Urban Designer Review

Routing No: 1 | Review Date:

() :

:Review Type= URBAN DESIGNER NO PROJECT REVIEW DESCRIPTION AVAILABLE

Water Review -ALUS

Routing No: 1 | Review Date:

() :

:Review Type= SANTA CRUZ CITY WATER DEPT. NO PROJECT REVIEW DESCRIPTION AVAILABLE

Routing No: 2 | Review Date:

() :

:Review Type= SANTA CRUZ CITY WATER DEPT. NO PROJECT REVIEW DESCRIPTION AVAILABLE

EXHIBIT D

Sheila McDaniel

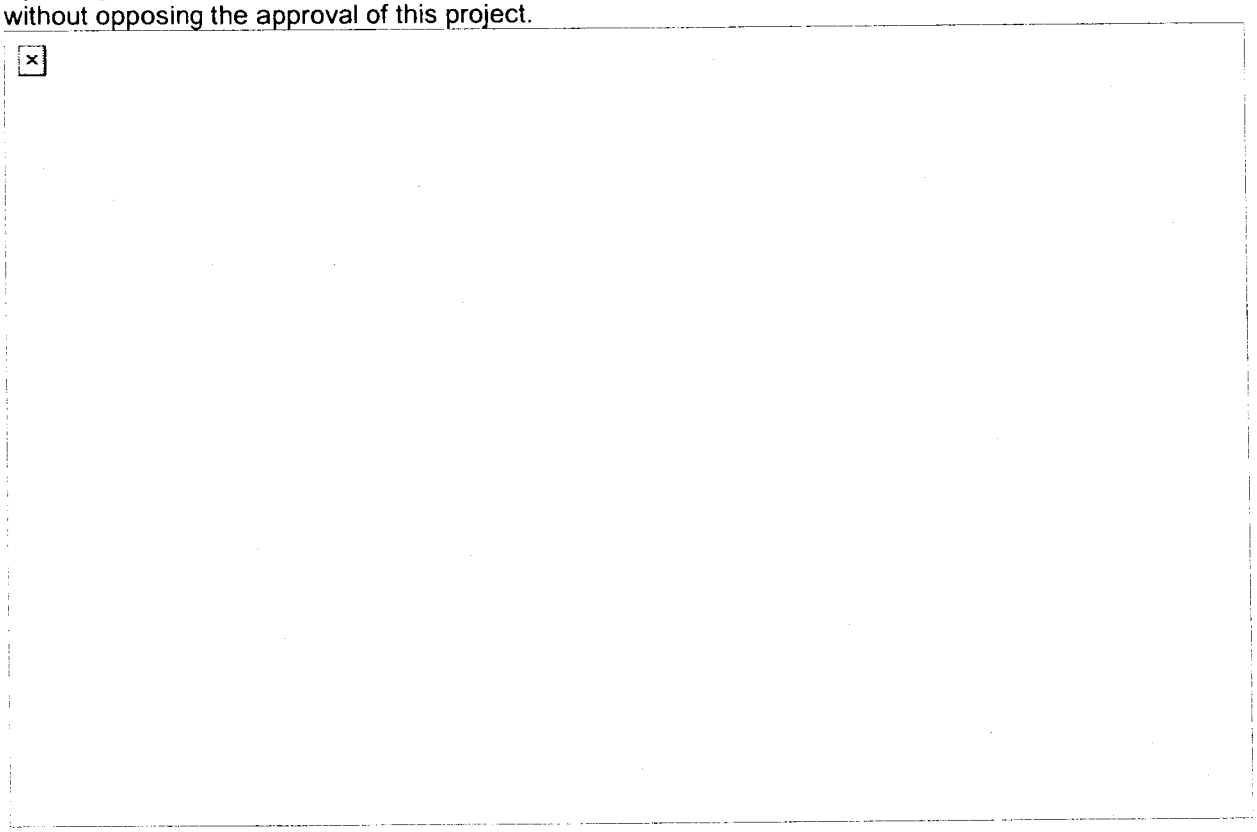
From: Chris Berry [CBerry@ci.santa-cruz.ca.us]
Sent: Wednesday, December 17, 2008 3:47 PM
To: Sheila McDaniel
Cc: 'Suzanne Deleon'; Chris Berry; Terrill Tompkins; Ezekiel Bean; Kelleen Harris
Subject: proposal for apn 06225201 Majors Creek

Hi Sheila,

As a downstream water purveyor located in this water supply watershed approximately 1.5 miles downstream of the project site, we are very concerned with a number of water resources issues which may be exacerbated by this proposal. In that context, please accept the following comments:

Completeness Items:

-There was no manure management or septic plans attached to the packet which I reviewed. Majors Creek shows rising nitrate levels downstream of the project site, and according to land use patterns in the upper watershed, the most likely point of origin is equestrian facilities and onsite wastewater disposal systems (Balance Hydrologics 2007, etc.). Without having had reviewed this material, we can not, in good faith, move forward without opposing the approval of this project.



-The project packet makes no mention of a Storm Water Pollution Prevention Plan being required for the development, though many of the pieces of that plan are already in place. A SWPPP is clearly required. Please see the url below for more information on such:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

EXHIBIT D

-Mitigations for instream work do not discuss required mitigation in detail, nor is any traditionally required monitoring discussed. For example, typically acrylic sealer is used on concrete which would be instream to protect aquatic biota from excess alkalinity. These mitigations are traditionally included in a DFG SAA, which was also not included in the packet.

-Information on proposed use of the property is not provided. It appears that this is going to moving toward commercial use. Is a commercial use permit required for this project? Does the proposed project change water use on the site? If so, additional detail on water use should be provided. The City has seen Majors Creek go dry occasionally during the previous dry season. This is obviously the result of a diversion and increased water use relatively nearby upstream (as this has not happened previously in our 100+ year history on Majors Creek). While there is a new vineyard in production across the road from the project site, it is likely that the proposed project may have water supply/instream flow impacts which have not been addressed.

-On a related note, the packet makes mention of an instream visqueen lined impoundment, though there's no discussion of whether this is a water supply diversion or recreational feature, etc. DFG SAAs and water rights information on such diversions should be included for review, especially if the project will result in more water use and diminished instream flows downstream. For example, most instream impoundments have management plans of their own (fill/spill, construction and other related mitigations), as well as diversion rates, storage time, etc. This information should also be included for review by all reviewing agencies.

-Though reference is made to pictures of landscaping around equestrian facilities, none are provided in the packet.

-Presence of rainbow trout does not mean that there would not be California red-legged frog (CRLF) present. They often coexist – especially in North Coast streams. I have personally seen 24"+ adult steelhead sitting within 6 inches of CRLF in Laguna Creek – the watershed located immediately adjacent to Majors Creek to the west. I have seen CLRF within overland travel (and certainly instream travel) distances of the project site, immediately downstream at the City's Majors Creek Diversion. Among other things, USFWS should be included in the circulation for this project file due to the likely presence of CRLF at the project site.

-The fisheries section makes mention of management of large woody debris (LWD) by the project applicant. Management of LWD should be prohibited or subject to conditions of a DFG SAA – as it has serious effects on water resources, public safety/flooding, and aquatic habitat functions/stream geomorphology.

Compliance Issues:

-It is not clear (to me) what portions of the project are new and what portion is work that has already been done which is being legalized. Perhaps this is because of my relative unfamiliarity with the project, but it would make the review more streamlined if this information were clarified. Furthermore, it is not clear what would be approved had the illegal work not be performed. Are we trying to make a "square peg fit a round hole", or does the plan provided actually make the most sense?

-Permit Conditions/Additional Information

-Though it is not an issue of City concern, there is an archaeological overlay on the parcel. It was not clear from the packet provided whether archaeological surveys were required for the project.

-Though redwood are not considered a riparian obligate species (as stated in the packet), they are often found in the riparian zone in Santa Cruz County.

-It is not clear whether parking areas are required to be surfaced with pervious surfacing. Where appropriate, this would preferably be required to increase infiltration and reduce anthropogenically-induced runoff.

-Given the obvious connection of degraded beneficial uses of water to increased presence of equestrian facilities in the Majors watershed, stormwater runoff monitoring for nitrate and bacteria should be a requirement of an approved permit. Previous precedent for this has been set with the Vigne Farms (and other?) code compliance cases. Likewise, if the project will result in more water use, metering of diversion rates/volumes and instream flows should also be required. Consultation with DFG, County Environmental Health and the RWQCB (and the City, if so desired) on such monitoring plans would be appropriate.

-Performance standards for stormwater, construction mitigations and instream flows should be documented on a regular basis by said monitoring, with adaptive management built in to adjust mitigations as appropriate upon determination of their success.

Finally, the level of complexity of this project is less than many projects which require full CEQA review (a mitigated negative declaration, at least). Furthermore, we are concerned that follow up on implementation of mitigations and monitoring for the project (whether it goes through CEQA or not) – once approved – will be sporadic at best. We have reviewed and implemented many projects with similar constraints and understand their relative difficulty. However, short of requiring abatement for the serious code violations which have already occurred on the property, the City advocates very strong language requiring the long term compliance with the terms of the permit conditions, ongoing mechanisms for permit compliance inspections, and permit revocation terms should noncompliance become an issue.

Thank you for including us in your review. I apologize if any of these comments are misplaced – as you know I was a relatively late-comer to this project. Please don't hesitate to contact me if you have questions or concerns.

Chris Berry
City of Santa Cruz Water Department
Water Resources Manager
715 Graham Hill Rd., Building A
Santa Cruz, CA 95060
O: 831 420 5483, F: 831 420 6220, C: 831 227 5925

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Please consider the environment before printing this email

EXHIBIT D
ATTACHMENT 3

Sheila McDaniel

From: Chris Berry [CBerry@ci.santa-cruz.ca.us]

Sent: Monday, July 20, 2009 10:19 AM

To: Mpatrizia@aol.com

Cc: rldewitt@rldewitt.com; Chris Berry; Sheila McDaniel

Subject: RE: HELLO CHRIS, WOULD LIKE SOME COMMENTS ON THE WATER TESTS, FROM PATRIZIA

Thanks for the update Patrizia.

Regarding the water quality data, my concerns primarily centered on the limited number of samples and the lack of representation of true storm flows (The turbidity and timing of collection of the wet weather sample clearly indicate that the data doesn't represent true storm runoff - when turbidity is often over 1000 ntu in Majors Creek. Also we have stream gages which show that the time of collection was not characterized by high flows). While it may be true that you've effectively mitigated for runoff at the site with the improvements proposed, I have not seen anything which supports that conclusion in the data you submitted. However, in the interest of not holding up a permit on that account, I'm happy to have a permit requirement which includes a monitoring plan (similar to the Vigne Farms requirements from several years ago for a similar red tag situation) which mandates adaptive management of the facility based on the results of that future monitoring. I would be happy to consult on the scope of that monitoring plan, as I'm sure County Environmental Health would as well. David Carlson in County Planning worked on the Vigne Farms project and may be able to consult with you on that as well.

That said, my other concerns remain (primarily regarding water use and zoning issues). I should also note, that due to the recent activity where riparian vegetation was cleared along Majors Creek, I have serious reservations about your client's interest in abiding by future permit conditions. Hopefully Planning will be able to build some rigor into the permit process so that there is an incentive for your client to abide by not only the permit conditions, but also local, state and federal environmental regulations in general.

Unfortunately, I did not receive any email from you recently for some reason. However, I look forward to getting the package from Planning and will respond as appropriate at that time.

Chris Berry
Water Resources Manager
City of Santa Cruz Water Department
715 Graham Hill Rd. Building A
Santa Cruz, CA 95060
d: 831 420-5483, c: 831 227-5925, f: 831 420-6220

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Please consider the environment before printing this email

EXHIBIT D

From: Mpatrizia@aol.com [mailto:Mpatrizia@aol.com]
Sent: Friday, July 17, 2009 5:45 PM
To: Chris Berry
Cc: rldewitt@rldewitt.com
Subject: HELLO CHRIS, WOULD LIKE SOME COMMENTS ON THE WATER TESTS, FROM PATRIZIA

Welcome back Chris,

I submitted the 3rd round of revised plans for Draeger's project last Wednesday. I included a full set of plans for you along with a response to comments, a copy of the Water test results, and a letter from Don Alley certifying there is no evidence of water diversion on the property. An extra Manure Management Plan for Jim Safranick (Health Services) to review. The owner is already self hauling manure to the Buena Vista Land Fill. Bankers for temporary storage miles away from the creek will be constructed. Detail is in the plans. Plans were also routed to the Water Control Board. You should be recieving the plans from Sheila Mc Daniels soon.

I did not really understand your feedback on the water tests. Sent you an email. did you get it? The Water testing company provided a report, but not really an analysis. I could take the results to a water consultant to get it analysed if you like. Or you met that these are just preliminary results and more tests need to be done overtime? In any case, please let me know what can I do so the basic requirements for this application to be considered complete are met this time around. We have about only 5 months for discretionary action in order to meet our Stipulation deadline, as we need to have final permits by July 2010!

Please help if you can by contacting me and letting me know what else I can bring you so when you comment on the project it will be a *Clearance for discretionary action*, with or without conditions. I do not think the owner would mind conditions for periodic testing, or over the years.

The ultimate goal is to build a green home for the owner and for that these 4 redtags need to be cleared. The red tags where: building the horse arena and facilities; building a large metal tool shop; placing 2 additional culverts on the bridge so the storm would not take it away; and a couple road bank issues. Now the road banks are revegetated and stable. In fact, the site (1 acre out of 152 acres) is improved and landscaped. Drainage system works well. Owner lives in the mobile home on site when he is Santa Cruz, has an approved local well for water, and a Health Department clearance for a standard septic system.

Thank you Chris, Patrizia

Patrizia Materassi
Land Use Consultant/ Sustainability Specialist
SUSTAINABLE DEVELOPMENT & PLANNING
P.O.Box 66287
Scotts Valley, CA, 95067
Santa Cruz County, USA
Cell Phone: (831) 334 2383
MPatrizia@aol.com

EXHIBIT D
ATTACHMENT

Robert L. DeWitt
and Associates, Inc.
Civil Engineers & Land Surveyors

1607 Ocean Street - Suite 1
Santa Cruz, CA 95060
Telephone 831 425-1617
Fax Number 831 425-0221
www.rldewitt.com

April 22, 2009
Job No. R07152

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

Attn: Sheila McDaniel, Planner

Re: John Draeger
APN 062-251-01
Application Number 08-0150

Dear Ms. McDaniel,

According to information provided to me by Patrizia Materassi, representing John Draeger, I am informed that additional clarification of the drainage on the site is needed for your use.

Our firm prepared drainage calculations for this site dated April 14, 2008, a copy of which is attached for your reference. It is our understanding that the discretionary permit application has been cleared by the DPW Stormwater Management Division (Louise Dion), but that the Planning Department is requiring additional analysis prior to deeming the application complete.

In narrative form, I will describe the site drainage and the proposed drainage improvements as shown on the project plans. Following is our analysis and description of the site drainage features:

1. Site Setting

The subject parcel is a 152-acre site located on a northwest-facing slope in the Santa Cruz Mountains. The parcel is largely undeveloped, and is characterized by mixed conifer forest and some open meadows. The parcel naturally drains to Majors Creek along the westerly boundary and to Cojo Creek (tributary to Majors Creek) along the northwesterly boundary of the parcel.

2. Existing Development

The site has been partially developed with an access road, various small outbuildings, a mobile home caretaker's unit, a dressage ring and horse stalls, and a shop building. The total impervious surface area of the various building amounts to approximately 6,400 square feet, or about 0.15 Acre, roughly 1/10 of 1% of the parcel area. From an engineering point of view, the increase in runoff from the site due to these improvements is truly negligible. The precision of the drainage calculations for the runoff cannot distinguish the negligible increase in runoff due to the improvements.

However, certain of the improvements located in the vicinity of the dressage ring are close to Cojo Creek, which has raised issues to be addressed.

EXHIBIT D

The access roadway from Smith Grade through the site is unpaved and surfaced with gravel and base rock.

3. Shop Site

The shop and storage building, identified as Area 3 in the drainage calculations, consists of approximately 4,040 square feet of impervious building area. This site is located approximately 700 feet from Majors Creek, and approximately 1,100 feet from Cojo Creek. The slope infiltration calculations show that 16 lineal feet of perforated pipe is needed to disperse the runoff. The impact of the increase in runoff from the roof surfaces will be fully dispersed long before reaching either of these creeks.

4. Tack Room, Paddocks, and Storage Buildings

These improvements are identified as Area 1 in the drainage calculations, and consist of a total of approximately 1,680 square feet of impervious building area. The slope infiltration calculations show that 6 feet of perforated pipe is needed to disperse the runoff. The buildings are approximately 200 feet at the closest point to Cojo Creek, and the impact of the increase in runoff from the roof surfaces would be fully dispersed before reaching the creek.

5. Caretaker Unit

This unit is approximately 670 square feet and is identified as Area 2 in the drainage calculations. The unit is located approximately 200 feet from the nearest point to Cojo Creek. As noted above, the increase in runoff from the roof surfaces would be fully dispersed before reaching the creek.

6. Dressage Ring

The dressage ring is located approximately 50 feet from Cojo Creek at its nearest location. The surface of the ring is soft earth that is periodically raked smooth when in operation. No increase in runoff is attributed to this improvement, as the surface is likely more pervious than the native soil. The ring has a sub-drainage system installed that discharges to the slope below. However, the discharges are expected to be low, since the runoff is "filtered" through the overlying soils.

The improvement plan indicates connecting the outlets of the subdrainage system to a common point of discharge, where a gabion rock dispersal installation would be constructed to dissipate the small amount of runoff.

7. Access Road Drainage

The access road is well-constructed with provisions for drainage along the inside edge and culverts to disperse the runoff. The runoff from a gravel and base rock surface is not much greater than the natural runoff, so no extraordinary measures are needed from an engineering standpoint. The project plans do include construction of a siltation basin adjacent to the roadway prior to the creek crossing, so that silt and gravel fines can be prevented from entering the creek.

Exhibit D

8. Water Quality Concerns

Much concern has been expressed about nitrates migrating to the creek. While this is not strictly an engineering issue, I feel the concern has been addressed with the submission of the manure management plan, the dispersal distance to the creek, and the water quality testing of the creek waters currently underway.
On my various site visits, I have observed clean conditions, noting that the owner has been diligent in immediately removing the manure from the paddocks and ring.

Following the approval of the discretionary permit, there will be successive applications for building permits for the various improvements indicated on the project plans. Included in each of these building permit applications will be site-specific drainage plans, which will require review and approval by the DPW Stormwater Management Division. With this understanding, Louise Dion has signed off on the discretionary application, according to my understanding.

I trust this information will assist in your determinations and that the project can move forward to the issuance of the discretionary permit.

Please contact my office if additional information is needed. Thank you for your attention to this matter.

Sincerely,

ROBERT L. DeWITT and ASSOCIATES, INC.

Robert L. DeWitt, P.E.

RLD:klm

enclosures

cc: John Draeger
Patrizia Materassi

R07152 county 4-22-09

Exhibit D

DRAINAGE CALCULATIONS

for the lands of

John Draeger

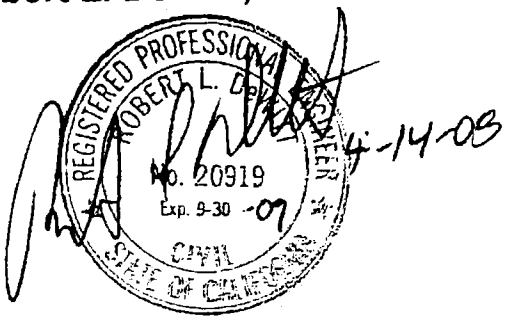
Located at:
831 Smith Grade
Santa Cruz, CA

A.P.N. 062-251-01

Prepared at the request of

John Draeger
831 Smith Grade
Santa Cruz, CA 95060

Prepared by:
Robert L. DeWitt, P.E.



4-14-08

14-Apr-08
R07152

EXHIBIT D
ATTACHMENT 7

Robert L. DeWitt & Associates, Inc.
Civil Engineers and Land Surveyors
1607 Ocean Street, Suite 1
Santa Cruz, CA 95060
(831)425-1617 (831)425-0224 (fax)

CLIENT Dreeger JOB NO. [illegible]
SHEET NO. 1 OF 6
CALCULATED BY DATE
CHECKED BY DATE
SCALE

Drainage calculation by Slope Infiltration Method
(Ref Fig SWM-22)

P_{60} = 2.0 in/hr (Fig SWM-2)

i_{10} = 2.1 in/hr for t_c = 15 min (Fig SWM-3)

Area 1: Tack room, paddocks, storage buildings:

Total impervious area = 454 + 253 + 566 + 405 s.f.
= 1,678 sq. ft.

From Fig SWM-22; req'd length of perf. pipe = 6' ±
∴ negligible

Area 2: Ex. Mobile home structure:

Impervious area = 674 s.f.
From Fig SWM-22; req'd length = negligible

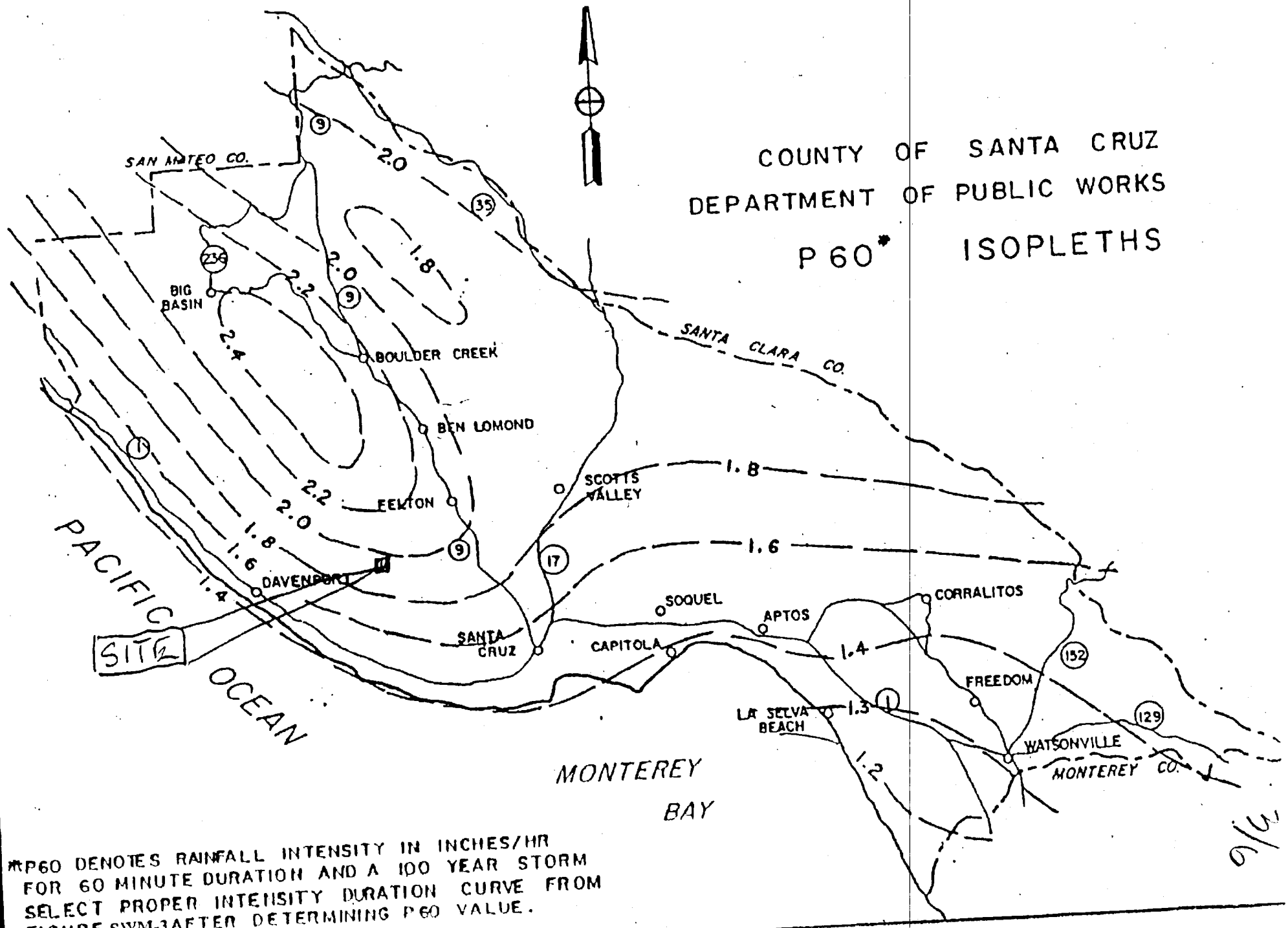
Area 3: Shop & storage bldgs:

Impervious Area = 1,802 + 2,240 = 4,042 ft²

From Fig SWM-22: req'd length = 16 L.F.

Conclusion: For this 152+ Ac. parcel, the impervious coverage is less than 0.1% and the drainage can reasonably be expected to infiltrate downslope of the proposed and existing structures with no adverse effects on any adjoining lands.

EXHIBIT D
ATTACHMENT 7



*P60 DENOTES RAINFALL INTENSITY IN INCHES/HR FOR 60 MINUTE DURATION AND A 100 YEAR STORM SELECT PROPER INTENSITY DURATION CURVE FROM FIGURE SWM-3 AFTER DETERMINING P60 VALUE.

EXHIBIT D
FIG. SWM-2

Rainfall Intensity - Duration Curves
10 Yr. Return Period

4/6

((4.29112)*(1.1952)^P60_VALUE)/(DURATION^((0.60924)*(0.78522)^P60_VALUE))

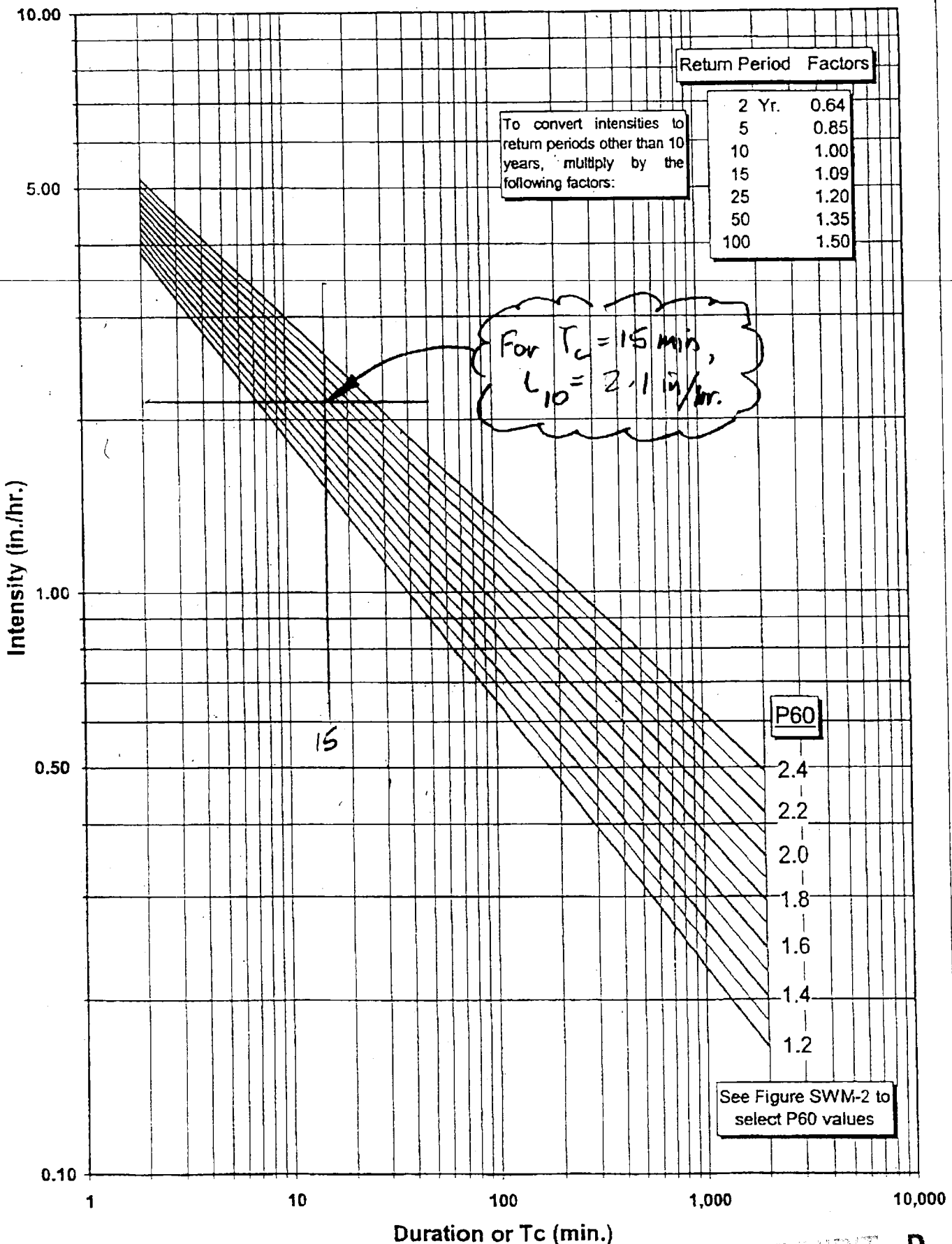
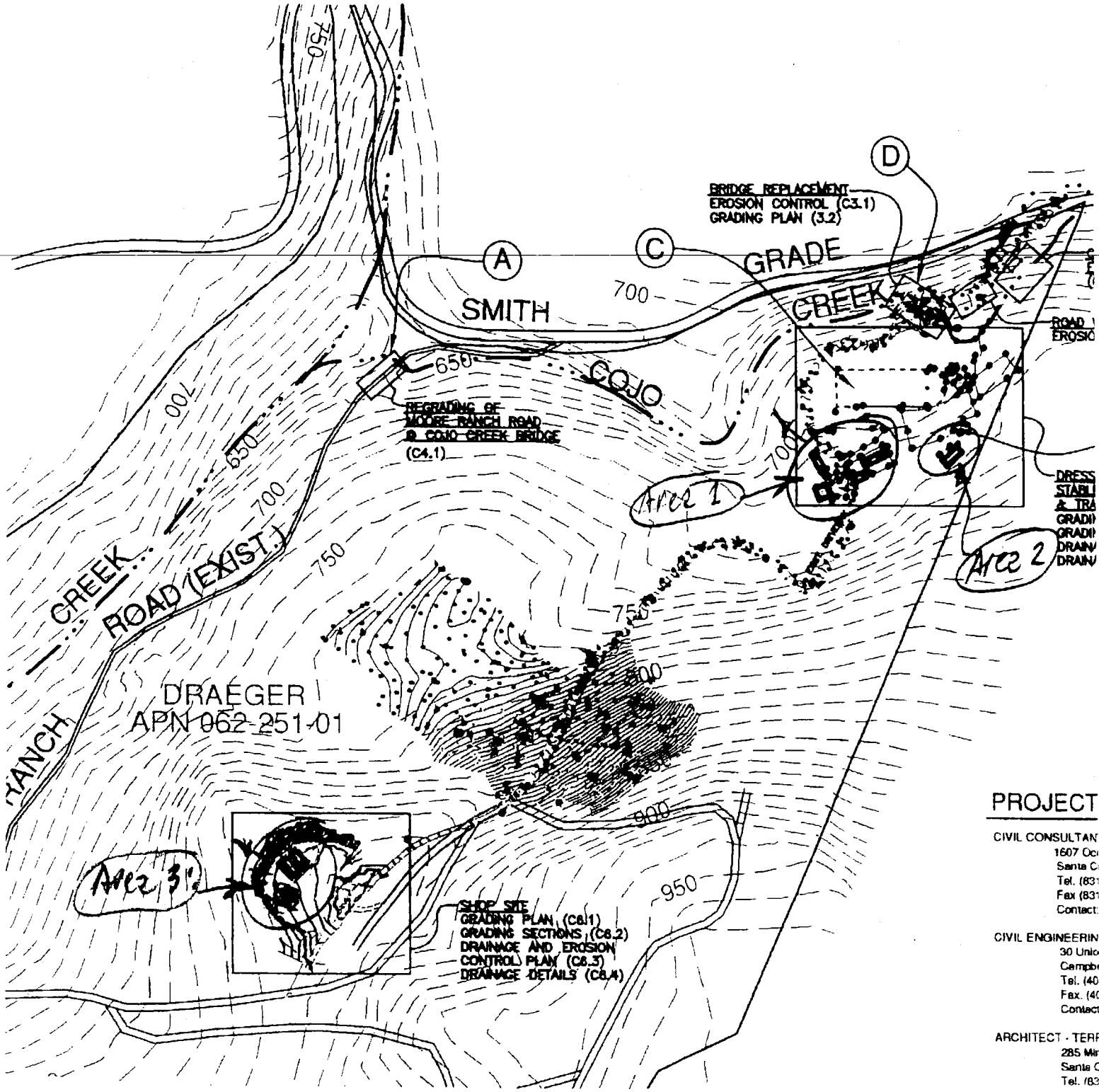


EXHIBIT D

6/6



PROJECT

CIVIL CONSULTAN
1607 Oc
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CIVIL ENGINEERIN
30 Unio
Campb
Tel. (40
Fax. (4
Contact

ARCHITECT - TERF
285 Mi
Santa C
Tel. (83

EXHIBIT D1

Robert L. DeWitt and Associates, Inc.
Civil Engineers & Land Surveyors

1607 Ocean Street - Suite 1
Santa Cruz, CA 95060
Telephone 831 425-1617
Fax Number 831 425-0224
www.rldewitt.com

R07152
March 1, 2010

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

Attn: Robin Bolster-Grant, Associate Planner
Re: John Draeger 831 Smith Grade
APN 062-251-01 Application Number 08-0150

Dear Robin,

At the request of the applicant and owner, we have prepared responses to certain of the issues raised in the letter dated August 14, 2009, from Sheila McDaniel, commenting on the completeness of the application. These responses are limited to the grading and drainage issues for which our firm has been asked to provide and/ or oversee. Responses to comments involving other issues have been deferred to the appropriate professional consultant.

COJO CREEK BRIDGE CROSSING:

The owner is proposing a change to the plan for the bridge crossing at Cojo Creek, on the Old Timber Drive entry to the site. In response to the concerns of the effects on the creek, the previous bridge plan has been replaced with a new plan employing the use of recycled rail cars to form the bridge superstructure. The 70 foot span would allow the placement of the abutments well back from the 100-year flood level, thereby eliminating the construction of abutments within the channel as proposed by the previous plan. Included in this re-submittal is a General Bridge Plan by Morris Engineering, Sheet B2, showing the preliminary bridge plan and preliminary construction details. This sheet replaces the previous sheets by Quilici Engineers, sheets C 3.1 through C 3.4. Following the approval of the present application to lift the red tag violation, a separate building permit application would be submitted with complete construction plans and structural calculations for issuance of a building permit for this structure.

The bridge deck is a new impervious surface that replaces the existing graveled road over the culverts. Drainage from the bridge deck is expected to flow directly into the creek, and no particular drainage control is anticipated for this small amount of runoff.

GRADING

The grading quantities have been revised to account for new items shown on this plan that was not a part of the previous submittal. To satisfy the requirements of the Department of Public Works, we have prepared a plan (Sheet P-1) for the reconstruction of the driveway entry of Old Timber Drive with Smith Grade. To meet the profile grade requirement, the driveway profile is raised resulting in additional fill. This fill can be made up of the asphalt surfacing and aggregate base rock.

Exhibit D

ATTACHMENT 7

In addition, there will be a minor amount of grading to match the driveway grade to the raised bridge deck across Cojo Creek. That grading will be minimized by the use of low "Keystone" or equivalent retaining walls to contain the fills. The estimated grading for the bridge approaches is approximately 60 cubic yards, and may be made up of imported aggregate base rock. A summary of the grading quantities has been added to Sheet T-1.

DPW DRAINAGE

In our prior correspondence, we have addressed the miscellaneous comments by the Department of Public Works (Louise Dion), who has deferred specific drainage issues to the building permit stage following approval of this current application. However, the Environmental Planning staff has request all comments to be addressed with this re-submittal, even though additional drainage design may be needed for the later building permit stage.

Following is our response to the most recent DPW Drainage Miscellaneous Comments Updated December 11, 2008 by Louise B. Dion:

1) In the preparation of the drainage calculations for this site, the project was considered as a whole without distinguishing between what may or may not have been "permitted". From an engineering standpoint, the impervious surfaces on this site total approximately 0.15 acres, a fraction of the total site area of 152 acres. Accordingly, the overall drainage impacts are considered to be negligible. Specific drainage improvements are shown for the site areas where impervious surfaces are present or proposed.

2) Calculations for slope infiltration were submitted with our correspondence dated April 22, 2009. A copy of our calculations is included with this re-submittal.

3) The Drainage Area Map is included in the above-mentioned calculations. This map includes the location and the areas of impervious surfaces. A complete watershed drainage map is not needed, as the watershed drainage is unaffected by the very small amount of impervious surfaces on the property, as detailed in our response to Comment No. 1 above.

4) All references to road grading have been removed, excepting the required improvements to the entry driveway at Smith Grade Road and the minor grading to match the roadway profile to the proposed bridge deck at the Cojo Creek crossing.

5) The plans indicate the discharge of the runoff to the adjacent pervious areas. Hard piping is used only as necessary to convey the roof runoff away from the building foundation and across the fill slopes to surface dispersal areas.

6) Calculations showing the dispersal of the runoff by the slope infiltration method is included in the calculations referenced above.

7) Review by the geotechnical engineer will be submitted by Don Tharp, Tharp and Associates, as requested. Specific reviews for each of the building permit locations can be issued when the building permit plan set is ready for submittal and permitting.

EXHIBIT D

8) A flood level study of the Cojo Creek crossing has been completed by the geotechnical engineer.

9) The existing "bridge", consisting of multiple culverts, is proposed to be removed and replaced with structure consisting of recycled rail cars, and shown on the plan by Morris Engineering (Sheet B-2). Minor grading to match the roadway profile to the bridge deck is shown on the re-submittal set of the plans (Sheet E-1).

In addition to the above comments, we held a meeting with Matt Johnston, the Environmental Coordinator for the County of Santa Cruz, to review, among other topics, these drainage comments. During this meeting, it became apparent that the drainage concerns were more about the water quality of the runoff rather than the quantity of the runoff. In particular, the runoff from the dressage arena was of particular concern due to the proximity to Cojo Creek. We discussed with Matt that the runoff from the arena is directed to a subsurface drain and discharged just below the retaining wall along the north side of the arena. The natural filtration achieved by this design mitigates the water quality of the runoff before reaching Cojo Creek. In addition, the Landscape architect has prepared a detail entitled "COBBLE SWALE TREATMENT WITH UNDERDRAIN" that may be employed if necessary. A copy of this detail is attached for your reference. It was concluded at this meeting that a final overall drainage plan was unnecessary at this stage, so long as the water quality issues are dealt with.

DPW DRIVEWAY / ENCROACHMENT

Following is a response to a comment by Debbie F. Locatelli, as updated on December 3, 2008:

1) We have included in the plan set a sheet (Sheet P-1) showing the improvements to the driveway at the intersection with Smith Grade.

Following is a response to a comment by Greg J. Martin dated May 27, 2008:

1) The driveway improvement plan (Sheet P-1) shows a structural section of a minimum of 2" asphalt concrete over a minimum of 6" of aggregate base, from the edge of pavement of Smith Grade to the gate. By site observation, the present travelled roadway is surfaced with base rock and gravels, and no further improvements are proposed to the roadway.

Due to the asphalt paving required at the entry will result in a small increase in the runoff. As shown on our Sheet P-1, the drainage is shown to be controlled by an asphalt berm placed along the northerly edge of the pavement, and a small amount of rock rip-rap placed at the point of discharge near the gate.

THIRD REVIEW COMPLETENESS COMMENTS BY ENVIRONMENTAL PLANNING

Culvert Removal and Bridge Construction

These issues have been addressed in the re-submittal of the plans and the reports by the geotechnical engineer and the geologist. Please refer to the bridge plan Sheet B-2, and the grading and erosion control plan for the bridge, Sheet E-1. Since the review comments were

based upon the earlier submittal, and since the bridge plan is a new submittal, a detailed response to the review comments is not relevant until the re-submittal plans have been reviewed by staff.

Shop Area

Comment 8: The shop area contours have been revised as requested. The grading quantity summary on the title sheet, Sheet T-1, includes a summary of the "interim" grading as well as the "final" grading.

Additional Items

Comment 9: The entry driveway improvements have been addressed in our responses to Debbie Locatelli (above). The access road from Smith Grade to the shop area is in good driveable condition and no particular areas of concern were noted during our site review. A complete survey of the access road has not been undertaken, but can be provided with the building permit submittal if deemed necessary.

Comment 10: See sheet T-1 for a sheet by sheet summary of the grading quantities.

We trust this information will allow the application to be deemed complete so that the matter may be scheduled for a hearing at your earliest opportunity.

Thank you for your attention to this matter.

Sincerely,
ROBERT L. DeWITT and ASSOCIATES, INC.

by: Robert L. DeWitt, P.E.

//rld

enclosures

cc: John Draeger
Patrizia Materassi

R07152 To County 3-1-10

EXHIBIT D
ATTACHMENT 7

LICENSED LANDSCAPE ARCHITECT
MARION WEAVER NO. 5178
Signature
5-31-10
Renewal Date
2-17-2010
Date
STATE OF CALIFORNIA

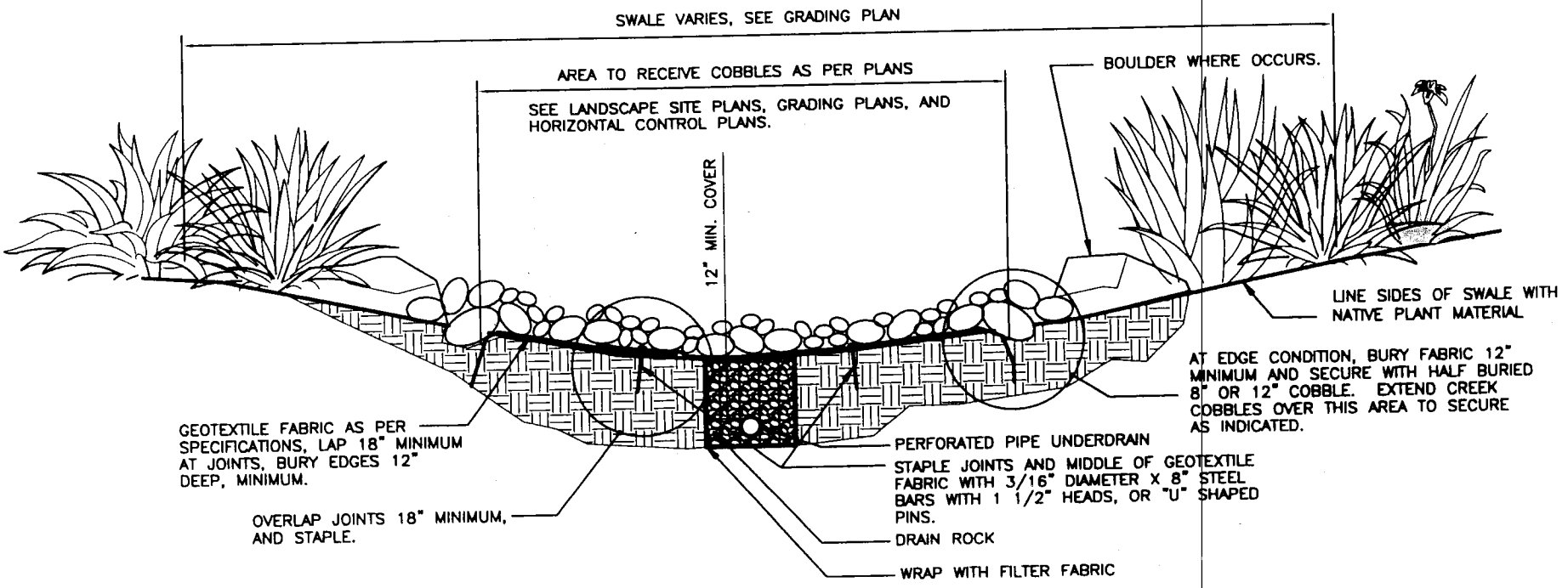
Prepared for the:

Draeger Project

831 Smith Grade Road

Santa Cruz, CA

Date: 2-16-2010

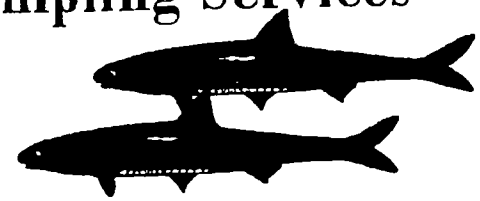


00 COBBLE SWALE TREATMENT WITH UNDERDRAIN

Not To Scale

31255

Water Sampling Services



Sheila McDaniel – Case Planner
Santa Cruz Co. Planning Dept.
701 Ocean St.
Santa Cruz, Ca 95060

May 13, 2009

Water Sampling Services Report# 090407-Draeger Ranch

General Information

On April 7, 2009 and April 27, 2009, Water Sampling Services collected water samples from Cojo Creek for the investigation of Nitrate concentrations in the creek. This segment of Cojo Creek runs immediately adjacent to the Draeger Ranch. The Draeger Ranch is located at 831 Smith Grade, Santa Cruz County, California. These samples were collected to satisfy a request made by the Santa Cruz County Planning Department, to asses the impact the Draeger Ranch has upon Cojo Creek. In order to adequately evaluate Nitrate concentrations in the creek, water samples were collected from designated "Upstream" and "Downstream" sample locations, and during "Wet Weather" and "Dry Weather conditions.

Sample Locations

The "Upstream" Cojo Creek sample was collected approximately 100' upstream of the creek side cabin. The cabin is located on the west bank of Cojo Creek, and is just inside the electric gate at 831 Smith Grade.

The "Downstream" Cojo Creek sample was collected approximately 30' upstream of the Majors (Coho) Creek confluence. This sample location is accessed by Moore Ranch Road, a dirt road approximately one half mile south of 831 Smith Grade at the first creek crossing denoted by a small bridge.

A "Site Map" including both sample locations is included as an attachment to this report.

Sample Collection

The Nitrate samples were collected by "Grab" sampling from the creek. These "Grab" samples were performed following established stream water sampling protocol. Samples were collected from both sample locations by dipping a pre-cleaned plastic sampling bucket directly into the stream. Representative samples from both locations were collected by placing the sample bucket mid-stream, and in the center of the stream flow. The sample water was then poured from the sample bucket directly into a laboratory prepared sample container for the analysis of Nitrate. Sample bottles were then labeled, Chain of Custody documentation was generated, and the samples were then placed in an ice chest for transportation and submission to the "State Certified" laboratory for analysis.

EXHIBIT D

2541 So. Rodeo Gulch Road #6 Soquel, CA 95073-2056 Ph:831 465-TEST Fax:831 465-8232 email:watersamplingsrv@sbcglobal.net

ATTACHMENT 8

This same procedure was performed from both sample locations during the "Wet Weather" survey and "Dry Weather" survey. Standard Observations and Field Measurements of Temperature, pH, Conductivity, Turbidity and Total Dissolved Solids were performed at both sample locations documenting water quality conditions at the time of sampling. Field Measurements and Standard Observations are included in the "Table of Results".

Laboratory Analyses

In addition to Nitrate, samples were collected for the analysis of Nitrite. The inclusion of Nitrite compliments the Nitrate analysis and allows for better characterization of the creek water and its relationship with elemental Nitrogen. The laboratory analyses included: Nitrate as NO_3, Nitrite as N and Nitrate/Nitrite as N. All of the water samples collected from the creek were submitted to Soil Control Lab, Watsonville, California. Soil Control Lab is certified as a Department of Health Services (DOHS) certified laboratory with DOHS # of 1494.

Analytical results from this investigation are attached as **Laboratory Report #9040199 and #9040720.**

Quality Assurance/Quality Control

The sampling was performed without any deviations from standard sampling protocols.

Kent Brown
Water Sampling Services

Attachments: Site Map
Table of Results
Laboratory Report # 9040199
Laboratory Report # 9040720

cc: Patricia Materassi-Substainable Development and Training

EXHIBIT D

ATTACHMENT 8

ANALYTICAL CHEMISTS
and
BACTERIOLOGISTS
Approved by State of California

SOIL CONTROL LAB

TEL: 831-724-5422
FAX: 831-724-3188

Water Sampling Services
2541 So. Rodeo Gulch Rd. #6
Soquel, CA 95073
Attn: Kent Brown

Work Order #: 9040199
Reporting Date: April 15, 2009

Date Received: April 7, 2009
Project # / Name: 090407-JB1 / Draeger
Water System #: NA
Sample Identification: Cojo Up, sampled 4/7/2009 12:50:00PM
Sampler Name / Co.: Jeff Brown / Water Sampling Services
Matrix: Water
Laboratory #: 9040199-02

	Results	Units	RL	State Drinking Water Limits	Analysis Method	Date Analyzed	Flags
Nitrate as NO3	1.2	mg/L	1.0	45	EPA 300.0	04/08/09	
Nitrate/Nitrite as N	0.27	mg/L	0.10	10	EPA 300.0	04/08/09	
Nitrite as N	ND	mg/L	0.10	1	EPA 300.0	04/08/09	

RL - are levels down to which we can quantify with reliability, a result below this level is reported as "ND" for Not Detected.
State Drinking Water Limits - as listed by California Administrative Code, Title 22.
* - a * in the left hand margin of the report means that particular constituent is above the California Drinking Water Limits.

EXHIBIT D

Mike Galloway

ANALYTICAL CHEMISTS
and
BACTERIOLOGISTS
Approved by State of California

SOIL CONTROL LAB

TEL: 831-724-5422
FAX: 831-724-3188

Water Sampling Services
2541 So. Rodeo Gulch Rd. #6
Soquel, CA 95073
Attn: Kent Brown

Work Order #: 9040199
Reporting Date: April 15, 2009

Date Received:	April 7, 2009
Project # / Name:	090407-JB1 / Draeger
Water System #:	NA
Sample Identification:	Cojo Down, sampled 4/7/2009 12:30:00PM
Sampler Name / Co.:	Jeff Brown / Water Sampling Services
Matrix:	Water
Laboratory #:	9040199-01

	Results	Units	RL	State Drinking Water Limits	Analysis Method	Date Analyzed	Flags
Nitrate as NO3	1.1	mg/L	1.0	45	EPA 300.0	04/08/09	
Nitrate/Nitrite as N	0.25	mg/L	0.10	10	EPA 300.0	04/08/09	
Nitrite as N	ND	mg/L	0.10	1	EPA 300.0	04/08/09	

RL - are levels down to which we can quantify with reliability, a result below this level is reported as "ND" for Not Detected.
State Drinking Water Limits - as listed by California Administrative Code, Title 22.
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EXHIBIT D

Mike Galloway

ANALYTICAL CHEMISTS
and
BACTERIOLOGISTS
Approved by State of California

SOIL CONTROL LAB

TEL: 831-724-5422
FAX: 831-724-3188

Water Sampling Services
2541 So. Rodeo Gulch Rd. #6
Soquel, CA 95073
Attn: Kent Brown

Work Order #: 9040720
Reporting Date: April 26, 2009

Date Received:	April 24, 2009
Project # / Name:	090424-JB1 / Draeger
Water System #:	NA
Sample Identification:	Cojo Up, sampled 4/24/2009 2:05:00PM
Sampler Name / Co.:	Jeff Brown / Water Sampling Services
Matrix:	Water
Laboratory #:	9040720-01

	Results	Units	RL	State Drinking Water Limits ı	Analysis Method	Date Analyzed	Flags
Nitrate as NO3	ND	mg/L	1.0	45	EPA 300.0	04/24/09	
Nitrate/Nitrite as N	0.16	mg/L	0.10	10	EPA 300.0	04/24/09	
Nitrite as N	ND	mg/L	0.10	1	EPA 300.0	04/24/09	

RL - are levels down to which we can quantify with reliability, a result below this level is reported as "ND" for Not Detected.
State Drinking Water Limitsı - as listed by California Administrative Code, Title 22.
* - a * in the left hand margin of the report means that particular constituent is above the California Drinking Water Limits.

EXHIBIT D

ATTACHMENT 8

ANALYTICAL CHEMISTS
and
BACTERIOLOGISTS
Approved by State of California

SOIL CONTROL LAB

TEL: 831-724-5422
FAX: 831-724-3188

Water Sampling Services
2541 So. Rodeo Gulch Rd. #6
Soquel, CA 95073
Attn: Kent Brown

Work Order #: 9040720
Reporting Date: April 26, 2009

Date Received: April 24, 2009
Project # / Name: 090424-JB1 / Draeger
Water System #: NA
Sample Identification: Cojo Down, sampled 4/24/2009 2:25:00PM
Sampler Name / Co.: Jeff Brown / Water Sampling Services
Matrix: Water
Laboratory #: 9040720-02

	Results	Units	RL	State Drinking Water Limits	Analysis Method	Date Analyzed	Flags
Nitrate as NO3	ND	mg/L	1.0	45	EPA 300.0	04/24/09	
Nitrate/Nitrite as N	0.15	mg/L	0.10	10	EPA 300.0	04/24/09	
Nitrite as N	ND	mg/L	0.10	1	EPA 300.0	04/24/09	

RL - are levels down to which we can quantify with reliability, a result below this level is reported as "ND" for Not Detected.
State Drinking Water Limits - as listed by California Administrative Code, Title 22.
* - a * in the left hand margin of the report means that particular constituent is above the California Drinking Water Limit.

EXHIBIT D

Mike Galloway

ATTACHMENT 8

Table of Results

Wet Weather Survey
April 7, 2009

Laboratory Data

	Nitrate mg/l	Nitrite mg/l	Nitrate/Nitrite
Upstream	1.2 mg/l	ND	0.27 mg/l
Downstream	1.1 mg/l	ND	0.25 mg/l

Field Measurements

	Temp.°F	pH	E.C.	TDS	Turbidity
Upstream	50.1°	6.55	155.8 µs	102.7	2.37 NTU
Downstream	51.8°	6.70	209.4 µs	150.3	3.47 NTU

Standard Observations
The water was observed to be clear and without odor from all samples.
Weather: Wet-Light to moderate rain, Cloudy skies, Light breeze.

Dry Weather Survey
April 24, 2009

Laboratory Data

	Nitrate mg/l	Nitrite mg/l	Nitrate/Nitrite
Upstream	ND	ND	0.16 mg/l
Downstream	ND	ND	0.15 mg/l

Field Measurements

	Temp.°F	pH	E.C.	TDS	Turbidity
Upstream	55.8°	6.39	150.7 µs	99.15	1.39 NTU
Downstream	55.9°	6.85	205.1µs	135.5	0.75 NTU

Standard Observations
The water was observed to be clear and without odor from all samples.
Weather: Dry-Sunny and warm, Clear skies, No Wind.

EXHIBIT D
ATTACHMENT 8

13 November 2008

John Draeger
831 Smith Grade Road
Bonny Doon, CA 95060

RE: Cojo Creek Aquatic Assessment, With Impact and Mitigation Analysis of the Bridge Replacement at 831 Smith Grade Road – 13 November 2008

Mr. Draeger,

The purpose of this letter-report is to provide you the findings and recommendations resulting from my fishery assessment. The letter-report is intended to satisfy the County of Santa Cruz Planning Department's request for an aquatic assessment for the proposed bridge replacement over Cojo Creek on your property located at 831 Smith Grade. The assessment focused on the resident rainbow trout (*Oncorhynchus mykiss*) and aquatic habitat conditions. Potential impacts from bridge replacement, as well as impact minimization measures are provided in the report. Replacement of the existing bridge having culverts with a free-span design will have long-term benefits to rainbow trout and aquatic habitat in the project vicinity and potentially to steelhead habitat approximately 3 miles downstream from the project site in lower Majors Creek. The method selected for removal of the old bridge and construction of the new bridge from top-of-bank, along with the short duration of bridge removal (with in-channel silt fencing in place), will minimize water turbidity and meet the "very good" standard proposed by NOAA Fisheries personnel.

EXISTING CONDITIONS

On 21 October 2008, an 833-foot segment of Cojo Creek was habitat typed downstream of the existing Old Timber Drive Bridge (approximately 4 miles from the ocean mouth and 0.3 miles from the Majors Creek confluence). The habitat typed segment began at a pool where an ephemeral tributary from the south (left bank) went through a 24-inch culvert under a road crossing and joined Cojo Creek. A 1,330-foot stream segment was also walked upstream of the bridge. One small rainstorm had occurred on 3 October, prior to the survey. Streamflow on 21 October was visually estimated to be 0.25 cubic feet per second (cfs), which was likely close to the summer baseflow after two previously low rainfall winters. This baseflow was surprisingly high for a drought year. Water temperature was a cool 51° F with an air temperature of 58° F at 1054 hr.

The stream gradient was gentle in the vicinity of the bridge. Two-thirds of the habitat in the stream segment consisted of pools, with about ¼ of the habitat as runs and 10% as riffles (**Table 1**). Pools were shallow, on average, with mean average pool depth of only 0.6 feet. However, 3 of the 16 pools in the 1/8-mile segment had maximum depth of at

EXHIBIT D
ATTACHMENT 9

least 2 feet due to scour created by large instream wood. Half of the pools in the segment had large wood as scour objects (**Photos 1–3**). *Photos taken after 1200 hr on 21 October were misdated as 22 October in the pictures.* The common occurrence of large instream redwood and occasional undercut banks provided relatively good quantities of escape cover in some pools, with an average cover index for all pools of 0.217 (21.7 feet of linear cover per 100 feet of pool length). The streambed in pools was mostly sand, and the scarce cobbles in pools were moderately embedded (**Table 1**). Spawning gravel at pool tail-outs was largely absent. Rainbow trout (*Oncorhynchus mykiss*) were observed in several of the pools. Most rainbow trout were likely concentrated in deeper pools with complex instream wood clusters.

One recently eroded left streambank was observed in the habitat typed segment (**Photo 3**). A short distance upstream of the erosion site was a vertical bedrock wall on the left bank where the streambank had previously eroded at a bend in the stream, leaving what appeared to be stable rubble and soil at its base (**Photo 4**). About 120 feet downstream of the bridge was a rip-rapped bank that effectively prevented streambank erosion (**Photo 5**). Coarse, angular, granitic gravel (2 inches in diameter) was common in the usually short riffles (presumably non-native in origin and road-related) (**Photo 5**). Riffles were likely too shallow for fish in most cases, though runs probably had an occasional small rainbow trout in deeper pockets with escape cover.

The stream channel was adequately shaded, with average tree canopy closure ranging from 68% just downstream of the bridge to 86% further downstream. The average tree canopy closure for the segment was 77%, with only evergreens providing stream shading except at the bridge. Shade trees for the stream were primarily tanoak, Douglas fir, coast redwood coast live oak and madrone. Willow was observed at the bridge and upstream, along with creek dogwood and likely rhododendron.

Table 1. Summary of Habitat Typing Data Collected in Cojo Creek, Downstream of the Old Timber Drive Bridge on 21 October 2008 at an estimated flow of 0.25 cfs.

Habitat Type	N	Total Length Surveyed (ft)/ Proportion	Avg. Length (ft)	Avg. Width (ft)	Mean Avg. Depth (ft)	Mean Max. Depth (ft)	Avg. % Embeddedness	Avg. % Fines	Total Cover (ft)	Avg. Cover/ Stream Length	Avg. % Tree Canopy Closure
Pool	16	550/ 66%	34	7.5	0.6	1.1	43	80	107.5	0.217	77 (n=6)
Run	8	196/ 24%	24	5.3	0.3	0.4	35	59	2.5	0.016	–
Riffle	8	87/ 10%	11	5.3	0.1	0.2	17	16	3	0.042	–
Total	32	833									

EXHIBIT D4

Old Timber Drive Bridge Description

The Old Timber Drive Bridge had a dirt surface (**Photo 6**). Streamflow was only flowing through the southernmost culvert (left bank looking downstream) (**Photos 7 and 8**). This corrugated metal culvert was originally 5 feet in diameter (now slightly compressed) and 20 feet long. It was bent down and rusted at the downstream lip. There was a 1.5-foot drop in elevation from the point of the bend to the sedimented streambed below. There was no jump pool below that culvert. The next adjacent corrugated metal culvert was at similar grade, with a 1.8-foot drop into a pool with a maximum depth of 1 foot below (**Photos 9 and 10**). Although this culvert was aligned closer to the center of the bridge, no streamflow passed through it. Two additional fiberglass (?) culverts, approximately 3.4 feet in diameter were adjacent to the larger culverts, one at similar grade and the most northern at an elevated grade **(Photo 10)**. The fill material that was poured over the culverts to create the bridge was confined by horizontal wooden planks that formed walls (**Photos 11 and 12**). The vertical support beams for the wooden walls no longer reached the streambed due to downcutting on the downstream side. Around the base of the culverts, gravel fill was evident. Fill dirt was evident on the bridge surface, with unknown amounts of rock. A sediment bar existed on the upstream side of the bridge in front of the two fiberglass culverts (**Photo 13**). This indicated that the culvert configuration was undersized for the typical range of stormflows.

The bridge culverts are likely to cause logjams at their inlets during larger stormflows, thus restricting downstream transport of large instream wood. Also, the bridge culverts likely impede rainbow trout passage during upstream spawning movements that likely occur in May and June, except during elevated stormflows of 5-10 cfs or greater.

Observations Upstream of the Old Timber Drive Bridge

From qualitative observations, instream wood appeared more abundant upstream of the bridge than downstream. An old redwood trunk spanned the creek at 208 feet upstream of the bridge, creating a 2-foot drop into a wide pool (**Photo 14**). The approach pool had a maximum depth of 2 feet, with a depth of only 1.2–1.5 feet immediately below the log. The spill width over the log was 20 feet. Visquine sheeting was visible on the upstream side of the log, which aided in creating a grade control with a 90-foot long pool immediately upstream. This pool had a maximum depth of 2 feet, with rainbow trout present. Just upstream was an old rock wall that re-enforced the right bank of the creek and protected the adjacent house from streambank erosion. If the downstream grade control were lost, a head cut would likely occur progressively upstream to undermine this rock revetment. A pool at 1,330 feet upstream of the bridge had a maximum depth of 4 feet. The pool was formed by scour over an old redwood trunk that spanned the creek (**Photo 15**). Rainbow trout were observed in this pool. Granitic gravel was not observed upstream of the bridge.

Photo 15. Deep Pool (4 feet maximum depth) Below Old Growth Redwood Trunk, 1330 feet Upstream of the Bridge 21 October 2008

POTENTIAL POSITIVE IMPACTS TO FISHERY RESOURCES FROM BRIDGE REPLACEMENT

Replacement of the existing bridge with a free-span bridge will allow less obstructed, downstream recruitment of instream wood. This will positively impact resident rainbow trout and steelhead by improving rearing and overwintering habitat.

The existing bridge likely obstructs passage of large instream wood during stormflow events, thus reducing the natural transport of large instream wood downstream of the bridge. The logjams that form on the existing bridge during stormflows are undoubtedly removed, thus reducing the downstream recruitment of large instream wood. This blockage of large wood at the bridge, and its subsequent removal from the channel, reduce the quality of rearing habitat and overwintering habitat for resident rainbow trout above steelhead migrational barriers at 0.65 miles from the mouth and for juvenile steelhead below the migrational barriers. If recruitment of large instream wood is allowed into the lower 0.65 miles of Majors Creek, steelhead habitat may also be improved. Large instream wood creates scour to deepen pools, provides escape cover from predators and creates velocity refuges for overwintering salmonids during winter stormflows.

Replacement of the existing bridge with a free-span bridge will allow unimpeded passage of spawning rainbow trout through a natural channel in late spring/ early summer. The existing bridge has created down-cutting below the culverts, requiring spawning fish to jump into the culverts. These culverts may have shallow depths between storm events and after the rainy season is over. During stormflows, the jump is lessened and water depths are improved inside the culverts. However, water velocity during some stormflows may

be excessive for migrating fish. Additionally, as stormflow increases during an event, at some point the flow becomes divided between the two main culverts, shallowing the water depth in each.

Spawning gravel may be added to the reach for enhancement if the sandbar immediately upstream of the existing bridge is removed, sifted, and gravel is then re-introduced to the channel.

POTENTIAL NEGATIVE IMPACTS TO FISHERY RESOURCES DURING BRIDGE REPLACEMENT

In the event that fine sediment is released into the flowing stream during bridge replacement, it may be transported downstream and deposited in pools and riffles. This could reduce habitat quality for fish and aquatic insects, leading to reduced insect production and reduced food supply for fish. In the event that suspended fine sediment is released into the flowing stream, turbidity will also be increased, and visual feeding by salmonids will be hampered. If suspended sediment is sufficiently high, fish mortality may result from clogging and abrasion of fishes' gill lamellae. These impacts are short-term in duration. These impacts will mostly affect resident rainbow trout because the bridge is approximately 4 miles from the ocean. Steelhead have access to only the first 0.65 miles of Majors Creek, based on our previous observations of a steep waterfall-section of creek (Alley 1993), and the suspended sediment will be diluted at the confluence of Cojo and Majors creeks, approximately 0.3 miles downstream of the bridge replacement.

The Alaska water quality standard for allowable increase of turbidity for waters classified for growth and propagation of fish is not to exceed 25 NTU above natural conditions for clear water systems (Lloyd 1987). However, the time duration of increased turbidity will determine the extent of adverse impact, and this Alaska standard is for chronic sources of turbidity. Work done with coho salmon juveniles indicated that fatality (96 hr LC50) was reported at 509 mg/L (ppm) as a suspended sediment concentration, with no NTU measurements provided (Stober et al. 1981; referenced in Lloyd 1987). For chinook salmon juveniles fatality (96 hr LC50) was observed at 488 mg/L (Stober et al. 1981; referenced in Lloyd 1987). It is probably similar for rainbow trout. Reduced feeding was observed in rainbow trout at 70 NTU (Olsen et al. 1973; referenced in Lloyd 1987). Displacement of steelhead was observed at 40-50 NTU (Sigler 1980; referenced in Lloyd 1987). Altered feeding behavior was observed in trout (no specified species) at as low as 25 NTU (Langer 1980; referenced in Lloyd 1987).

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RECOMMENDED IMPACT MINIMIZATION MEASURES FOR FISHERY RESOURCES

Specific Impact Minimization Measures For the Top-of-Bank Construction Scenario

According to the project coordinator, Patrizia Materassi (personal communication), the project engineers have stated that all bridge-related work will be done from the top-of-bank and no equipment or fill will enter the stream below the Ordinary High Water Mark during removal of the old bridge and construction of the new bridge.

- Block nets will be placed approximately 50 feet upstream and 150 feet downstream of the existing bridge. Before removal of the old dam, resident rainbow trout will be removed by electrofishing between the block nets and relocated to good pool habitat upstream. At least one experienced dip-netter and livecars for holding fish will be utilized during electrofishing.

- The sandbar immediately upstream of the bridge will be excavated above the water line, sifted for gravel, with gravel re-introduced to the streambed upon completion of the new bridge, as a future source of spawning gravel.

- The existing bridge will be removed, with its fill around the culverts and the culverts themselves from the top-of-bank. The walls of wooden planks will be retained while removing old fill. Old fill that contains fine sediment from the footprint of the old bridge will be deposit where it will not re-enter the stream channel. Erosion control measures will be implemented, as needed, to prevent future stream sedimentation from this material. The culvert containing the streamflow will be removed last. Any clean gravel that was observed between and under the existing culverts will be left in the channel after culvert removal. However, the filter fabric under the gravel will be removed from the channel.

- A biological monitor will be present to assist the construction crew in following the mitigation recommendations during the removal of the old bridge and the placement of the new bridge on the concrete caissons.

- A series of three silt fences will be constructed across the flowing channel, within 100 feet downstream of the bridge site in order to capture suspended sediment. Silt fences will be buried in the streambed with hand shovels and secured with concrete blocks to prevent silt leakage underneath. Since removal of the bridge is of very limited time duration, expected turbidity levels downstream of the in-stream silt fencing will have insignificant impacts on rainbow trout and steelhead. In the NOAA Fisheries proposed recovery plan for listed salmon in the area, they have developed criteria for turbidity (J. Ambrose, NOAA Fisheries, pers. communication). They are proposing turbidity standards based on days that turbidity is greater than (>) 25 NTUs. The categories are "Poor" (>30 days); "Fair" (20-30 days); "Good" (10-20 days); and "Very Good" (less than (<) 10 days). An estimated two days are expected to remove the old bridge on Cojo Creek and cause elevated turbidities during the workday. Therefore, this activity

will allow turbidity standards to remain well into the "Very Good" category. We would expect that rainbow trout (and steelhead downstream) will have the opportunity to feed during the early morning hours prior to daily construction activities even while the bridge is being removed. In our judgment, the silt fencing will prevent suspended sediment from ever approaching lethal levels or changing habitat conditions for salmonids.

- Concrete caissons (abutments) for the new bridge will be constructed from the top-of-bank. Uncured cement and fill will be prevented from entering the stream during excavation and construction. Excavated material will be deposited away from the stream with necessary erosion control measures, as needed, to prevent its future sedimentation of the stream. Bridge construction is expected to take approximately two weeks.

- The new bridge will be placed atop the concrete caissons from the top-of-bank. No fill will be introduced to the stream channel during this process.

- Silt fences and block nets will be removed after construction is completed and water clarity is restored.

General Impact Minimization Measures For Bridge Construction

- The extent of temporary and permanent changes to the quality and quantity of instream and riparian habitat will be minimized.

- Building materials and/or construction equipment will not be stockpiled or stored where they could be washed into the water or where they may cover aquatic or riparian vegetation that need not be removed.

- During the construction period, the operator will not dump any trash or construction debris into the wetted channel. All such debris will be picked up daily and disposed of at an appropriate site.

- During project activities, all trash that may attract potential predators of salmonids (e.g. raccoons, piscivores, etc.) will be properly contained, removed from the work site and disposed of daily. Workers will not litter and will manage their food wrappers by disposing of them properly. Trash containers will be provided by the operator at the jobsite and will be emptied daily.

- Protective fencing will be placed so as to prevent construction vehicles and personnel from impacting vegetation adjacent to and outside the project site. The construction area will be clearly demarcated with flagging.

- Disturbance or removal of woody vegetation will not exceed the minimum necessary to gain access to the stream. No riparian trees will be removed unless their removal is necessary for access to the construction areas or for construction of new facilities. Bulldozer/backhoe-type equipment will not be used to remove woody vegetation unless the root masses of such vegetation interfere with

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construction activities. The root zone of existing woody vegetation will be left undisturbed wherever possible.

- Less destructive techniques of pruning tree branches in the lower 8 feet will be used where possible to accommodate project activities. Understory riparian vegetation such as blackberries, willows, etc., will be pruned only as needed to accommodate project activities. All pruned material will be removed from the area and properly disposed of.

- A qualified fisheries biologist will be hired for the purposes of education, monitoring the action areas and for removing and relocating salmonids from these areas.

- Adequate sediment and turbidity control measures will be implemented. One or more fences of filter fabric will be constructed across the stream channel downstream of the bridge to reduce turbidity and sedimentation downstream of the stream construction site.

- Project activities that may affect the stream channel will be scheduled to begin no earlier than August 1 (so as not to interfere with spawning movements and egg incubation of resident rainbow trout and at a time when baseflow is minimal) and end by October 15.

- A pre-construction educational session will be provided by a qualified biologist for all members of the work crews regarding conditions of state or federal permits, habitat requirements of fish, amphibian and reptile species, the importance of stream shading and the adverse effects of toxic substances and sediment entering the stream channel.

- All sandbags, plastic and construction materials and equipment will be removed from construction sites upon project completion.

Impact Minimization Measures Related to Toxic Fuels and Chemicals During Bridge Removal and Replacement

- Best management practices will be used to prevent spillage of hazardous materials into the watercourse. Oily or greasy substances originating from the Contractor's operations will not be allowed to enter Cojo Creek, or be placed where they will later enter the aquatic system. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life, wildlife, or riparian habitat. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be cleaned of all external oil, grease, and materials that, if introduced to water, could be deleterious to aquatic life, wildlife or riparian habitat.

- All mechanized equipment working in the stream channel or within 25 ft of the wetted channel will have a double containment system for diesel and oil fluids.

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Equipment will be maintained in good working order to prevent leakage. Vegetable-oil-based hydraulic fluids will be used in equipment operated near the stream channel.

- Fuel will be stored in an container with an impermeable membrane that can hold 125% of the volume of fuel being stored.

- Any refueling or equipment maintenance will be accomplished in the staging area away from the creek to prevent fuel spillage to streams.

- National Marine Fisheries Service will be notified promptly of any spill of one gallon or more at project sites.

- All concrete structures will be isolated from the flowing stream until fully cured. Application of a water-base concrete sealer after a period of time will be applied to reduce the isolation time of the concrete from the stream.

Impact Minimization Measures Related to Erosion Control Measures for Bridge Construction

- Erosion control and sediment detention devices will be implemented at the time of construction. These devices will be in place during and after construction activities for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and of detaining sediment-laden water on site. The devices will be properly installed where the likelihood of sediment input exists.

- At least 125 percent of the necessary erosion and (water) pollution control materials will be available on-site at all times during project construction.

- All erosion-control practices will be inspected, repaired, and maintained prior to and after any storm event during the construction period. Inspections will occur at 24-hour intervals during extended storm events, and/or a minimum of every two weeks during the winter after bridge construction.

- Erosion control measures will be utilized in order to prevent streambank erosion after the project is completed. Excavated areas will not be filled with gravels with less than a 0.5-inch diameter.

- During the winter season (October 31 through May 15), all inactive areas will have all the necessary soil stabilization practices put in place before a rain event and two days after a period of inactivity (defined as 5 days) has elapsed.

- Throughout the winter season (October 31 through May 15), soil-disturbed areas of the project site will not exceed 50 square feet in size.

- Mulching material will be on hand at the site as October 15 approaches, in the event of an early storm event. When activities are ended, all bare ground will be mulched to at least a 2-in thickness.

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- The site will be monitored through the winter, and additional mulching will occur where bare soil develops after storm runoff.

- All artificial erosion control devices will be removed after the project area has fully stabilized.

Impact Minimization Measures Related to Fish Relocation from the Work Area Prior to Bridge Removal and Replacement

- Fish will be captured by electrofishing in Cojo Creek. Other methods would be inadequate.

- The fisheries biologist will have a minimum of three years field experience with electrofishing techniques.

- The fisheries biologist will possess a valid State of California Scientific Collection Permit as issued by the CDFG.

- All captured fish will be allowed to recover from electrofishing before being returned to the stream.

- All captured native fish will be placed in suitable habitat either upstream or downstream of the project area. Suitable habitat will include instream escape cover and pools greater than one foot deep. Fish will be placed in the deepest pools in the vicinity. Fish will be transported in livecars, if possible. Otherwise, buckets of water will be used.

- All captured native fish will be held in water with temperatures equivalent to ambient instream temperatures. All captured fish will be held in well-oxygenated water. Floating livecars will be used to hold the fish.

- A minimum of three passes with the electrofisher will be utilized to ensure maximum capture probability of salmonids within the area proposed for dewatering.

- All captured salmonids and other aquatic vertebrates will be processed and released prior to all subsequent electrofishing efforts.

- A minimum of one assistant will aid the biologist during electrofishing by netting stunned fish and other aquatic vertebrates.

- Any non-native fish will be removed from the aquatic system.

- If California red-legged frog is encountered during electrofishing, fish relocation activities will cease, and the necessary resource agencies will be contacted for direction on how to proceed.

EXHIBIT D

D.W. ALLEY & Associates aquatic biology

2 April 2009

John Draeger
831 Smith Grade Road
Bonny Doon, CA 95060

RE: Cojo Creek Survey for Water Diversions

Mr. Draeger,

I had surveyed Cojo Creek from beyond your property's upstream boundary to 1/8 mile downstream of Old Timber Drive Bridge last 21 October 2008, not observing any water diversions from Cojo Creek. Today, 2 April 2009, I re-surveyed Cojo Creek from the upstream boundary of your property down Cojo Creek to its confluence with Majors Creek and down Majors Creek over the full extent of your property. I also walked the unpaved road from Old Timber Drive Bridge to Moore Ranch Road, parallel to Cojo Creek, looking for evidence of water pipes. I also drove Moore Ranch Road that parallels Majors Creek through your property, looking for water pipe. I found no evidence, past or present, of water diversion from the stream channel or of piping upslope for the extent of Cojo and Majors creeks where they flow through your property at 831 Smith Grade Road.

Sincerely,

Donald W. Alley, Jr. M.S.

Donald W. Alley, Jr.
Certified Fisheries Scientist

EXHIBIT D
ATTACHMENT 9

BRYAN M. MORI
BIOLOGICAL CONSULTING SERVICES
1016 Brewington Avenue, Watsonville, CA 95076. Tel: 831-728-1043

November 13, 2008

John Draeger
831 Smith Grade
Bonny Doon, CA 95060

RE: DRAEGER PROPERTY ON COJO CREEK – CALIFORNIA RED-LEGGED FROG PRELIMINARY SITE ASSESSMENT

Dear John:

The purpose of this letter-report is to provide the County of Santa Cruz Planning Department the requested biological assessment for the proposed bridge replacement at Cojo Creek on the property located at 831 Smith Grade (Figure 1). The assessment focused on the California red-legged frog (*Rana draytonii*) (CRF).

SUMMARY

No CRF were observed during the site assessment. A definitive statement regarding their presence or absence from the project area, however, could not be made at this time, due to the lack of comprehensive focused surveys. There is a possibility that Cojo Creek in the vicinity of the project site could support CRF, based on their occurrence in the project region, the presence of potential habitat in Cojo Creek and the relatively undisturbed nature of the riparian corridor and surrounding landscape. Potential cover for frogs is provided by the abundant vegetation along the banks, coarse woody material in the channel, undercut banks and occasional deep pools. If CRF are present, Cojo Creek likely functions as seasonal habitat for occasional non-breeding adults and dispersing juveniles, as the pools in the creek are not likely to provide suitable CRF breeding habitat, due to the presence of rainbow trout, which could prey on hatching tadpoles. In order to minimize potential negative impacts to CRF, a pre-construction survey and other precautions have been included in this report, and will be referenced in the construction plans.

METHODS

The assessment was performed using the following protocol as a guide - Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog, August 2005 (United States Fish and Wildlife Service [USFWS] 2005).

The reconnaissance-level survey was performed on 22 July 2008. A qualitative evaluation of potential habitat in the project area was performed by walking the length of the creek approximately 500 feet upstream and downstream of the project site.

EXHIBIT D

ATTACHMENT 1 (illegible)

Habitat conditions observed were recorded in a field notebook and the project area was photographed (Attachment A - Photos). During the reconnaissance, suitable habitats were visually surveyed for frogs and all wildlife species observed were recorded in a field notebook. The surrounding landscape within a one-mile radius of the site was identified, based on interpretation of an aerial map (Google Earth) and the FeltonUSGS topographic quadrangle. The California Natural Diversity Data Base (CNDDB) was accessed and other biologists were consulted for records of special-status species within one mile of the project site.

EXISTING CONDITIONS

Project Site

The following description generalizes habitat conditions at the project site and within a 500-foot section up- and downstream of the bridge site.

The project site is located on Old Timber Drive at Cojo Creek, tributary to Majors Creek. Cojo Creek is perennial and confined within a narrow, deeply incised, U-shaped drainage channel. In the project area, the gradient is low and the channel bottom is estimated to range between 3 - 35 feet wide. The banks are generally steep and nearly vertical in some sections; bank-full height was estimated to be around 2 - 3 feet. The substrate appeared to be mostly comprised of coarse and fine sand, with large gravel and small cobbles interspersed. Small pools are located immediately up- and downstream of the existing bridge. The upstream pool was approximately 30 feet in length and sinuous, with water depth ranging from around 6 inches to 1.5 feet. Woody debris, undercut banks, abundant streamside vegetation (e.g., horsetail, ferns, sedges and willows), as well as the bridge structure, offer suitable cover sites (Photos 1 and 2). The downstream pool was more open in nature and slightly shallower, but suitable cover was present along the shoreline and at the bridge (Photo 3). Elsewhere in the creek, aquatic habitats included shallow riffles and runs mostly 3 inches deep or less, shallow pools under 0.5 feet deep and occasional large pools up to 2 feet in depth (Photos 4 and 5).

The riparian corridor overstory is essentially a continuation of the surrounding mixed conifer-hardwood forested landscape and generally lacks true riparian associates. Representative canopy trees consist of coast redwood, Douglas fir, California bay laurel, tanoak, madrone and coast live oak. True riparian trees are limited in extent and distribution and consist of occasional scattered dogwoods and sparse willows in the secondary canopy layer, which is typified by rhododendrons. At the project site, the canopy is fairly open, presumably due to past tree removal for the bridge. Otherwise, the canopy cover is generally moderate to high along the creek. The understory cover is fairly dense and extends to the edge of the channel and overhangs the creek, where slope conditions permit (Photo 6). Typical shrub and ground cover species include a variety of ferns, horsetail, sedges, rushes, tules, coltsfoot, poison oak, stinging nettle and blackberry.

and again in 1995 (CNDDB 2008; D. Suddjian, pers. comm.). The Adams Creek observations, together with the observations to the north (Bull Creek) and south (Dimeo Lane Landfill), indicate that this species is widely distributed throughout the project region. In addition, several potential breeding ponds are present to the east, northeast and north within CRF dispersal distance from the project site (Figure 2), also supporting the idea that CRF may be present in the project vicinity; the nearest pond is located 0.6 mile to the east. Due to the relatively undeveloped nature of the surrounding landscape, no notable CRF movement barriers are present between the potential CRF breeding ponds and Cojo Creek. Although CRF were not observed during this study, a conclusive determination of their presence or absence could not be made and their status at the project area remains uncertain, due to the lack of comprehensive focused surveys.

Cojo Creek appears to provide suitable CRF habitat, due to the relatively undisturbed nature of the drainage and its perennial nature. Potential cover for frogs is provided by the abundant vegetation along the banks, coarse woody material in the channel, undercut banks and occasional deep pools. If CRF are present, Cojo Creek likely functions as seasonal habitat for non-breeding adults and dispersing juveniles. The pools in Cojo Creek are not likely to provide suitable breeding habitat for CRF, as they support rainbow trout, which could prey on hatching tadpoles.

RECOMMENDATIONS

The following recommendations are based on review of the proposed site plan (Figures 4 and 5). Bridge construction activities, including bridge/culvert removal, grading and vegetation removal, and storage of materials, machinery and equipment have the potential for negatively impacting CRF and their habitat. Therefore, the following recommendations are intended to avoid/minimize impacts to a less-than-significant level.

1) A qualified biologist should perform a pre-construction survey within 48 hours of the project start date, as well as monitor the removal of the bridge and culverts, initial grading along the top-of-bank and vegetation removal. If the presence of CRF is confirmed during the pre-construction survey or construction monitoring, work should halt and the California Department of Fish and Game (CDFG), USFWS and the County should be notified. Work should not resume until further notice.

2) Prior to the start of the project, a qualified biologist should present a worker's education seminar to the crew to discuss the natural history and identification of CRF, their legal status and the protection measures incorporated into the project.

3) During the worker's education seminar, the qualified biologist should identify a member of the work crew to serve as a qualified monitor. The intent of selecting an operations monitor is strictly for <u>monitoring occurrences only</u> and <u>no handling</u> of CRF should occur. If the monitor observes a CRF during construction, work should halt and the biological monitor should be called immediately to verify the identification. If the presence of CRF is confirmed,

the appropriate agencies should be notified and work should not resume until further notice.

4) The limits of the work area shall be clearly delineated using temporary flagging. Surface disturbance, storage of materials and equipment and spoils should not be permitted outside the designated work area.

5) Initial vegetation removal within the riparian corridor shall be performed using hand tools and machinery (e.g., saws, weed-whackers) to a height of 4 - 6 inches, with the oversight of the qualified biological monitor. Mechanical clearing can proceed after site is inspected and deemed clear of CRF.

6) No heavy equipment shall operate in the stream corridor. All vehicles and equipment operating near aquatic areas must be maintained daily to avoid leaks. Any leaks must be cleaned up immediately. Refueling and maintenance should be performed a minimum 100 feet from the stream channel.

7) Block nets installed for electrofishing (see D. W. ALLEY & Associates fisheries assessment 2008) in place for more than a day should be installed in a manner that will permit CRF to move around the nets.

8) Silt fencing in the stream channel installed for sediment control should be installed in a manner that will permit CRF to move around the fences.

9) If during project construction 0.25 inch or greater rain falls from the previous day/night, the qualified biologist should conduct a search for CRF that may be present under equipment, stockpiled vegetation and in the creek, prior to the start of work the following day. If the presence of CRF is confirmed, work should halt and the appropriate agencies should be notified. Work should not resume until further notice.

10) Food-related trash should be placed into an enclosed container and should be removed from the project site daily, in order to prevent increased use by scavengers (e.g., raccoons).

Please call me if you have any comments or questions regarding this report.

Sincerely,

Bryan Mori
Consulting Wildlife Biologist

Attachments: References; Attachment A-Photos; Figures 1 - 4.

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT

701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123

TOM BURNS, PLANNING DIRECTOR

March 23, 2009

Patrizia Materassi
178 Nelson Road
Scotts Valley, CA 95066

Re: APN 062-251-01, Draeger property biotic assessment

Dear Ms. Materassi:

We have received and reviewed the completed biotic assessment for this property, prepared by Bryan Mori and Don Alley; both dated November 13, 2008. The assessments were required because of the potential presence of California red-legged frogs (CRF) and potential impacts to steelhead. Both species are federally listed as threatened; CRF is listed by the state of California as a species of special concern.

Regarding CRLF, the biologist observed that the project vicinity may support CRF and they may be encountered during the course of development. Construction activities have the potential to impact this plant and suitable measures to avoid impact must be observed. The following conditions shall apply to this project:

1. A qualified biologist shall perform a pre-construction survey within 48 hours of the project start date, as well as monitor the removal of bridge and culverts, initial grading along the top-of-bank, and vegetation removal. If the presence of CRF is confirmed at any time, work shall halt and the California Department of Fish and Game (CDFG) and the US Fish and Wildlife Service shall be notified. Work shall not resume until notice to proceed has been granted by the County of Santa Cruz.
2. Prior to the start of the project, a qualified biologist shall present a worker's educational seminar to the crew to discuss the natural history and identification of CRF, their legal status and the protection measures incorporated into the project.
3. During the worker's education seminar, the qualified biologist shall identify a member of the work crew to serve as a qualified monitor. The monitor shall in no instances handle a CRF. If the monitor observes a CRF at any time in the project area, work shall halt and the qualified biologist shall be called immediately to verify identification. If presence is confirmed, work shall halt and the California Department of Fish and Game (CDFG) and the US Fish and Wildlife Service shall be notified. Work shall not resume until notice to proceed has been granted by the County of Santa Cruz. Work shall not be done on the proposed project without either the qualified biologist or the monitor identified by the qualified biologist present.
4. The limits of the work area shall be clearly delineated using temporary flagging, construction tape, and or fencing prior to disturbance of the project site. No

EXHIBIT D

ATTACHMENT 1

disturbance, st e of materials and equipment, or stoc ng of spoils shall occur outside of the approved and delineated disturbance area.

5. Initial vegetation removal within the riparian corridor shall be performed using hand tools and machinery to a height of 4-6 inches, with the oversight of the qualified biologist. Mechanical clearing can proceed after all vegetation that is to be removed has been reduced, and the qualified biologist has ensured the site is clear of CRF.
6. No heavy equipment shall operate within the stream corridor. All vehicles and equipment operating within 100 feet of the riparian corridor must be maintained daily to avoid leaks. Any leaks detected must be immediately cleaned up. Refueling and maintenance shall occur at least 100 feet from the riparian corridor.
7. Block nets installed for electro-fishing that are in place overnight shall be installed in such a way as to allow CRF to move around the nets.
8. Silt fencing in the stream channel installed for sediment control shall be installed in such a way as to allow CRF to move around the nets.
9. If during the course of the project 0.25 inches of rain or more falls overnight, prior to any further construction-related activities including movement of machinery, the qualified biologist shall conduct a search of the entire work site, including all machinery, to ensure CRF have not moved into the work area. If presence is confirmed, work shall halt and the California Department of Fish and Game (CDFG) and the US Fish and Wildlife Service shall be notified. Work shall not resume until notice to proceed has been granted by the County of Santa Cruz.
10. All trash shall be disposed of in a closed container at the end of each workday to prevent increased use of the area by scavengers.

Regarding fish, the assessment identified potential impacts to resident trout from increases in turbidity. The assessment determined impacts to steelhead not likely due to the distance of the site above a know barrier to steelhead, and the diluting effect of Majors Creek 0.3 miles downstream of the project site. The measures recommended in the assessment by D.W. Alley shall be incorporated into the project as written, with the following additions:

1. A concrete washout area shall be identified at least 100 feet away from the riparian corridor.
2. The worker educational seminar shall be conducted in coordination with the seminar required for the CRF.
3. Any sandbags used in the stream channel shall be filled with pea-sized gravel. The gravel shall be deposited in the stream channel after use.

The conditions above and contained within the aquatic assessment will be required conditions of approval of the riparian exception. Please call me at 831-454-3201 if you have any questions. A copy of this letter will be sent to your project planner so that she or he is aware of the biotic conditions on the parcel.

Sincerely,

Matt Johnston
Deputy Environmental Coordinator

Cc: Sheila McDaniel

EXHIBIT D

ATTACHMENT 1

ARCHAEOLOGICAL CONSULTING

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

PRELIMINARY ARCHAEOLOGICAL RECONNAISSANCE FOR PORTIONS OF APN 062-251-01 BONNY DOON, SANTA CRUZ COUNTY, CALIFORNIA

by

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

August 31, 2009
Revised September 8, 2009

Prepared for

John Draeger

SUMMARY: PROJECT 4313
RESULTS: NEGATIVE
ACRES: <2 OF THE ±152 ACRE PARCEL
SITES: NONE
UTMG: COJO CREEK BANK FORTIFICATION 5.7940/40.9710, OLD TIMBER DRIVE BRIDGE REPLACEMENT 5.7935/40.9699, MOORE RANCH ROAD BANK REPAIR 5.7909/40.9675, HORSE FACILITY 5.7942/40.9696, SHOP AREA 5.7925/40.9642
MAP: USGS 7.5 MINUTE FELTON QUADRANGLE

Note: *SOPA*, the Society of Professional Archaeologists, has been superseded by the new Registry of Professional Archaeologists. Registered Professional Archaeologists are designated by RPA.

ATTACHMENT 1

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 areas do not contain evidence of potentially significant archaeological resources. Because of this we make the following recommendation:

- The proposed project, the clearance of red tags and restoration of banks, vegetation, etc. should not be delayed for archaeological reasons. Furthermore, construction of another shop building or other amenities associated with the horse facility 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 (150 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.

Prepared for John Draeger

831 Smith Grade

By

Patrizia Materassi

Sustainable Development & Planning

November 08

(Revised March 4, 2010)

Sustainable Development & Planning, P.O. Box 66287, Scotts Valley, CA 95067
(831)334 2383, Mpatrizia @ aol.com

EXHIBIT D

ATTACHMENT 12

MANURE MANAGEMENT PLAN
831 Smith Grade
November 08, Revised on March 4, 2010

Collection of Manure/Clean up

All stalls and paddocks* are cleaned daily, as well as turnouts or fenced horse areas. Manure and wood chips/bedding is gathered and taken to the manure storage every 2 days with a small cart or mini tractor. Any remaining manure is completely cleared before winter storms. Rain water is directed away from paddocks and other horse facilities per the existing drainage systems. This avoids seepage of salts and nutrients into the ground water and creek, and growth of bacteria if any, i.e. EColi bacteria.

Storage

Storage area is located away from the Creek, from the water well, and from the mobile home residence. The storage area is currently of base rock, and is covered with tarps. The storage area is sprayed for flies and insects. In the future, a larger bunker/containment area with concrete base, and a roof will be installed to contain manure for a maximum of 8 horses. The Manure Bunker is located several hundred feet away from the residence, in the Shops/storage area of the site, approximately 200' higher in elevation and towards the Southern portion of the parcel. Please refer to **Sheet A2** for location of the Manure Bunker. Please refer to Sheets **A11** and **A12** for fool plans, elevations and roof plans.

Eight horses (8) is the total, the maximum this facility is planned for; at the moment there are 4 horses. The horses are considered pets and care for that way. The size of the bunker is to accommodate for all the horse manure and the chippings/bedding produced on a daily basis for periodic disposal as described in this plan.

Disposal

Currently, manure is removed from site by farm employees and sent in a dump truck to Watsonville, where it is composted and used to fertilize strawberries. In the future manure will be disposed to local landfill according to a program for livestock owners. (Contact is Dan De Grassi at (831) 454 3102, per the Ecology Action Horse Manure Management.).**

In this program, the manure is transported by the property owner to the Buena Vista Landfill, where it is accepted for composting at a reduced fee of $30.80/mo, for four(4), 64 –gallon carts per week, what takes care of 2 horses worth of manure/bedding. (Fees may vary.) Currently, there are 4 horses at the site. Therefore, there will be a need to dispose of 4 more 64 gallons of manure/week once the contract starts. This will be accomplished by participating in the Organic Material Exchange Program. And, in the future, when the facilities arrive at capacity /8 horses, the owner may start composting manure on site at the manure bunkers location, if necessary. For further detail regarding these programs, please refer to information attached, email Dan De Grassi at dpw180@co.santa-cruz.ca.us, and/or visit www.omexchange.org. Please refer to the Manure Disposal Approval Card attached.

** Property Owner has already started to dispose of manure and bedding to the Buena Vista Landfill, and receipts of delivery were provided to Health Services during last submittal.

Other Related Issues

Protection of Riparian Buffer Strips--Riparian areas are protected with vegetation buffers, and by preventing runoff from draining into the creek via the existing drainage system. Please refer to Drainage/Erosion Control Plan for Horse Facility area **Sheet C5.3**, Arena Landscaping buffer on **Sheet L-1.0,** and Site Plan **Sheet A.1**

Horse Activities and overall maintenance----Horse access to water ways and food is restricted. Horses are taken care of in the horse stalls and paddocks. At times they are allowed to eat inside fenced areas- Turnouts/corrals close to the arena, but not in the open pasture, nor drink at the creek. The stall, paddocks and horse fenced areas are cleaned daily. The horses are exercised in the arena. The arena is cleaned up right after the exercises and maintained clean.

The manure and bedding are gathered every 2 days and carried to the storage in a different area of the site with a small cart/mini tractor. Every week or as needed, the manure is hauled out per Disposal Program outlined in this report. The manure storage is located in a manner not to affect the residence with odor, and to prevent any potential runoff into the creek. The location is also not visible to neighbors or from scenic roads.

Integrate Pest Prevention—Keeping horse areas cleaned daily is fundamental to prevent pests and reduce odors. Spraying for flies and insects is also utilized, especially during hot summer months.

Policies to Reduce Impact on Neighbors-- Signs will be posted to warn friends and guests of different Manure Management Policies, and to provide specific directions on the care and riding the horses. Please refer to signs attached, and **Sheet A1**, for location of signs on the site plan.

Horse Use/ facilities –These horse facilities are intended to serve family and friends, and keep from 4-8 horses. No commercial operations are proposed.

The horse stalls and paddocks are the places where the horses are taken care of. The dressage arena is where they exercise. The tack rooms are the storage area for the saddles, harnesses, horse blankets and all other horse related equipment. The tack rooms also serve the friends and guesses when they come back from riding. They wash hands and may drink bottled water. The horses and horse blankets and other items are washed in there as well. All areas shall be kept clean at all times.

Water Quality Related Information--The drainage plan ensures the storm water runs clean and is dissipated prior to reaching the creek. In addition, the project has been issued a Health Department clearance for normal septic system as the underground water table is Ok- no high water table exists in this area of the site, thus also minimizing any potential for underground water contamination.

Preliminary water quality tests were performed in dry and wet conditions. The dry conditions test showed the water is cleaner downstream of the horse facility with insignificant amounts of nitrates and turbidity. The wet conditions test revealed the same, however, it was performed towards the end of the rainy season and will need to be repeated as part of a Water Monitoring Plan being submitted to the City of Santa Cruz Water Department. There is no evidence of erosion on site at this time. Existing drainage facilities are working. In addition,

EXHIBIT D

there is no diversion from creek water to take care of horses from the creek as certified by the project Biologist, Don Alley. Well water is used for horse bathing, facility cleaning and dust mitigation.

Notes: * Paddocks—Refer to small, non-irrigated, non-grazable holding pen or exercise lots, often adjacent to horse stalls. They are used as a place to hold horses rather than as a source of pasture feed. They are managed to protect soil and water resources.

References: Ecology Action Web site, on Livestock and Land, and Council of Bay Area conservation Districts guidelines.

Report Prepared by Patrizia Materassi, Land Use consultant/sustainability Specialist from Sustainable Development & Planning, using resources listed above, site visit/observations, and property owner information of procedures followed.

Report reviewed by Architect, Terry Fisher. Terry also provided directions on proper storage and drainage on the area where the horses are taking care of; she designed the manure bunkers and proper signage to be posted on site.

C:\Documents and Settings\Patrizia Materassi\Desktop\Draeger\REVISEDMANUREMANAGEMENTPLAN.doc

EXHIBIT D

Staub Forestry &
Environmental Consulting

November 11, 2008

Ms. Patrizia Materassi
Sustainable Development and Planning
PO Box 66287
Scotts Valley, CA 95067

Forester's Report on Timber Production Zoning Issues
and Timber Management Plan for Santa Cruz APN #062-251-01

Per your request we reviewed plans for site improvements and restoration to comply with County requirements on the Draeger property (Santa Cruz APN #062-251-01) to evaluate possible impacts of these improvements on forest management activities and consistency with the property's Timber Production (TP) zoning. Our analysis included review of plan sheets in the submittal package for the Draeger property listed on Title Sheet T1 prepared by Robert DeWitt & Associates with specific reference to Sheets T1 – T3 prepared by DeWitt & Associates and Sheets C0.1-C6.4 prepared by Quilici Engineers, Inc., the USDA Soil Survey for Santa Cruz County (1980), aerial photography and other data from Santa Cruz County's interactive GIS, and field visits on March 28, September 30 and October 22, 2008 inspecting all sites shown on the plans and a reconnaissance of the entire property.

Property Owner: John E. Draeger

Address and Location: 831 Smith Grade Road, which is nearly one mile west of its intersection with Empire Grade, south of Smith Grade and immediately east of Majors Creek.

Mapping: Parcel location, topography, watercourses, roads and existing improvements are mapped on the various sheets referenced above of the submittal package.

Zoning: Timber Production

Our site review and property analysis confirms that the parcel meets the definition of "Timberland" per Section 51104 (f) of the Government Code and meets the timber stocking standards as set forth in Section 4561 of the Public Resources Code and the Forest Practice Rules adopted by the State Board of Forestry for the Southern Subdistrict of the Coast Forest District

The property is largely forested but contains a good sized meadow in the north central part of the parcel, a somewhat smaller meadow in the southwest corner, a moderately open ridge in the southeast corner as well as other small openings of grass and scrub cover within the dominant forest matrix. Forest cover is a variable mix dominated by redwood

6010 Highway 9, Suite 6 Felton CA 95018 Phone 831. 335.1452 Fax 831. 335.1462 staubtre@pacbell.net
Stephen R. Staub, Registered Professional Forester License No. 1911
Cassady Bill Vaughan, Registered Professional Forester License No. 2685
Cheyenne Borello, Registered Professional Forester License No. 2784

EXHIBIT D

and Douglas-fir trees on moister, more northerly facing sites but with significant presence, especially on somewhat drier sites of the mixed evergreen hardwoods Shreve oak and tanoak plus minor amounts of madrone, coast live oak and other species. Sparse stocking of larger trees in some areas and the presence of younger, smaller Douglas-firs and Shreve and coast live oaks in a number of areas suggest that the site was formerly somewhat more open and that tree occupancy has increased in recent years, probably due at least in part to fire suppression and the absence of other light disturbance such as regular grazing.

Analysis of conflicts between existing and proposed improvements and future timber production and harvesting: Our review found no adverse impacts on timber production or management foreseeable from the Creek Fortification Plan, Erosion Control Plans, Bridge Replacement Plans, and Regrading Plan for Moore Ranch Road at Cojo Creek Bridge and minimal, insignificant impacts from Plans for the Horse Facility and Shop sites.

Tree cover has obviously been affected on the Horse Facility Site but detailed site review found very limited impact to conifer resources because the majority of the site formerly supported and is best suited to growing an open stand Shreve oak (*Quercus parvula, var. shrevei*) with grass and herbaceous surface vegetation. Suitable conifer growing site occurs only along the southern edge of horse facility site improvements, where a small number of Douglas-firs and redwoods of small to moderate commercial size were apparently removed to increase sunlight and decrease hazard to users. Logs were apparently retained and used on site. Total area of growing site for commercial conifers affected is estimated at less than one-quarter of an acre. Adjoining areas of conifers, with the exception of one cluster of 5 redwoods next to facilities in the southwest corner of the site, remain available for timber growing and production purposes with suitable road, trail and log loading access retained. Road access for timber production off the existing turn to the flat west of the Equestrian Site should not be compromised by any future plans

Improvements at the Shop Site also affected a Shreve oak dominated site but extend just into suitable conifer growing site along the northern and western sides of existing and proposed facilities. A few small to moderate sized Douglas-fir logs are stored on the southern edge of the site. Proposed improvements will retain an existing large clearing to be used as a turnaround that can be utilized for log loading or other timber production purposes. Existing grading has occurred within some tree driplines but only one Douglas-fir appears to have suffered significant adverse impacts as a result. Completion of grading including retaining wall installation and construction of proposed improvements as shown on Sheet C6.1 will remove one madrone (24" dbh), two Douglas-firs (12" & 13") and two redwoods (13" & 24"). The total area of viable growing site for commercial conifers affected by improvements is estimated at approximately one-third of an acre and suitable access for timber management activities remains available for surrounding timberland. The large flat in front of the existing and proposed shop structure should be left open so that it can be used to deck and load logs from selective harvests.

Summarizing impacts and recommendations:
1. Effective loss of productive timberland is less than 3/4 acre, an insignificant amount on this large property with extensive forest resources.

- Recommendation: Show the precise locations of existing redwood and Douglas-fir trees being retained next to proposed limits of grading at the Shop Site so that grading will

explicitly plan for healthy retention of these trees by avoiding any deposition of fill within one foot of retained tree trunks and that fill be suitably stabilized to avoid raveling or movement into contact with tree trunks or bases. Site review indicates that grading impacts beyond current conditions to retained trees will be minimal and can be minimized by installing protective fencing adjacent to construction footprints to protect tree trunks and rooting areas from compaction of foot, vehicle and equipment traffic. Cover bare soils in such rooting areas with 2"+ of wood chips or other organic mulch.

2. Proposed road improvements will improve access for forest management while minimizing impacts to riparian resources and channel conditions.

- Recommendation: Road access for timber production off the existing turn to the flat west of the Equestrian Site should not be cut off or compromised by any future improvements. See attached schematic for location.

- Recommendation: Maintain a dirt or graveled area of sufficient size to permit decking and loading of logs in the front of the two structures at the Shop Site.

3. The good sized meadow in the north central part of the parcel is a valuable and limited habitat within the greater forest matrix that was probably maintained by periodic ground fires in earlier times.

- Recommendation: Control shrub and tree establishment and encroachment into this grassland habitat.

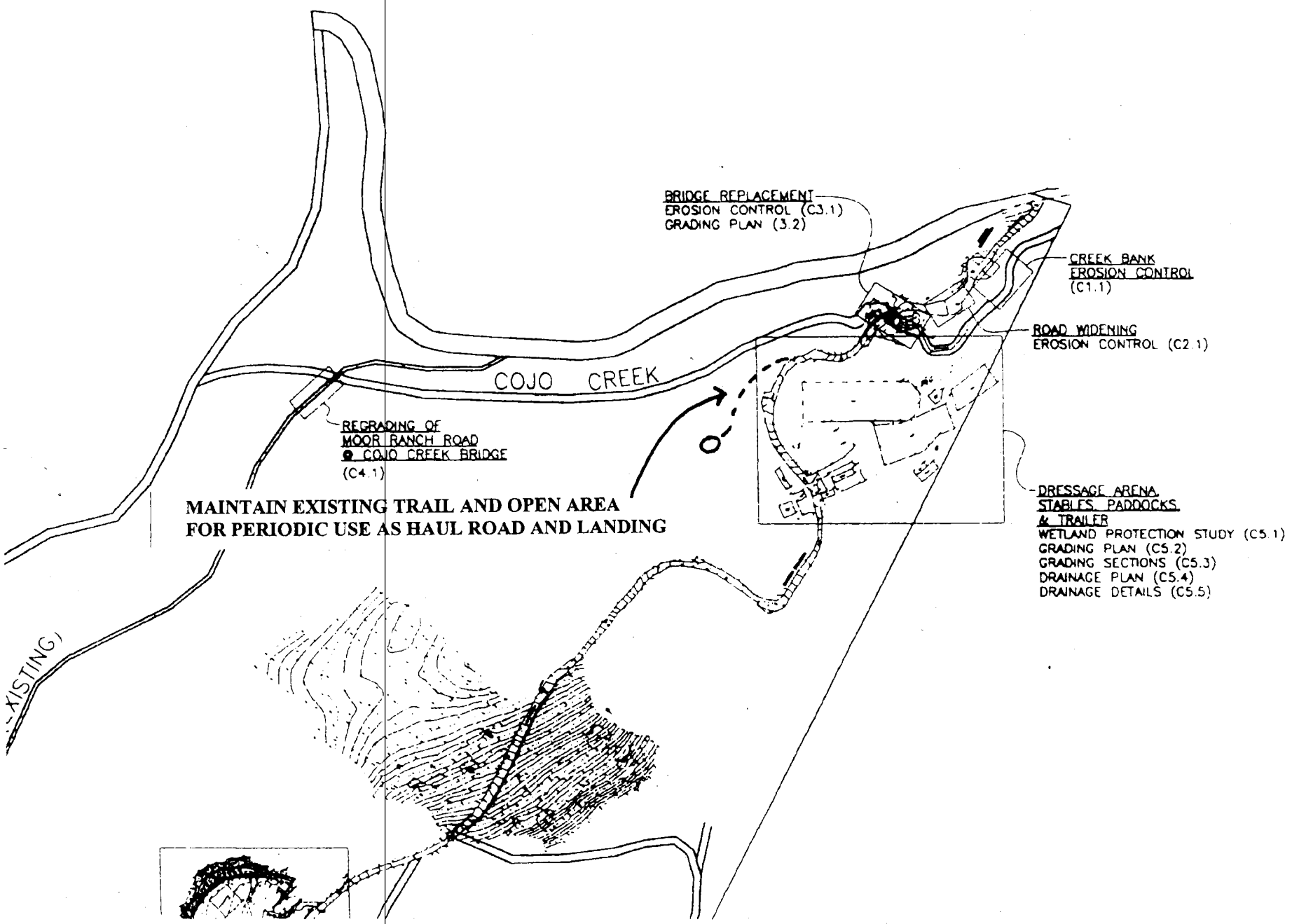
In conclusion, existing and required site improvements detailed in the submittal package have had and will have minimal impact on the parcel's timber resources and timber management activities as long as access is maintained as recommended. With productivity and access for timber management effectively unimpaired, completion of the proposed project is physically compatible with the growing and harvesting of timber, the purposes of the Forest Taxation Reform Act of 1976 as well as the purposes of County Code Chapter 13.10.370 (Timber Production Zoning). Future planning should account for timber production requirements.

Please contact our office if you have any questions about forest management options for the property or to evaluate compatibility of other uses with the property's TP zoning.

Sincerely,

Stephen R. Staub
Registered Professional Forester, License #1911

DRAEGER PROPERTY FORESTER'S REPORT



Staub Forestry &
Environmental Consulting

STAUB

April 14, 2008

Ms. Patrizia Materassi
Sustainable Development and Planning
PO Box 66287
Scotts Valley, CA 95067

Dear Patrizia,

Per your request we reviewed plans for site improvements and restoration to comply with County requirements on the Draeger property (Santa Cruz APN #062-251-01) to evaluate possible impacts of these improvements on forest management activities and consistency with the property's Timber Production (TP) zoning. The property is located at 831 Smith Grade Road, which is nearly one mile west of its intersection with Empire Grade, south of Smith Grade and immediately east of Majors Creek. Our analysis included review of plan sheets in the submittal package for the Draeger property listed on Title Sheet T1 prepared by Robert DeWitt & Associates with specific reference to Sheets T1 – T3 prepared by DeWitt & Associates and Sheets C0.1-C6.4 prepared by Quilici Engineers, Inc., the USDA Soil Survey for Santa Cruz County (1980), aerial photography and other data from Santa Cruz County's interactive GIS, and a field visit on March 28, 2008 inspecting all sites shown on the plans.

The property is largely forested but contains a good sized meadow in the north central part of the parcel, a somewhat smaller meadow in the southwest corner, a moderately open ridge in the southeast corner as well as other small openings of grass and scrub cover within the dominant forest matrix. Forest cover is a variable mix dominated by redwood and Douglas-fir trees on moister, more northerly facing sites but with significant presence, especially on somewhat drier sites of the mixed evergreen hardwoods Shreve oak and tanoak plus minor amounts of madrone, coast live oak and other species. Sparse stocking of larger trees in some areas and the presence of younger, smaller Douglas-firs and Shreve and coast live oaks in a number of areas suggest that the site was formerly somewhat more open and that tree occupancy has increased in recent years, probably due at least in part to fire suppression and the absence of other light disturbance such as regular grazing.

Our review found no adverse impacts on timber production or management foreseeable from the Creek Fortification Plan, Erosion Control Plans, Bridge Replacement Plans, and Regrading Plan for Moore Ranch Road at Cojo Creek Bridge and minimal, insignificant impacts from Plans for the Horse Facility and Shop sites.

Tree cover has obviously been affected on the Horse Facility Site but detailed site review found

EXHIBIT D

6010 Highway 9, Suite 6 Felton CA 95018 Phone 831. 335.1452 Fax 831. 335.1462 staubtre@pacbell.net
Stephen R. Staub, Registered Professional Forester License No. 1911
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very limited impact to conifer resources because the majority of the site formerly supported and is best suited to growing an open stand Shreve oak (*Quercus parvula, var. shrevei*) with grass and herbaceous surface vegetation. Suitable conifer growing site occurs only along the southern edge of horse facility site improvements, where a small number of Douglas-firs and redwoods of small to moderate commercial size were apparently removed to increase sunlight and decrease hazard to users. Logs were apparently retained and used on site. Total area of growing site for commercial conifers affected is estimated at less than one-quarter of an acre. Adjoining areas of conifers, with the exception of one cluster of 5 redwoods next to facilities in the southwest corner of the site, remain available for timber growing and production purposes with suitable road, trail and log loading access retained. Road access for timber production off the existing turn to the flat west of the Equestrian Site should not be compromised by any future plans

Improvements at the Shop Site also affected a Shreve oak dominated site but extend just into suitable conifer growing site along the northern and western sides of facilities. A few small to moderate Douglas-fir logs are stored on the southern edge of the site. Proposed improvements will retain an existing large clearing to be used as a turnaround that can be utilized for log loading or other timber production purposes. Here too, total area of growing site for commercial conifers affected is estimated at less than one-quarter of an acre and suitable access for timber management activities remains available.

I do recommend that locations of existing redwood and Douglas-fir trees next to proposed limits of grading at the Shop Site be added to the Grading and Erosion Control/Drainage Plans (Sheets C6.1 and C6.3) so that grading will explicitly plan for healthy retention of these trees by avoiding any deposition of fill within one foot of retained tree trunks and that fill be suitably stabilized to avoid raveling or movement into contact with tree trunks or bases.

In conclusion, our review of the existing and required site improvements finds that they have and will have minimal impact on the parcel's timber resources and timber management activities. Proposed road improvements will improve access for forest management while minimizing impacts to riparian resources and channel conditions. Future planning should account for timber production requirements. Given the habitat's relative rarity and value, I recommend controlling shrub and tree invasion to maintain the good sized meadow in the north central part of the parcel.

Please contact our office if you have any questions about forest management options for the property or to evaluate compatibility of other uses with the property's TP zoning.

Sincerely,

Stephen R. Staub

Stephen R. Staub
Registered Professional Forester, License #1911

EXHIBIT D1

NAME: Draeger
APPLICATION: 08-0150
A.P.N: 062-251-01

NEGATIVE DECLARATION MITIGATIONS

A. In order to ensure that the mitigation measures and conditions set forth in the proposed project description are communicated to the various parties responsible for constructing the project, prior to any disturbance on the property the applicant shall convene a pre-construction meeting on the site. The following parties shall attend: The project engineer, project contractor supervisor, Santa Cruz County Environmental Planning staff, and project biologists. Results of pre-construction biotic surveys will be collected at that time and all protection measures, including proposed dewatering plan, tree protection fencing and limits of disturbance, shall be inspected.

B. In order to ensure no significant impacts to red legged frogs occur as a result of this project, the recommendations of the California Red-Legged Frog Preliminary Site Assessment, prepared by Bryan M. Mori, dated November 13, 2008, shall be incorporated into the condition of approval and shall be fully implemented.

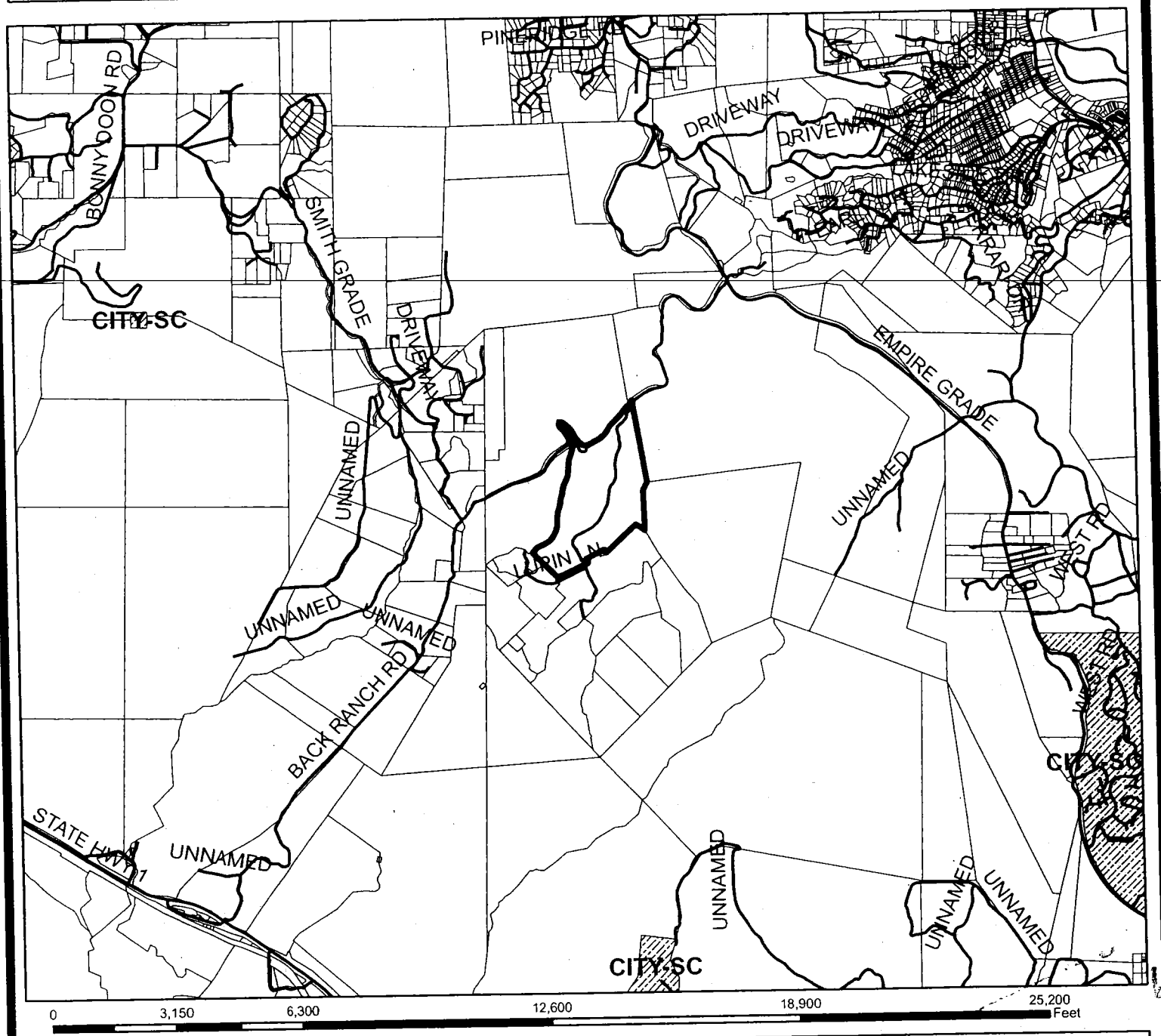
C. In order to ensure no significant impacts to salmonids occur as a result of this project, the recommendations of the Cojo Creek Aquatic Assessment, performed by D.W. Alley & Associates, dated November 13, 2008, shall be incorporated into the condition of approval and shall be fully implemented.

D. In order to mitigate impacts of nighttime lighting on the riparian habitat, prior to issuance of a building permit, the applicant shall submit a lighting plan to the Planning Department for review and approval. Include the following measures:

1. All exterior lighting shall be directed away from the corridor and adjacent properties.
2. Light sources shall not be visible from the riparian area or surrounding properties.
3. Light sources must be shielded by landscaping, fixture design or other physical means.
4. Lighted parking areas shall utilize low-rise light standards to a maximum height of 15 feet.
5. Exterior lighting shall be high-pressure sodium vapor, metal halide, fluorescent, or equivalent energy-efficient fixtures.

E. In order to reduce the impacts to trees to be retained to a less than significant level, prior to issuance of building permits, the applicant shall provide a tree protection plan to the Planning Department for review and approval. All exterior lighting shall be directed away from the corridor and adjacent properties, light sources shall not be visible from the riparian area or surrounding properties, light sources must be shielded by landscaping, fixture design or other physical means, lighted parking areas shall utilize low-rise light standards to a maximum height of 15 feet, exterior lighting shall be high-pressure sodium vapor, metal halide, fluorescent, or equivalent energy-efficient fixtures.

Location Map



LEGEND

- APN: 062-251-01
- Assessors Parcels
- Streets
- SANTA CRUZ

N
W E
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Map Created by
County of Santa Cruz
Planning Department
April 2008

Zoning Map

LEGEND

- APN: 062-251-01
- Assessors Parcels
- Streets

STREAMTYPE

- PERENNIAL
- INTERMITTENT
- TIMBER PRODUCTION
- AGRICULTURE RESIDENTIAL
- PARK
- SPECIAL USE

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Map Created by
County of Santa Cruz
Planning Department
April 2008

EXHIBIT E

General Plan Designation Map

LEGEND

- APN: 062-251-01
- Assessors Parcels
- Streets

STREAMTYPE

- PERENNIAL
- INTERMITTENT
- Residential-Mountain
- Agriculture
- Parks and Recreation
- Residential-Rural

N
W E
S

Map Created by
County of Santa Cruz
Planning Department
April 2008

EXHIBIT E

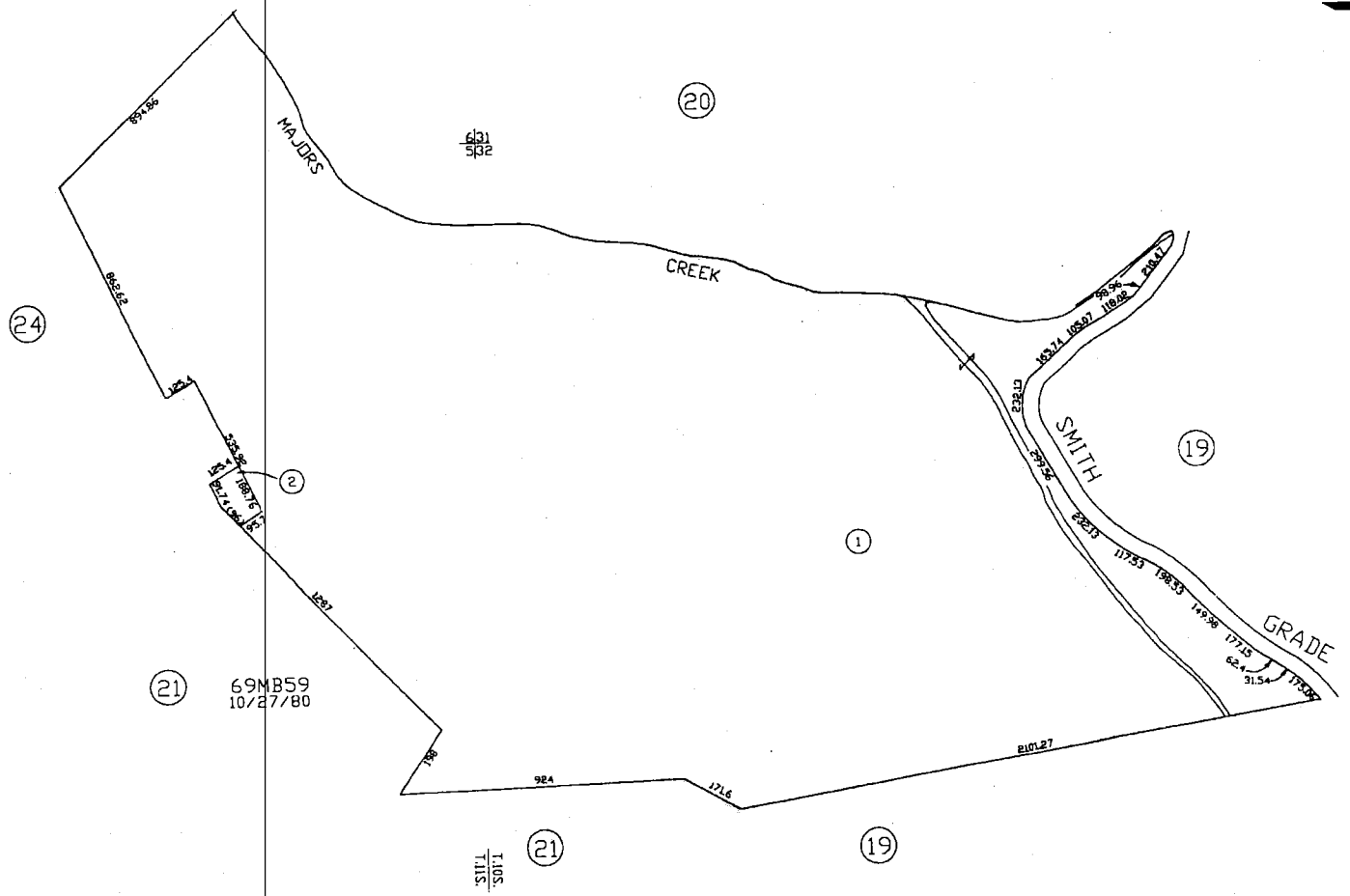
FOR TAX PURPOSES ONLY

POR. REFUGIO RANCHO
SECS. 31 & 32, T.10S., & SECS. 5 & 6, T.11S., R.2W., M.D.B. & M.

Tax Area Code
58-001

62-25

1" = 400'



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

Assessor's Map No. 62-25
County of Santa Cruz, Calif.
Oct. 1999

Electronically Redrawn 10/7/99 kb
Rev 10/7/99 kb (Por of pg 62-20)
Rev 7/10/01 nvn (changes page refs)

EXHIBIT E