Staff Report to the Zoning Administrator

Application Number: 08-0532

Applicant: Hamilton Swift LUDC
Owner: Lichen Oaks LLC
APN: 074-181-01

Agenda Date: October 2, 2009
Agenda Item #: 1
Time: After 10:00 a.m.

Project Description: Proposal to restore the existing Quail Hollow Brook pond by removing sediment and distributing sediment onsite, replacing the existing drainage pipes, and removing and replacing the existing headwall located at the lower pond area. Volume of grading is approximately 2,760 cubic yards of excavation and fill. Requires a Grading Permit and Riparian Exception.

Location: Property located on the west side of East Zayante Road, at the intersection of Quail Hollow Road and East Zayante Road, at 110 Quail Hollow Road in Felton.

Supervisoral District: 5th District (District Supervisor: Mark Stone)

Permits Required: Grading Permit and a Riparian Exception
Technical Reviews: Geotechnical Investigation and Biotic Study

Staff Recommendation:

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act and Approval of the attached Mitigated Negative Declaration.
- Approval of Application 08-0532, based on the attached findings and conditions.

Exhibits

A.	Project plans	E.	Assessor's, Location, Zoning, General Plan, Parcel Maps
B.	Riparian Exception and Grading Findings	F.	Final Biotic Study
C.	Conditions	G.	Archeological Report Excerpts
D.	CEQA Determination / Initial Study		

Parcel Information

Parcel Size:	90.927 acres
Existing Land Use - Parcel:	Single Family Dwelling
Existing Land Use - Surrounding:	Single Family Dwellings
Project Access:	Quail Hollow Road

Land Use Designation:	RR, RM (Rural Residential, Mountain Residential)
Zone District:	SU (Special Use District)
Coastal Zone:	__ Inside X Outside
Appealable to Calif. Coastal Comm.	__ Yes X No

Environmental Information

Geologic Hazards:	Not mapped/no physical evidence on site
Soils:	171 – Soquel Loam, 182 – Zayante Coarse Sand
Fire Hazard:	Not a mapped constraint
Slopes:	0-30%
Env. Sen. Habitat:	Riparian, Sandhills
Grading:	2,760 cubic yards of cut, 2,760 cubic yards of fill
Tree Removal:	No trees proposed to be removed
Scenic:	Not a mapped resource
Drainage:	Existing deteriorated drainage to be replaced / upgraded
Archeology:	Report accepted by the Planning Department. The site is mapped with a historic record of a potentially significant archeological resource in the area, however no resources were identified by the project archaeologist in project location.

Services Information

Urban/Rural Services Line:	__ Inside X Outside
Water Supply:	Well
Sewage Disposal:	Septic
Fire District:	Zayante Fire
Drainage District:	Flood Zone 8

History

Quail Hollow Brook Pond was likely built in the 1930's by installation of a levee in Quail Hollow Brook. The pond has since been utilized by the ranch as a water source for irrigation, and a pump is currently operated to pump water from the pond to irrigate a row of redwood trees adjacent to Quail Hollow Road. The pond was constructed with an original depth of 15 feet and covers roughly two-thirds of an acre. Water elevations are controlled by wooden flashboards fitted to a culvert through the dam. The pond is also fitted with a second, lower elevation culvert through the dam, with a manual gate valve. The outflow culverts discharge into Quail Hollow Brook just downstream of the outboard slope of the pond levee and upstream of the confluence of Quail Hollow Brook and Zayante Creek.

According to Ifland Engineers, from 2004 through 2007, approximately 2,700 cubic yards of sediment has been deposited into the pond from Quail Hollow Brook. The sediment was due to a culvert failure and creek bank failure approximately 1,800 feet upstream of the pond on Quail Hollow Brook on the adjacent Quail Hollow Ranch Park parcel.

Project Setting

The subject parcel is located on the western slope of the Santa Cruz Range within the San Lorenzo River watershed. The town of Ben Lomond is located approximately 2 miles east of the site. The parcel is bounded by the Quail Hollow County Park to the west, Quail Hollow Road to the south, and Zayante Creek to the east.

The project site occurs along Quail Hollow Brook within a grazed, grassy pasture. A densely wooded riparian canopy surrounds Quail Hollow Brook and the in-stream pond between two-fenced pastures. The pond to be restored is an in-channel pond located within Quail Hollow Brook, approximately 600 feet upstream of it's confluence with Zayante Creek. To the southeast, the site is bordered by Quail Hollow Road. A single-family residence and associated farm buildings supporting the horse ranch are situated to the north and west of the project area.

Across Quail Hollow Road there are approximately a dozen single-family dwellings. Public open space is located to the west and northwest of the site at the approximately 300-acre Quail Hollow Ranch County Park.

Detailed Project Description

The deposition of sediment has taken up roughly two-thirds of the pond's original capacity. The accumulation of silt has also submerged the original outlet valve, which has made this valve unusable.

The primary goal of the proposed project is to protect downstream water quality and aquatic habitat in Quail Hollow Brook and Zayante Creek, by replacing and repairing culverts, headwalls and removing sediment. The project also includes long-term maintenance by removing sediment to maintain the ponds' capacity for sediment retention. These actions will greatly reduce the existing potential for dam failure and overtopping by floodwaters. The project will result in secondary benefits to biological resources by improving California red-legged frog habitat in the pond and protect salmonid habitat downstream in Zayante Creek.

Quail Hollow Brook Pond will be restored in two phases. The first phase will temporarily divert the Quail Hollow Brook flow along the pond's northeastern bank with a 12-inch PVC pipe, by dewatering the construction area with installation of Best Management Practices (BMPs) to protect downstream water quality. This temporary diversion will allow the contractor to access the southern portion of the pond and remove about 80% of the accumulated sediment. This diversion will also allow for the contractor to access the existing levee and install and repair the two pipes, which run through the levee and remove and install a new head wall at the toe of the existing levee.

Phase 2 will temporarily divert the Quail Hollow Brook flow to the 18-inch gate valve at the bottom of the Lichen Oaks Pond with a 12-inch PVC pipe. This realignment of the diversion pipe will allow the contractor to access the northeastern bank of the pond to remove the final 20% of accumulated sediment. This diversion will also allow the contractor to repair the existing culvert located on the northeastern bank.

Once the site has been dewatered, the sediment will be excavated out of the pond and spread in a thin layer across a portion of the adjacent pasture (annual grasslands) located between Quail Hollow Road and Quail Hollow Brook. A permanent, gravel access road (approximately 12-feet wide) will be installed on the southwest side of the pond in close proximity to the sediment disposal area. Excavators, bulldozer, wheel loader and dump truck will be used to conduct the excavation and sediment disposal work. The project will employ standard BMPs to prevent the downstream transport of silt including:

- Limiting grading to the dry season (April 15-Oct15)
- Dewatering the pond prior to excavation
- Diverting the creek flow through a culvert bypass to prevent flow from contacting the construction area
- Silt fencing
- Erosion control seeding

The project also includes installation of wildlife exclusion and tree protection fencing to minimize impacts to certain special-status species and riparian trees. The wildlife exclusion/tree protection fencing design is included in the projects' Landscape Plans (H.T.Harvey & Associates 2008, Sheet L2). The wildlife exclusion fence was specifically designed to avoid impacts to Mt. Hermon June beetle (*Polyphylla barbata*) habitat and to exclude California red-legged frog (*Rana draytonii*) and western pond turtle (*Clemmys marmorata*) from the work area. Final construction will entail installation of riparian mitigation plantings, broadcast seeding, and straw installation on all disturbed soil surfaces.

For a complete discussion and listing of all measures required and all potential species that may be impacted, refer to the attached Initial Study, Mitigation Monitoring Plan, and the Final Biotic Study by H.T.Harvey & Associates, 2008 (Exhibit F).

Since the culvert and stream bank on the Quail Hollow Ranch Park parcel has not yet been fixed, a long-term maintenance program is included with this project. Long-term maintenance excavation of pond sediments will be performed during the dry season with the same water quality protection BMPs as listed above, as well as the measures to protect special status wildlife called out in the Final Biotic Study. The permanent access ramp will be utilized by heavy equipment to access the pond. It is anticipated that smaller equipment such as a Bobcat/Tractor will be utilized for maintenance excavation work, since the quantities of sediment to be removed will be substantially less than the initial excavation work. Maintenance excavation will be performed when sediments accumulate to fill greater than approximately 20% of the pond capacity, and excavated material shall be placed in the same location for future work as for the initial restoration. The frequency of maintenance excavation is unknown, but is anticipated to be necessary once every 5-10 years.

Impacts To Natural Resources

Four biotic habitats will be impacted on the project site; California annual grassland, coast live oak-mixed riparian forest, wetlands, and aquatic habitat.

Impacts to California Grassland Habitat: Permanent impacts will occur to approximately up to 2.14 acres of California annual grassland as a result of fill deposition activities. A further

0.13 acres of temporary impacts will occur as a result of increased use of the existing unimproved roads leading from the dredging site, south to Derrick Lane, and north again to the deposition site (Figure 2 of Exhibit F). The area where fill will be deposited has already been disturbed by previous fill deposit activities from other (upland) construction activities, mowing, and grazing, and therefore does not represent high-quality habitat. Additionally, the California annual grassland habitat type is very common on both a local and regional scale. Eventually, natural re-colonization of the grassy vegetation will occur in the areas where fill has been deposited, although it may be of a slightly different suite of species due to differences in soil texture between the deposited fill and the underlying native loams.

Impacts to Riparian Habitat: Mixed riparian forest habitat occurs within and adjacent to the construction area both around the pond perimeter and immediately downstream of the pond levee and associated culvert outlets to Quail Hollow Brook. The project proposes to install a permanent access road into the pond for immediate and future maintenance activities, excavate recently deposited sediments from the pond side slopes, and install a new culvert through the south side of the pond dam. These construction activities will impact riparian habitat. The project has been carefully designed, in collaboration with H. T. Harvey & Associates restoration ecologists and arborist, to avoid and minimize riparian habitat impacts to the maximum extent practicable. Approximately 0.04 acres of high-quality, riparian habitat will be permanently impacted by these activities.

Temporary impacts will occur to approximately 0.06 additional acres of riparian habitat as a result of grading to access the headwall reconstruction area, to replace the existing headwall, install gabions or large rock protection in the channel bottom downstream of the headwall, and to grade into the pond dam to create an emergency overflow path. The impacts will involve trimming of understory riparian vegetation and removal of herbaceous vegetation on the downstream dam slope to reconstruct a stable fill slope, upslope of the new headwall. These impacts will, however, result in an improvement to existing conditions. This is because there is presently no existing emergency overflow, so that large flood events (>10 year event) currently overtop the dam when the culvert flow capacity is exceeded. In addition, the channel bottom is incised for approximately 10 feet downstream of the headwall/culvert outlet. These conditions if left untreated, could destabilize the dam and lead to a catastrophic blowout of the pond, which would have substantial undesirable biological impacts for downstream habitats.

Permanent and Temporary Impacts to Wetland and Aquatic Habitat; A small surface area of low-quality wetland habitat (approximately 0.01 acres) growing along the pond perimeter will be removed during sediment removal/excavation. This wetland habitat is early successional, patchy, low-quality habitat, which has colonized the recently deposited sediments along the pond perimeter. In addition, a small portion of these impacted wetlands will be reverted to aquatic habitat.

Impacts to Aquatic Habitat; Temporary impacts will occur to 0.38 acres of aquatic habitat on-site primarily as a result of the excavation of pond sediments. However, the proposed project will improve aquatic habitat quality by increasing depth (and therefore providing cooler water temperatures) and reducing the suspended sediment load to downstream aquatic habitat. An additional 0.03 acres of aquatic habitat will be permanently impacted (although not lost) by the construction of a permanent gravel access road for current and future maintenance into the pond and the placement of large rocks or corrosion-resistant gabion blocks in the brook

channel downstream of the pond levee. This will also represent an improvement on the existing condition, as it will protect the channel bottom and slow water velocity exiting the culvert, thus reducing erosion downstream of the culvert outlet. No surface area of aquatic habitat will be lost due to sediment removal, as the footprint of the pond will remain constant.

Riparian Exception

A Riparian Exception is required for this project due to the proposed development activities within the riparian corridor, including dredging the sediment-laden pond, replacing the existing drainage pipes, and removing and replacing the existing headwall located at the lower pond area.

The findings for approval of the Riparian Exception can be made and are detailed in Exhibit B. Briefly; the potential for failure of the pond and subsequent release of sediment necessitates the actions proposed.

Grading Permit

A grading permit is required for this project due to grading volumes of 2,760 cubic yards of excavation and 2,760 cubic yards of fill. All of the excavation will be to remove sediment from the pond and re-contour the slope to 2:1 maximum slopes. The excess soils will be spread 12 inches deep in the field adjacent to Quail Hollow Road.

A soils report has been prepared by Bauldry Engineering and the grading plans were prepared by Ifland Engineers. Both the soils report and grading plans have been reviewed by civil engineering staff in the Planning Department for conformance with County Codes and Policies.

The findings for approval of the grading are attached (Exhibit B).

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 June 4, 2009. A preliminary determination to issue a Negative Declaration with Mitigations (Exhibit D) was made on June 9, 2009. The mandatory public comment period expired on July 9, 2009, with no comments received.

The environmental review process focused on the potential impacts of the project in the areas of Hydrology/Water Quality and Biological Resources. The environmental review process generated mitigation measures that will reduce potential impacts from the proposed development and adequately address these issues. A more detailed analysis is available in the Initial Study (Exhibit D).

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.
- **APPROVAL** of Application Number **08-0532,** 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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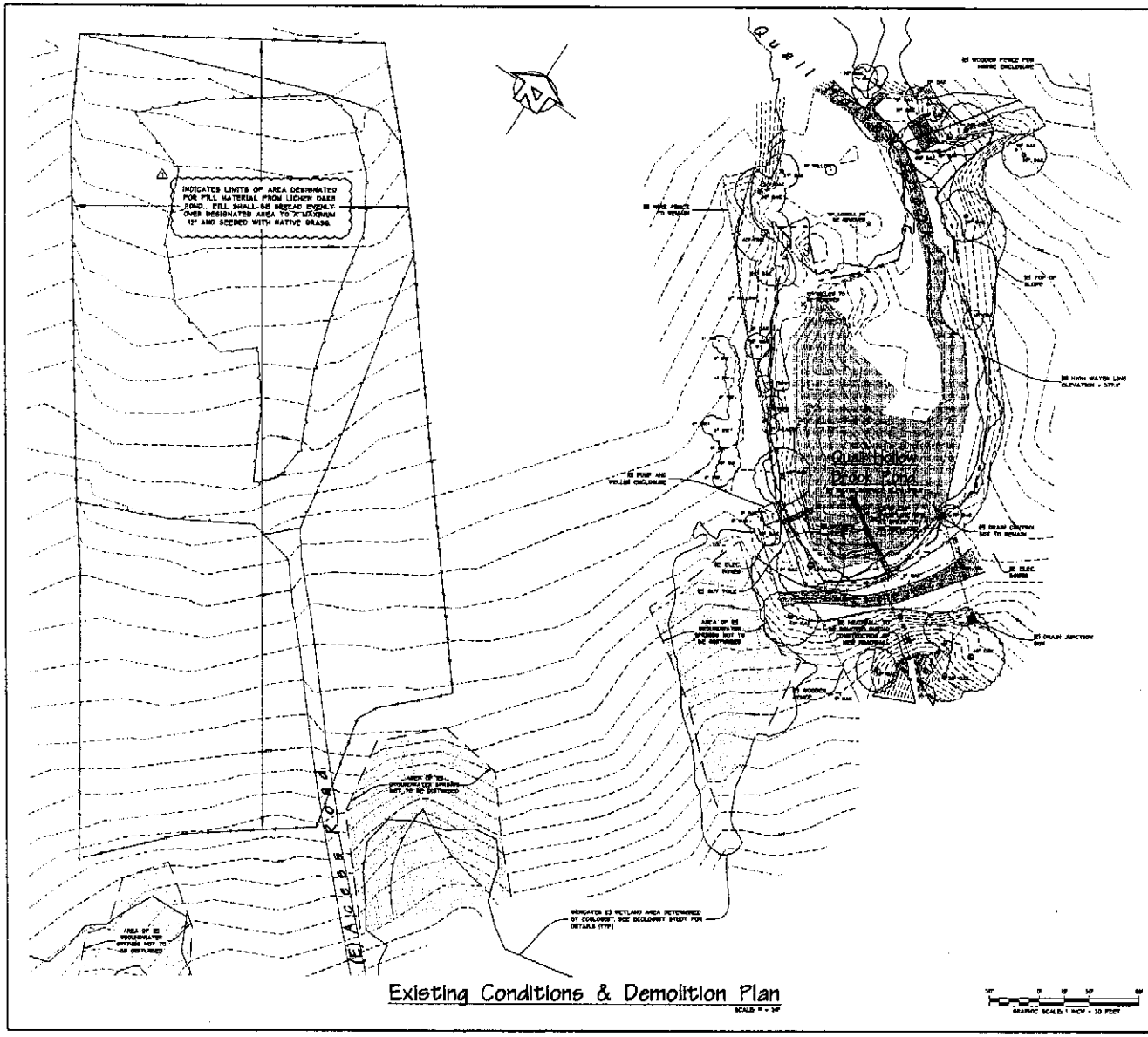
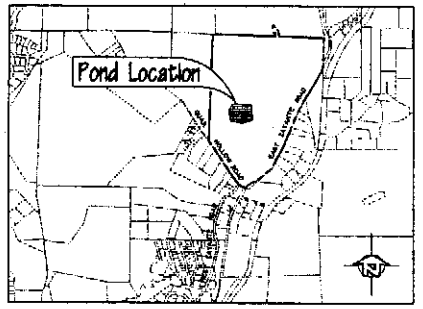
Report Reviewed By: _____ Date: _____

Claudia Slater, Principal Planner
Environmental Planning
Santa Cruz County Planning Department



Vicinity Map



Index of Sheets

SHEET NO.	DESCRIPTION
C1	EXISTING CONDITIONS & DEMOLITION PLAN
C2	GRADING & DRAINAGE PLAN
C3	CROSS-SECTION & DETAILS
EC1	EROSION CONTROL PLAN
S1	SITE PLAN
S2	HEADWALL PLAN & DETAILS

DEPARTMENT OF PUBLIC WORKS
COUNTY OF SANTA CRUZ STATE OF CALIFORNIA
REVIEWED BY
STORMWATER MANAGEMENT: _____
APPROVAL RECOMMENDED _____ DATE
APPROVED _____ DATE

ENVIRONMENTAL PLANNING
COUNTY OF SANTA CRUZ
STATE OF CALIFORNIA
REVIEWED BY: _____ DATE
APPROVED BY: _____ DATE

Existing Conditions
Lichen Oaks Pond
110 Quail Hollow Road, Felton, California
APN: 074-161-01
SHEET C1
JOB NO. 03009.01

8/149

EXHIBIT A

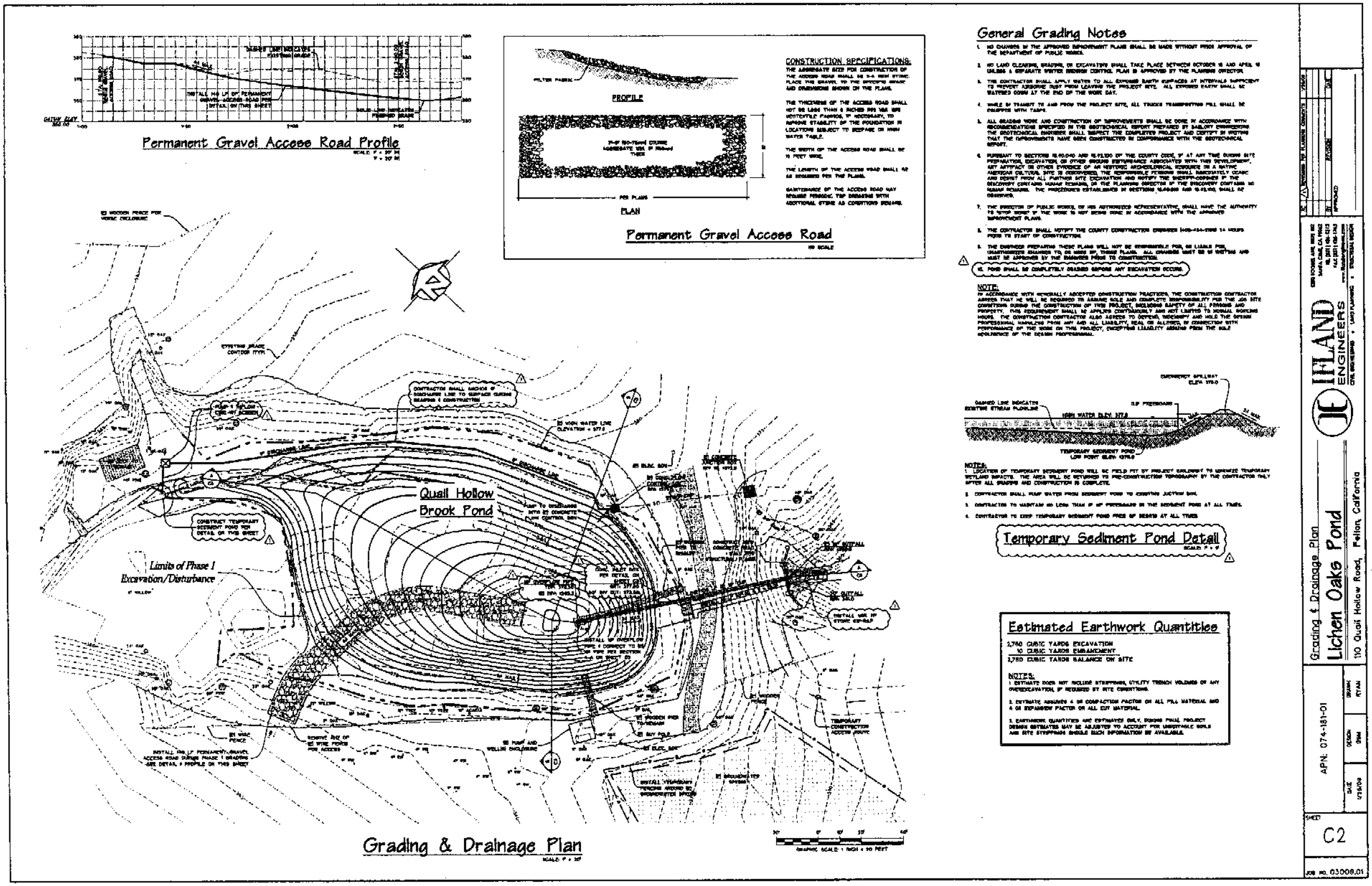

Permanent Gravel Access Road Profile
Permanent Gravel Access Road
PROFILE
PLAN
CONSTRUCTION SPECIFICATIONS:
General Grading Notes
NOTE:
Quail Hollow
Brook Pond
Limits of Phase I
Excavation/Disturbance
NOTES:
Temporary Sediment Pond Detail
Estimated Earthwork Quantities
2,760 CUBIC YARDS EXCAVATION
10 CUBIC YARDS EMBANKMENT
2,750 CUBIC YARDS BALANCE ON SITE
NOTES:
Grading & Drainage Plan
IFLAND
ENGINEERS
Grading & Drainage Plan
Lichen Oaks Pond
110 Quail Hollow Road, Felton, California
APN: 074-181-01
SHEET
C2
JOB NO. 03008.01

EXHIBIT A

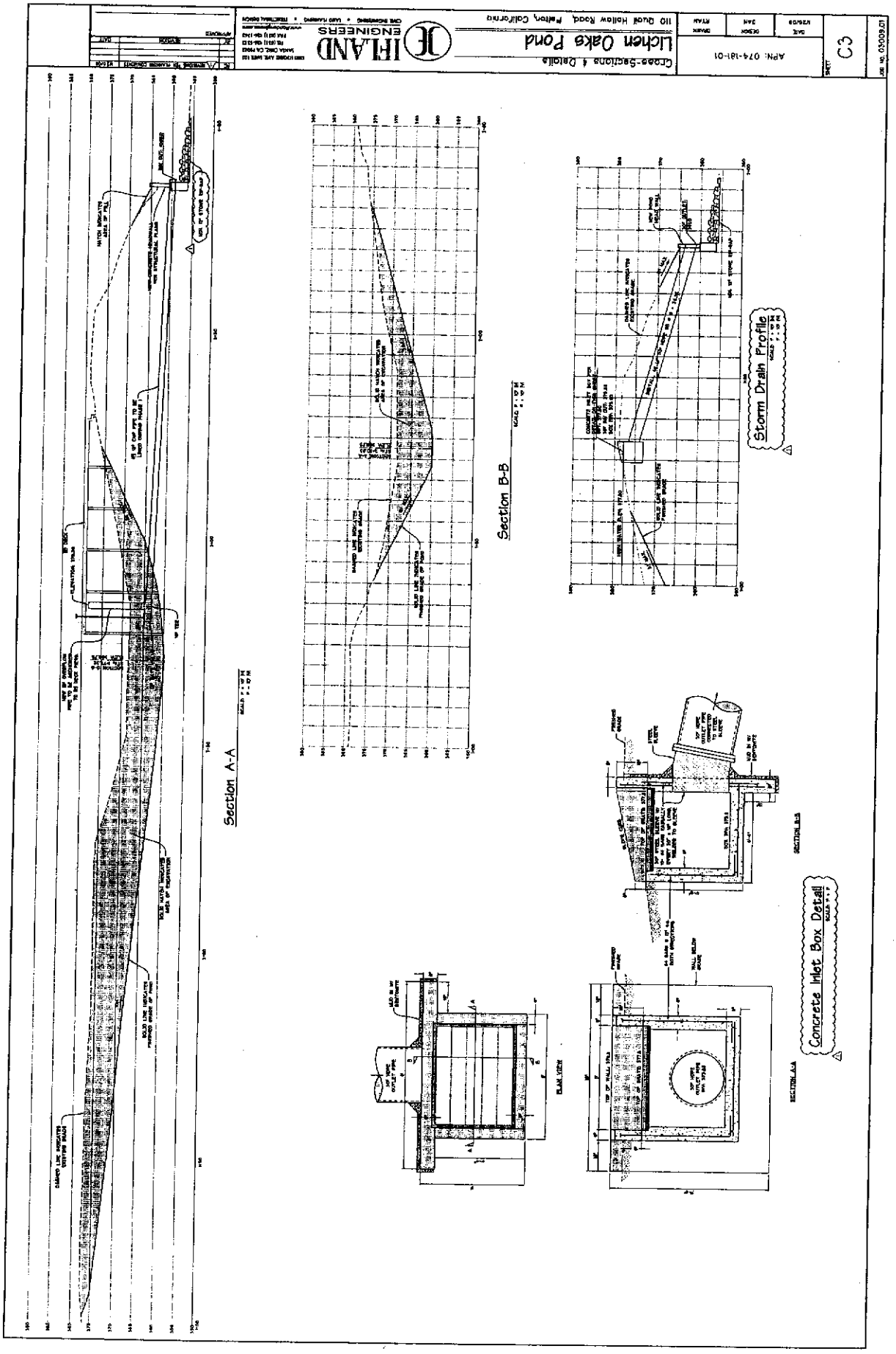
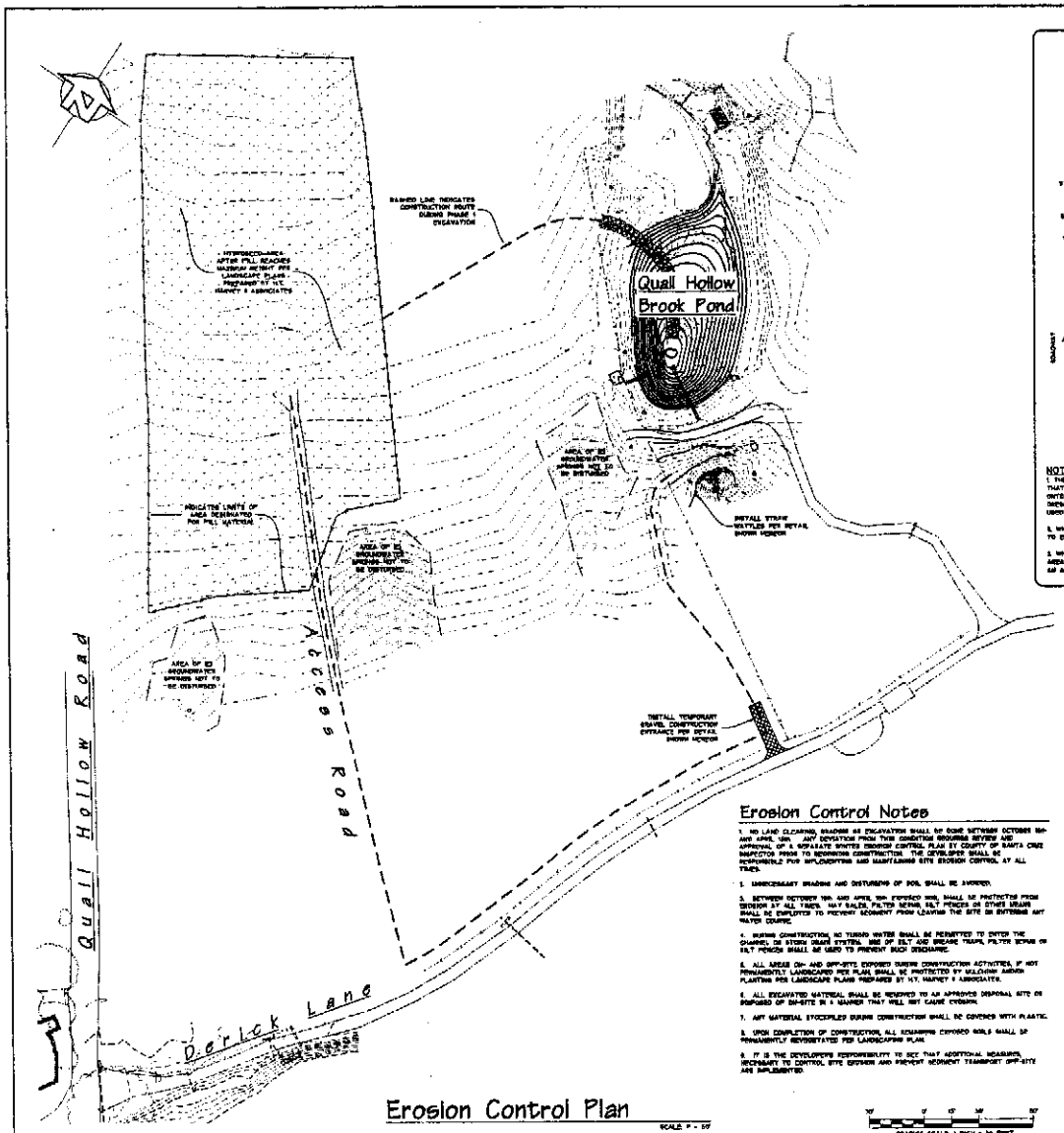

Lichen Oak Pond
110 Quail Hollow Road, Petaluma, California
ISLAND ENGINEERS
Grade-Sections & Details
APN: 074-181-01
C3
Section A-A
Section B-B
Storm Drain Profile
Concrete Inlet Box Detail

EXHIBIT A



Erosion Control Plan

SCALE: 1" = 50'

GRAPHIC SCALE: 1 INCH = 50 FEET

Erosion Control Notes

1. NO LAND CLEARING, GRADING OR EXCAVATION SHALL BE DONE BETWEEN OCTOBER 15th AND APRIL 15th. ANY DEVIATION FROM THIS CONDITION REQUIRES REVIEW AND APPROVAL OF A SEPARATE WINTER EROSION CONTROL PLAN BY COUNTY OF SANTA CRUZ INSPECTOR PRIOR TO BEGINNING CONSTRUCTION. THE DEVELOPER SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING SITE EROSION CONTROL AT ALL TIMES.

2. UNNECESSARY GRADING AND DISTURBING OF SOIL SHALL BE AVOIDED.

3. BETWEEN OCTOBER 15th AND APRIL 15th EXPOSED SOIL SHALL BE PROTECTED FROM EROSION AT ALL TIMES. HAY BALES, FILTER BERMS, SILT FENCES OR OTHER MEANS SHALL BE EMPLOYED TO PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING ANY WATER COURSE.

4. DURING CONSTRUCTION, NO TURBID WATER SHALL BE PERMITTED TO ENTER THE CHANNEL OR STORM DRAIN SYSTEM. USE OF SILT AND DEBRIS TRAPS, FILTER BERMS OR SILT FENCES SHALL BE USED TO PREVENT SUCH DISCHARGE.

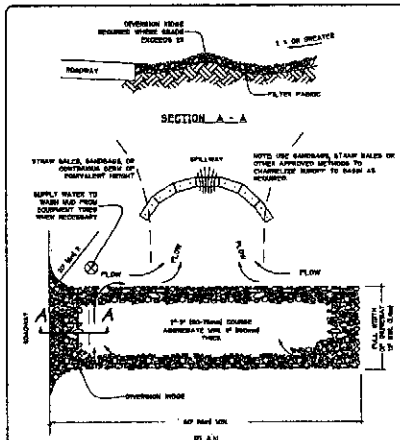
5. ALL AREAS ON- AND OFF-SITE EXPOSED DURING CONSTRUCTION ACTIVITIES, IF NOT PERMANENTLY LANDSCAPED PER PLAN, SHALL BE PROTECTED BY MULCHING AND/OR PLANTING PER LANDSCAPE PLANS PREPARED BY H.T. HARVEY & ASSOCIATES.

6. ALL EXCAVATED MATERIAL SHALL BE REMOVED TO AN APPROVED DISPOSAL SITE OR DISPOSED OF ON-SITE IN A MANNER THAT WILL NOT CAUSE EROSION.

7. ANY MATERIAL STOCKPILED DURING CONSTRUCTION SHALL BE COVERED WITH PLASTIC.

8. UPON COMPLETION OF CONSTRUCTION, ALL REMAINING EXPOSED SOILS SHALL BE PERMANENTLY REVEGETATED PER LANDSCAPING PLAN.

9. IT IS THE DEVELOPERS RESPONSIBILITY TO SEE THAT ADDITIONAL MEASURES, NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

Temporary Gravel Construction Access

CONSTRUCTION SPECIFICATIONS:

THE AGGREGATE SIZE FOR CONSTRUCTION OF THE PAD SHALL BE 1-3 INCH (SC-75 MIX STONE. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN OF THE PLANS, AND SMOOTH IT.

THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 6 INCHES BUT USE GEOTEXTILE FABRICS, IF NECESSARY, TO IMPROVE STABILITY OF THE FOUNDATION IF LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

THE WIDTH OF THE PAD SHALL NOT BE LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS AND IN ANY CASE SHALL NOT BE LESS THAN 10 FEET DUE TO MIN.

THE LENGTH OF THE PAD SHALL BE AS REQUIRED, BUT NOT LESS THAN 50 FEET MIN. MIN.

LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID ENTRANCES WHICH HAVE STEEP GRADES AND ENTRANCES AT CURVES IN PUBLIC ROADS.

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR MAINTENANCE OF ANY MEASURES USED TO TRAP SEDIMENT.

ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.

PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.

WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. SEE SEDIMENT BASIN DETAIL.

ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, STRAW BALES, OR OTHER APPROVED METHODS.

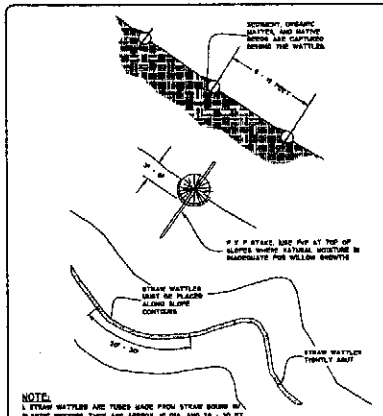
INSPECTION AND MAINTENANCE:

MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.

REPLACE GRAVEL MATERIAL WHEN SURFACE VOIDS ARE VISIBLE.

AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY.

IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS. REMOVE ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS WITHIN 24 HOURS.



NOTE:

1. STRAW WATTLES ARE TUBES MADE FROM STRAW BOUND BY PLASTIC NETTING. THEY ARE APPROX. 8" DIA. AND 10 - 20 FT. LONG.

2. STRAW WATTLES TRAP SEDIMENT AND REDUCE SHEET & RILL EROSION BY REDUCING SLOPE GRADIENT, DECREASING SPLASH RATES AND BY PRODUCING A FAVORABLE ENVIRONMENT FOR PLANT ESTABLISHMENT.

3. STRAW WATTLE INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE WATTLE IN A TRENCH, 3" - 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND WATTLE.

Straw Wattles

CONSTRUCTION SPECIFICATIONS

PREPARE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED. SHALLOW RILLES SHOULD BE SMOOTHED AS SOME PROGRESSES.

DIG SMALL TRENCHES ACROSS SLOPE ON CONTOUR. TO PLACE WATTLES IN, THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE WATTLE. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE WATTLE 1/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE. IT IS CRITICAL THAT WATTLES ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.

START BUILDING TRENCHES AND INSTALL WATTLES FROM THE BOTTOM OF THE SLOPE AND MOVE UP.

CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF THREE TO EIGHT FEET APART DEPENDING ON STEEPNESS OF SLOPE, THE ERODIBILITY OF SLOPE, THE CLOSER TOGETHER THE TRENCHES.

LAY THE WATTLE ALONG THE TRENCHES PUTTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE.

USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WILLOW OR WOODEN STAKES.

DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL, LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE. IF USING WILLOW STAKES REFER TO USDA SOIL CONSERVATION SERVICE TECHNICAL GUIDE, SECTION IV-STANDARDS AND SPECIFICATIONS, FOR GUIDELINES TO PROPAGING LIVE WILLOW MATERIAL.

INSTALL STAKES AT LEAST EVERY FOUR FEET APART THROUGH WATTLE. ADDITIONAL STAKES MAY BE NEEDED ON THE DOWNSLOPE SIDE OF THE TRENCHES ON REALLY EROSIVE OR VERY STEEP SLOPES.

INSTALLATION AND MAINTENANCE

INSPECT THE STRAW WATTLE AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE WATTLES ARE IN CONTACT WITH THE SOIL.

REPAIR ANY RILLS OR GULLIES PROMPTLY.

REMOVE OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.

NO.	REVISIONS PER PLANNING COMMENTS	DATE	BY
1			
2			
3			
4			
5			

IFLAND ENGINEERS
CIVIL ENGINEERING • LAND PLANNING • TRANSPORTATION
1999 HARBOR BLVD., SUITE 150, SANTA CRUZ, CA 95062
TEL (831) 426-5313 FAX (831) 426-1763
www.ifland.com

Erosion Control Plan
Lichen Oaks Pond
110 Quail Hollow Road, Felton, California

APN: 074-161-01

DATE	DRAWN BY	CHECKED BY
1/15/08	JOHN DAM	BRIAN RYAN

SHEET EC1

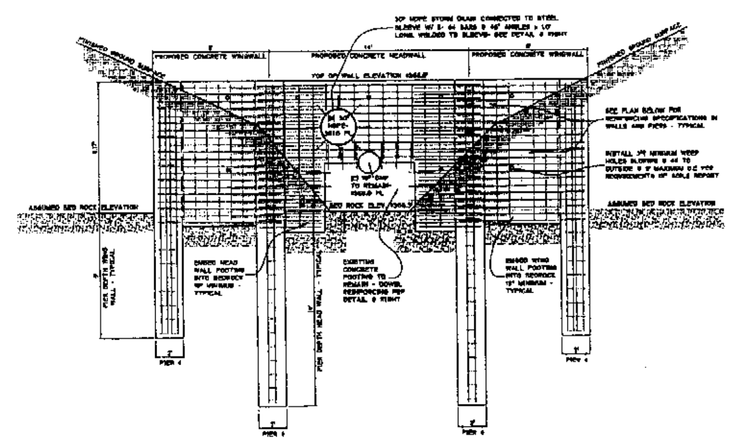
JOB NO. 03008.01

11/149

EXHIBIT A

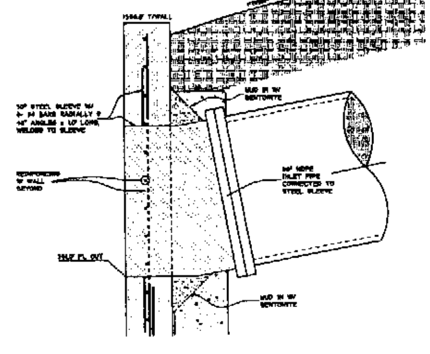
Site Plan

EXHIBIT A



Pond Head Wall Elevation

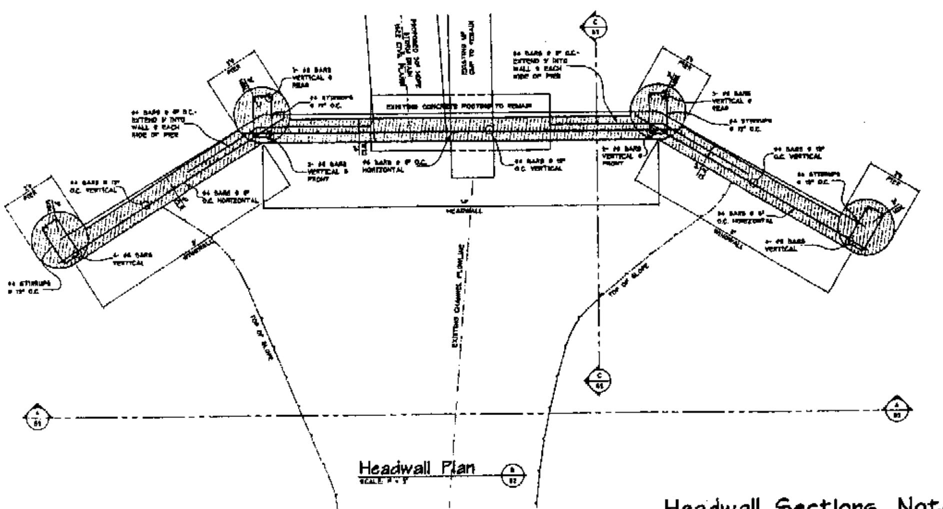
SCALE: 1" = 8'



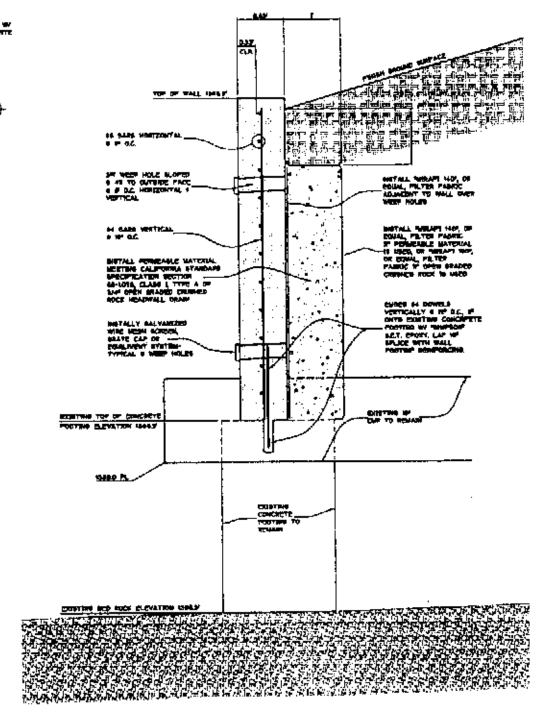
Steele Sleeve Detail

Headwall Construction Notes

1. ALL WORK SHALL COMPLY WITH THE [illegible] UNIFORM BUILDING CODE.
2. CHECK ALL DIMENSIONS WITH PLANS BY OTHERS BEFORE EXCAVATING.
3. FIELD VERIFY ALL DIMENSIONS PRIOR TO BEGINNING THE WORK
4. ALL FOOTINGS SHALL BE PLACED ON FIRM UNDISTURBED NATURAL SOIL.
5. ALL "DRAIN ROCK" BACK FILL SHALL BE CAL-TRANS PERMEABLE MATERIAL CLASS I, TYPE A.
6. BACKFILL SHALL NOT BE PLACED UNTIL THE WALLS HAVE CURED A MINIMUM OF SEVEN DAYS
7. BACK FILL SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY.
8. REINFORCING STEEL SHALL BE GRADE 60 AND SHALL COMPLY WITH ASTM A-615. LAP A MINIMUM OF 48 X BAR AREA IN CONCRETE AT ALL SPLICES, CORNERS AND INTERSECTIONS, 12" MIN.
9. ALL CONCRETE AND GROUT SHALL DEVELOP A MINIMUM COMPRESSIVE OF 3500 PSI AT 28 DAYS.
10. ALL RECOMMENDATIONS CONTAINED IN THE LETTER PREPARED BY BAULDRY ENGINEERING, INC., CONSULTING GEOTECHNICAL ENGINEERS, DATED NOVEMBER 14, 2008, JOB NUMBER 0323-BZ032-A71, SHALL BE COMPLIED WITH.



Headwall Plan



Headwall Section

Headwall Sections, Notes and Details

SCALE: VARIES

IFLAND ENGINEERS

CIVIL ENGINEERING • LAND PLANNING • STRUCTURAL DESIGN

Headwall Plan and Details

Lichen Oaks Pond Headwall

110 Quail Hollow Road, Felton, California

APN: 074-181-01

SHEET S2

JOB NO. 03008.01

EXHIBIT A

Application #: 08-0532
APN: 074-181-01
Owner: Lichen Oaks LLC

Riparian Exception Findings

Section 16.30.060.7 (d) of the County Code states that prior to the approval of any exception, the Approving Body shall make the following findings:

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

   The special circumstances affecting this property that necessitate the granting of a Riparian Exception are the failure of a crossing upstream of the pond that released approximately 2,700 cubic yards of sediment. That sediment has been retained in the pond, effectively filling it up and keeping the sediment from causing greater impacts downstream. Failure to remove the sediment will result in overtopping of the dam during storm events and potential failure of the structure.

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

   The exception is necessary for the proper design and function of the dam to prevent sediment from passing downstream and impacting Zayante Creek.

3. **That the granting of 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.**

   The granting of this exception will be a beneficial impact to downstream properties and the public welfare by allowing the pond to both retain sediment that would otherwise enter the salmonid habitat of Zayante Creek, and reduce the peak flood levels during large storm events.

4. **That the granting of the exception, in the coastal zone, will not reduce or adversely impact the riparian corridor, and there is no feasible less environmentally damaging alternative.**

   This project is not within the Coastal Zone.

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.**

   The project will result in improved riparian habitat through the removal of sediment from the riparian corridor and the revegetation with native local riparian plants.

Grading Findings

Section 16.20.080 (c) of the County Code states that an application for a grading, dredging or diking approval shall be denied if the Planning Director or Planning Commission makes any of the following findings:

(i) That the design of the proposed site is not consistent with the applicable general and specific plans adopted pursuant to Chapters 13.01 and 13.20 of the Santa Cruz County Code.

The project is consistent with Chapter 13.01. The project does not propose any new structures and only proposes to cleanout an existing pond and improve the drainage system. The project also maintains the rural character of the parcel. Therefore the project is not in conflict with the Development Standards for "SU" Zone District as listed in Section 13.10.383 of the County Code as well as the General Plan Designations of RR & RM.

Also, the site is not located within the Coastal Zone and therefore Chapter 13.20 does not apply.

(ii) That the proposed grading plan for the development contemplated does not comply with the requirements of the Santa Cruz County Code.

The grading plans meet the requirements of the County Grading Ordinance (Chapter 16.20) and the Erosion Control Ordinance (Chapter 16.22). The pond excavation will have slopes of 2:1 and the excavated material will be spread onsite to a maximum depth of 12 inches.

(iii) If the project is for the creation of a building site, that adequate sewage facilities and water supplies cannot be provided.

The grading associated with this project is not for the creation of a building site.

(iv) If the project as proposed will cause excessive and unnecessary disturbance of the site particularly as defined in Section 16.10.050.

The proposed project will not cause unnecessary disturbance of the site. Section 16.10.050 requires projects to be constructed in areas where there is not a geologic hazard and also in compliance with recommendations of an engineering geology report as well as a geotechnical report if those reports have been required by the Planning Department. A geotechnical report has been prepared for this project. The report did not identify a hazard such as a fault, floodplain or an area of liquefaction. The design of the project has included other recommendations of the soils report.

Conditions of Approval

Exhibit A: Sheets C1 through C3, and EC1 by Ifland Engineers dated 1/26/2009
Sheets S1 and S2 by Ifland Engineers dated 12/28/08

I. This permit authorizes the restoration the existing Quail Hollow Brook pond by removing sediment and distributing the sediment onsite, replacing the existing drainage pipes, and removing and replacing of the existing headwall at the lower pond area. 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 Planning Department.

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 Planning Department.

D. 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.

E. Organize a pre-construction meeting on the site to review the mitigation measures. The following parties shall attend: the project applicant, the grading contractor supervisor, Santa Cruz County Environmental Planning staff, the project biologist, the project civil engineer and the project soils engineer. (Mitigation Measure VI.A)

F. The project biologist shall survey the project disturbance area for woodrat nests. (Mitigation Measure VI.D.6)

G. The project biologist shall install the exclusion fencing and establish an exclusion zone around woodrat nests. (Mitigation Measure VI.D.1)

H. The project biologist shall conduct training sessions for all project contractors and their employees on the California red-legged frog. (Mitigation Measure VI.E (CRLF Measure 2))

I. The project biologist shall install a temporary barrier to red-legged frog movement along the limits of project activities around the pond and Quail Hollow Brook. (Mitigation Measure VI.E (CRLF Measure 3))

J. The project biologist shall conduct a survey for the California red-legged frog. (Mitigation Measure, VI.E (CRLF Measure 4))

EXHIBIT C

K. The project biologist shall conduct a pre-construction survey for pond turtles. (Mitigation Measure VI.F)

L. The project biologist shall conduct a pre-construction survey for roosting bats within 15 days prior to the commencement of construction. (Mitigation Measure VI.G (Bat Measure 1))

M. A qualified plant ecologist shall conduct protocol-level surveys of the remaining six spring blooming plants during appropriate blooming periods. (Mitigation Measure VI.H (Plant Measures 1 and 2)) If the species occur within or adjacent to the project area, the project must be redesigned to avoid impacts to the population, or provide mitigation per Mitigation Measure VI.H (Plant Measure 3).

N. Install tree protection fencing between existing riparian trees to be saved and the limit of construction work. (Mitigation Measure VI.I (Riparian Measure 3))

II. Prior to issuance of a Building and Grading Permit the applicant/owner shall:

A. Submit final 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 or Grading Permit that is issued for the proposed development. The final plans shall include the following additional information:

1. Grading, drainage, and erosion control plans that are prepared by a licensed civil engineer.

2. Building plans and structural calculations for the headwall.

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

D. Submit 3 copies of a soils report prepared and stamped by a licensed Geotechnical Engineer.

E. Per Mitigation Measure VI.I (Riparian Measure 5.3), a Riparian Habitat and Monitoring Plan must be submitted for review and approval.

F. Insert a copy of these Conditions of Approval into the project plans.

III. All construction shall be performed according to the approved plans for the Building Permit,

Grading Permit and Riparian Exception. Prior to final building inspection, the applicant/owner must meet the following conditions:

A. All site improvements shown on the final approved Building and Grading Permit plans shall be installed.

B. All grading and earthwork activities shall occur outside of the rainy season, typically October 15 through April 15, unless otherwise authorized by the Planning Department through the issuance of a winter grading approval.

C. All inspections required by the Building and Grading Permit shall be completed to the satisfaction of the County Building Official.

D. The project must comply with all recommendations of the approved soils report. A final letter from the soils engineer shall be submitted stating that the project has been inspected and found to be in compliance with the recommendations of the soils report.

E. The project engineer who prepared the grading plans must certify that the grading was completed in conformance with the approved plans, as well as County Code.

F. Due to a historic resource identified at the project location, an Archaeological Monitor must be on-site for all initial grading and dredging of the pond material. Pursuant to Sections 16.40.040 and 16.42.100 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.100, shall be observed.

IV. Operational Conditions

A. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.

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 Program

The mitigation measures listed under this heading have been incorporated into 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 Resources Code, a monitoring and reporting program for the mitigations is hereby adopted as a condition of approval for this project. This monitoring 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

In order to ensure that the mitigation measures B-J below 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 applicant, the grading contractor supervisor, Santa Cruz County Environmental Planning staff, the project biologist, the project civil engineer and the project soils engineer. The exclusion fencing will be inspected at that time.

B. Mitigation Measure: Erosion and Sediment Control

In order to prevent the downstream transport of silt, the following BMPs must be employed:

- Limiting work to the dry season (April 15-Oct15)
- Dewatering the pond prior to excavation
- Diverting the creek flow through a culvert bypass to prevent flow from contacting the construction area
- Silt fencing
- Erosion control seeding

C. Mitigation Measure: Mount Hermon June Beetle

In order to avoid impacts to the Mount Hermon June Beetle, all areas to the north and east of the pond outside of the riparian corridor shall be avoided and separated from the work areas within and on the south side of the pond using wildlife exclusion / tree protection fencing (see landscape plan sheet L2).

In the event that access is required to the existing junction box on the east side of the pond levee to plug the existing culvert with concrete (Figure 2, plan sheet C2 and C3), fencing shall be installed to leave a corridor from the work area over the existing dam to the box (see landscape plan sheet L2). This access will be provided so that a worker can take a concrete-filling pipe on-foot over the levee to the junction box without causing impacts to the steep riparian bank just north of the existing headwall (plan set C1).

D. Mitigation Measure: San Francisco Dusky-footed Woodrats

In order to ensure that the project will have a less than significant impact on the dusky-footed woodrats, the following mitigation measures shall be implemented:

1. Completely avoid impacts by establishing a construction exclusion zone around woodrat nests that could be impacted by construction. Retain as much of the surrounding habitat as possible.
2. If avoidance is not possible, move sticks from the woodrat nest(s) into nearby suitable woodrat habitat (with authorization from the CDFG) or create new habitat (e.g., slash piles) which woodrats can colonize.
3. Prior to nest disturbance, the biologist shall obtain from CDFG a scientific collection permit for the trapping of the dusky-footed woodrats.
4. Nests shall be disturbed/dismantled only during the non-breeding season, between October 1 and December 31.
5. At least two weeks prior to construction, the qualified biologist shall survey the project disturbance area to confirm the wood rat nest location and locate any other nests that may have been built in the project vicinity that may be affected by the proposed development.
6. Prior to nest disturbance, woodrats shall be trapped at dusk of the night set for relocation of the nest(s).
7. Any existing nest that may be disturbed by construction activities shall be mostly dismantled and the material spread in the vicinity of identified nest relocation site(s).
8. In order to avoid the potential health effects associated with handling rodents and their milieu, all workers involved in the handling of the woodrats or the nest materials

with conjunctiva (eyes), and protection against flea bites; a respirator, eye protection and skin protection should all be used.

9. Dismantling shall be done by hand, allowing any animals not trapped to escape either along existing woodrat trails or toward other available habitat.
10. If a litter of young is found or suspected, nest material shall be replaced, and the nest left alone for 2-3 weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling.
11. Woody debris shall be collected from the area and relocated nests shall be partially constructed in an area determined by the qualified biologist to be both suitable for the woodrats and far enough away from the construction activities that they will not be impacted.
12. Woodrats that are collected at dusk shall be released hours before dawn near the newly constructed nests to allow time for woodrats to find refuge.
13. Once construction is complete, the biologist shall survey the nest area to note whether the new nests are in use, the woodrats have built new nests, or the nest area has been completely abandoned. This information shall be reported in a letter to the Environmental Planning Section of the Planning Department, and the local CDFG biologist.
14. Conduct follow-up resource monitoring during the first 2 years following construction to determine if relocated woodrat structures become occupied by woodrats, and report these findings to the County and to the CDFG.

E. Mitigation Measure: California Red-legged Frogs (CRLF)

In order to reduce impacts to red-legged frogs, the following measures shall be implemented:

- **CRLF Measure 1.** Project work must be conducted during the non-breeding season (1 May to 15 October) to the extent practicable in order to avoid the peak breeding period and to minimize risks to breeding frogs, egg masses, and larvae due to dredging and related activities. If red-legged frog egg masses are present, work shall not begin until after June 1. No work will be conducted at night or during rain events.
- **CRLF Measure 2.** Prior to the inception of project activities, a qualified biologist with expertise in the biology and ecology of California red-legged frogs must conduct training sessions for all project contractors and their employees. The biologist will describe the California red-legged frog and its habitat, display photographs, explain the legal status of the species and its protection under the Federal Endangered Species Act, and elucidate the measures being taken to avoid impacts to the species during improvement activities. A fact sheet conveying the above information in English (and Spanish if needed) shall be prepared and provided to all project workers.
- **CRLF Measure 3.** Prior to any ground disturbance at the project site, a temporary barrier to red-legged frog movement (wildlife exclusion fence) must be constructed along the limits of project activities around the pond and Quail Hollow Brook. The barrier is to consist of 3-ft tall silt fencing held in place by rigid stakes or other stable means. This barrier must be installed according to Sheet L2 of the Landscape Plans (H. T. Harvey & Associates 2008). A qualified biologist must oversee the installation of all barriers. These barriers must remain in place until all earthwork and culvert construction work has been completed. These barriers must be inspected daily and

maintained and repaired as necessary to ensure that they are functional and not a hazard to red-legged frogs on the outer side of the fence.

- **CRLF Measure 4.** Red-legged frogs must not be handled or relocated without approval by the USFWS via a Biological Opinion issued specifically for this project. After the exclusion barrier has been installed, a qualified biologist must conduct a nighttime survey of the area within the barrier to find, capture, and relocate any observed California red-legged frogs. The pond must also be seined for red-legged frog larvae. Any red-legged frogs detected must be relocated by the biologist to suitable habitat, with larvae being relocated to suitable pools and adults and juveniles being located to suitable habitat. The on-site biologist shall move the animal(s) to a USFWS-approved location and monitor relocated frogs/larvae to determine that they not imperiled by predators or other dangers. Relocation sites should be devoid of invasive predators (e.g., fish, crayfish, bullfrogs). Any bullfrogs or non-native fish detected during project activities must be disposed of to help reduce predation pressure on the site.
- **CRLF Measure 5.** A qualified biologist (i.e., one approved by the USFWS under the authority of a Biological Opinion issued specifically for this project) shall be on-site during all activities, including sediment excavation, pumping, and construction activities, that could result in the take of a California red-legged frog; the need for the biologist's presence shall be determined by the biologist. The biologist will need to be present during all activities within the exclusion barrier until the pond is drained, the barrier has proven to be functioning correctly (e.g., frogs relocated outside the fence are not moving back inside the fence), and in the opinion of the biologist there is no longer any potential for red-legged frogs to be present inside the fencing.
- **CRLF Measure 6.** If a California red-legged frog, or any amphibian believed to be a California red-legged frog, is encountered by the on-site biologist or anyone else at any time during project activities, the following protocol shall be followed:

    1. All work that could result in direct injury, disturbance, or harassment of the animal shall immediately cease.
    2. The foreman shall be immediately notified.
    3. The foreman shall contact a qualified biologist (if the biologist is not already on-site).
    4. The biologist shall immediately notify the USFWS via telephone or electronic mail.
    5. The biologist shall move the California red-legged frog(s) to an appropriate habitat selected by the applicant in consultation with the USFWS prior to pre-construction surveys. The individual(s) must be monitored until it is determined that the animal(s) is(are) not imperiled by predators or other dangers.

- **CRLF Measure 7.** California red-legged frogs are attracted to cavities such as pipes and may enter stored pipes and become trapped. Therefore, any construction pipes, culverts, or similar structures that are stored at the Project site for one or more overnight periods must be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the construction foreman/manager before the pipe is subsequently buried, capped, or otherwise used or moved in any way. Additionally, the on-site biologist and/or construction foreman/manager must check

for red-legged frogs under all construction equipment/vehicles before use. If a California red-legged frog is discovered inside a pipe or under construction equipment/vehicles by the on-site biologist or anyone else, the on-site biologist shall move the animal to the USFWS-approved location, as described above, and monitor it until it is determined that it is not imperiled by predators or other dangers.

- **CRLF Measure 8.** To avoid attracting predators of red-legged frogs, all food-related trash items such as wrappers, cans, bottles, and food scraps must be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site.
- **CRLF Measure 9.** Plastic monofilament netting (erosion control matting) or similar material shall not be used at the Project site because California red-legged frogs may become entangled or trapped in it.
- **CRLF Measure 10.** Pesticides and herbicides shall not be used during construction of the project.

F. Mitigation Measure: Western Pond Turtles

In order to reduce the impacts to western pond turtles, any western pond turtles detected by the biologist during site survey and monitoring activities must be relocated to a suitable location approved by the CDFG. Additionally, a qualified biologist must conduct a pre-construction survey for pond turtle nests and aestivating turtles during the nesting season in upland habitat within the project site. If active nests or aestivating turtles are found, the biologist must establish exclusion zone(s) with plastic-mesh construction fencing to exclude construction activity from these areas. The biologist must monitor these exclusion zones to determine when construction can resume without resulting in harm to western pond turtle individuals.

G. Mitigation Measure: Roosting Bats

In order to reduce potential impacts to bats, the following measures must be implemented:

- **Bat Measure 1**. A pre-construction survey for roosting bats, following the methods described in the biotic report, must be conducted within 15 days prior to the commencement of these activities in a given area to determine whether bats have occupied a roost in or near the project's impact areas. This survey must be conducted using the methods described for Measure 6a of the biotic report.
- **Bat Measure 2**. If a maternity roost of any bat species is present, the bat biologist must determine the extent of a construction-free buffer around the active roost that will be maintained. This buffer should be maintained from April 1until the young are flying, typically after August 31.
- **Bat Measure 3**. If a roost of any kind is found in a tree that will not be disturbed by construction, or that can be avoided, the roost structure must not be impacted if feasible.
- **Bat Measure 4**. If a day roost is found in a tree that is to be removed, individual bats must be safely evicted under the direction of a qualified bat biologist. Eviction of bats must occur at night, so that bats will have less potential for predation compared to daytime roost abandonment. Eviction must occur between September 1 and October

15 and/or between February 15 and April 15 but must not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey is not available or bats are in torpor. If feasible, one-way doors must be used to evict bats from tree roosts. If use of a one-way door is not feasible, or the exact location of the roost entrance in a tree is not known, the trees with roosts that need to be removed should first be disturbed by removal of some of the trees' limbs not containing the bats. Such disturbance must occur at dusk to allow bats to escape during the darker hours. These trees must then be removed the following day. All of these activities must be performed under the supervision of the bat biologist.

- **Bat Measure 5.** Although project activities that require removal of or work near a pallid bat maternity roost site would occur during the non-breeding season, such activities may result in the removal or abandonment of such a roost site. If a roost site that is used as a maternity roost by pallid bats is removed or abandoned as a result of project activities, an alternative roost must be constructed. The design and placement of this structure must be determined by a qualified bat biologist based on the location of the original roost and the habitat conditions in the vicinity. This bat structure must be erected at least one month prior to removal of the original roost structure, or as soon as possible after a roost site is determined to have been abandoned as a result of project activities.
- **Bat Measure 6.** In some circumstances, it may be beneficial to allow roosting bats to continue using a roost while construction is occurring on or near the roost site. For example, if a tree found to contain a day roost is located near the construction area but will not be removed, a qualified bat biologist (in consultation with the CDFG) must determine whether the bats should be evicted or whether they should remain in place. If it is determined that the risks to bats from eviction (e.g., increased predation or exposure, or competition for roost sites) are greater than the risk of colony abandonment, then the bats must not be evicted.
- **Bat Measure 7 (recommended but optional).** If feasible, a survey for roosting bats may be conducted prior to the beginning of the breeding season (i.e., prior to March 1) in the year in which project activities are scheduled to occur so that adequate measures can be implemented to evict the bats during the non-breeding season. It may be done to avoid the issues that arise from late detection of maternal roosts. This survey must include an assessment of all trees on and in the vicinity of the project for their potential use by roosting bats. Any such trees that are identified by a qualified bat biologist as being high-potential roost sites must be surveyed more intensively. The survey must be conducted by a qualified bat biologist (i.e., a biologist holding a CDFG collection permit and a Memorandum of Understanding with CDFG allowing the biologist to handle and collect bats). If suitable roost sites are found but a visual survey is not adequate to determine presence or absence of bats (which would be particularly likely in the case of potential roost trees), acoustical equipment must be used to determine occupancy. This measure is not mandatory, as an additional pre-construction survey and other measures must be performed as described above (Bat Measures 1-6). However, implementing this measure would allow for bat exclusion prior to the breeding season, thus minimizing the potential bat-related constraints to the timing of construction.

EXHIBIT C

H. Mitigation Measure: Special-Status Plants

In order to reduce the potential impacts to special-status plants, the following measures must be implemented:

- **Plant Measure 1: Conduct Protocol-level Surveys.** Protocol-level surveys for the remaining six spring-blooming plants identified in the Lichen Oaks Ranch Pond Restoration Final Biotic Study (San Francisco popcorn flower (*Plagiobothrys diffusus*), Dudley's lousewort (*Pedicularis dudleyi*), bent fiddleneck (*Amsickia lunaris*), Ben Lomond buckwheat (*Eriogonumnudum* var. *decurrens*), marsh microseris (*Microseris paludosa*), and San Francisco campion (*Silene verecunda* ssp. *Verecunda*)) must be conducted by a qualified plant ecologist during appropriate blooming periods to determine whether any populations of these species occur within or adjacent to impact areas and could be potentially affected. The protocol described in the Botanical Survey Methods Section of the Lichen Oaks Ranch Pond Restoration Final Biotic Study must be followed, using a minimum of three surveys of impact areas in spring of 2009 (March, April, and June) to assess presence or absence of these remaining six species.
- **Plant Measure 2 (Recommended but Optional): Avoid Impacts to Special-status Plant Populations and Observe an Adequate Buffer Zone.** If surveys determine that any populations of the species listed above occur within or adjacent to the impact areas, the applicant must redesign the project in consultation with a qualified plant ecologist to avoid and minimize impacts to the population. Simply avoiding direct impacts to the population may not be sufficient to prevent adverse effects to the population if an adequate buffer (minimum 15 ft) of non-impacted habitat is not also protected. Buffer zones will help protect these sensitive plants from the effects of erosion, root disturbance, loss of associate species, and new weed infestations. An appropriate buffer width must be determined by the qualified plant ecologist after consideration of species biology, population size, and regional importance of the population, but should be no less than 15 ft.
- **Plant Measure 3: Enhance and Preserve Habitat for Affected Species.** If Plant Measure 3 above is not feasible, the project applicant shall provide mitigation through preservation of off-site habitat or management of nearby, existing populations, should any exist. If no existing populations are available for the compensatory mitigation, the applicant shall mitigate for impacts to habitat capable of supporting the above-named species. In this case, similar, existing, offsite, riparian, wetland, open woodland, or grassland habitat shall be preserved in perpetuity at a 3:1 mitigation ratio (3 acres preserved for each acre impacted). The preserved habitat shall be of similar habitat quality and provide similar edaphic conditions to the impacted areas in terms of soil texture, extent of disturbance, vegetation structure, and dominant species composition, as determined by a qualified plant ecologist. The applicant shall work with appropriate agencies such as CDFG to identify appropriate nearby mitigation lands and ensure their permanent protection through an appropriate mechanism, such as a conservation easement or fee title purchase. A conservation easement could be held by CDFG, USFWS, or an approved land management entity, and shall be recorded within a time frame agreed upon by CDFG or USFWS. Alternatively, if a sandhills-adapted rare plant species will be

impacted, mitigation credits may be purchased at the Zayante Sandhills Conservation Bank with approval from the County Board of Supervisors.

C. Mitigation Measure: Riparian Habitat

In order to reduce the impacts to the riparian area, the following measures must be implemented:

- **Riparian Measure 1. Re-establish Soil Conditions if Compacted.** A restoration ecologist must inspect the graded slopes within the riparian corridor around the headwall and dam for soil compaction. Compaction must be reduced in the upper 6 inches of soil in this zone by tilling and incorporation of composted organic matter, if warranted and as directed by the restoration ecologist. The tilled surface must be lightly track-walked with the tracks oriented on contour. This will facilitate seed germination and establishment.
- **Riparian Measure 2. Hand-broadcast Clean Straw and a Native Seed Mixture.** Following project completion and light-ripping of any compacted areas if needed as per Riparian Measure 1 above, all areas impacted by ground disturbance must be seeded with a native seed mix (to be specified in the project's Riparian Habitat Mitigation and Monitoring Plan, see below). Following this, a layer of clean straw must be applied to these areas to prevent erosion and provide soil protection until germination occurs.
- **Riparian Measure 3. Tree Protection Fencing.** Tree protection fencing must be installed between existing riparian trees to be saved and the limit of construction work. The fencing must be installed with materials sufficient to visually demarcate the limit of construction access. The fencing plan is shown on Sheets L2 and L3 of the *Landscape Plans* (H.T. Harvey & Associates 2008).
- **Riparian Measure 4. Construction Monitoring.** A biologist must monitor construction to prescribe construction techniques that minimize impacts to riparian vegetation, including avoidance of large roots to the extent feasible and techniques for pruning.
- **Riparian Measure 5. Riparian Habitat Restoration.** As noted above, 0.04 acres of high quality, riparian habitat will be permanently impacted. These impacts will be mitigated by the restoration of new riparian habitat at a 3:1 ratio. Therefore, at least 0.12 acres of riparian mitigation is required. Riparian habitat must be restored on-site at the following two locations:

    1. Willow riparian habitat must be restored on an existing low-elevation, floodplain adjacent to the upstream end of pond excavation. The existing floodplain at this location is suitable for willow riparian habitat restoration. This area consists of recently deposited, sparsely vegetated alluvium and is currently degraded by the presence of a single, invasive silver wattle (*Acacia dealbata*). The riparian mitigation in this area must entail the removal of the silver wattle and revegetation of the site with red and arroyo willow.
    2. Coast live oak riparian habitat must be restored to widen the existing riparian corridor along the south side of the corridor, just upstream of the pond. Sheet L5 of the Landscape Plans show the planting plans for these two mitigation areas

(H. T. Harvey & Associates 2008). Riparian habitat mitigation must also include the removal of all non-native, invasive plant species from the project site.

3. A Riparian Habitat Mitigation and Monitoring Plan must be prepared by a qualified restoration ecologist during the regulatory agency permitting phase of the project and must provide the following:

    1) Brief summary of the proposed project
    2) Summary of habitat impacts and proposed mitigation ratios, including:
        a) Brief description of functions and values of sensitive habitats, wildlife and botanic resources in the impact area(s)
        b) Quantification of sensitive habitat impacts
        c) Map showing the habitat impact locations
        d) Basis for proposed mitigation ratios if other than 3:1
    3) Description of the primary goal(s) of the mitigation
    4) Location of mitigation site(s) and description of existing site conditions (both physical and biotic)
    5) Mitigation design:
        a) Existing and proposed site hydrology
        b) Soil amendments and other site preparation elements as appropriate
        c) Conceptual planting plan
        d) Conceptual irrigation and maintenance plans
    6) Monitoring plan (including final performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule)
        a) Remedial measures/adaptive management plan for mitigation elements that do not meet performance or final success criteria

D. Mitigation Measure: Aquatic / Wetland Habitat

In order to reduce wetland impacts, the following mitigation measures must be implemented:

- **Aquatic/wetland Measure 1. Re-establish Soil Conditions Around Pond Compacted.** A restoration ecologist must inspect the upper ~10% of the pond side slopes (approximately between elevation 375 ft and 377 ft) for compaction, after sediment removal excavation is completed. This constitutes a band approximately 5-10 ft wide around the pond perimeter (with the exception of the area identified in Riparian Measure 1). Compaction must be reduced in the upper 1 ft of soil in this zone by ripping/tilling, if needed and as directed by the restoration ecologist. The interior dam slope must not be ripped to preserve the integrity of the dam.
- **Aquatic/wetland Measure 2. Cease Wetland Vegetation Control.** Following project construction, the applicant must alter vegetation management regimes on-site to allow wetland vegetation to establish in a narrow band (~5-10 ft wide) around the pond perimeter approximately between elevations 375 ft and 377 ft. No further spraying, topping, or pulling of wetland vegetation is to take place in this zone.
- **Aquatic/wetland Measure 3. Monitor Wetland Vegetation Establishment for 3 Years.** A restoration ecologist must qualitatively monitor wetland vegetation establishment around the pond perimeter, once annually, for 3 years following

construction. The ecologist must characterize the species composition of establishing wetland vegetation, visually estimate percent cover, and take photographs from permanent photo-documentation points. Results of monitoring shall be submitted to the Deputy Environmental Coordinator for the County of Santa Cruz.

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 grading permit (or permits) is obtained for the work 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 grading permit and to complete all of the construction under the grading permit, resulting in the expiration of the grading permit, will void the development permit, unless there are special circumstances as determined by the Planning Director.

Approval Date: _____

Effective Date: _____

Expiration Date: _____

_____ _____

Don Bussey
Deputy Zoning Administrator

Kent Edler, Senior Civil Engineer
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.

EXHIBIT C

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

NEGATIVE DECLARATION AND NOTICE OF DETERMINATION

1. 08-0532 110 QUAIL HOLLOW RD, FELTON APN(S): 074-181-01
Proposal to restore an existing Quail Hollow Brook pond by removing sediment and distributing sediment on site, replacing the existing drainage pipes, and to remove and the replace the existing headwall located at the lower pond area. Requires a Riparian Exception, Environmental Review, Preliminary Grading Review, a Biotic report Review and Soils Report Review. Property located on the West side of East Zayante Road at the intersection with Quail Hollow Road (110 Quail Hollow Road).
ZONE DISTRICT: SU (SPECIAL USE)
APPLICANT: HAMILTON-SWIFT
OWNER: LICHEN OAKS LLC
STAFF PLANNER: JESSICA DEGRASSI, EMAIL: pln866@co.santa-cruz.ca.us
ACTION: NEGATIVE DECLARATION WITH MITIGATIONS
REVIEW PERIOD ENDS: JULY 9, 2009
This project will be administratively considered by Environmental Planning Principal Planner.

Findings:
This project, if conditioned to comply with required mitigation measures or conditions shown below, will not have significant effect on the environment. The expected environmental impacts of the project are documented in the Initial Study on this project, attached to the original of this notice on file with the Planning Department, County of Santa Cruz, 701 Ocean Street, Santa Cruz, California.

Required Mitigation Measures or Conditions:
_____ None
__XX__ Are Attached

Review Period Ends: July 9, 2009

Date Approved By Environmental Coordinator: July 13, 2009

Claudia Slater
CLAUDIA SLATER
Environmental Coordinator
(831) 454-5175

If this project is approved, complete and file this notice with the Clerk of the Board:

NOTICE OF DETERMINATION

The Final Approval of This Project was Granted by _____

on _____ (Date). No EIR was prepared under CEQA.

THE PROJECT WAS DETERMINED TO NOT HAVE SIGNIFICANT EFFECT ON THE ENVIRONMENT.

Date completed notice filed with Clerk of the Board: 29 / 149

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
TOM BURNS, PLANNING DIRECTOR

NOTICE OF ENVIRONMENTAL REVIEW PERIOD

SANTA CRUZ COUNTY

APPLICANT: **Hamilton Swift for Lichen Oaks LLC**

APPLICATION NO.: **08—0532**

APN: **074-181-01**

The Environmental Coordinator has reviewed the Initial Study for your application and made the following preliminary determination:

XX Negative Declaration
(Your project will not have a significant impact on the environment.)

XX Mitigations will be attached to the Negative Declaration.

_____ No mitigations will be attached.

_____ Environmental Impact Report
(Your project may have a significant effect on the environment. An EIR must be prepared to address the potential impacts.)

As part of the environmental review process required by the California Environmental Quality Act (CEQA), this is your opportunity to respond to the preliminary determination before it is finalized. Please contact Matt Johnston, Environmental Coordinator at (831) 454-3201, if you wish to comment on the preliminary determination. Written comments will be received until 5:00 p.m. on the last day of the review period.

Review Period Ends: **July 9, 2009**

Jessica DeGrassi
Staff Planner

Phone: **(831) 454-3162**

Date: **June 5, 2009**

EXHIBIT D

NAME: Lichen Oaks Pond Restoration
APPLICATION: 08-0532
A.P.N: 074-181-01

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 Resource Planning staff, and project biologists. Results of pre construction biotic surveys will be collected at that time and all protection measures shall be inspected.

B. In order to mitigate any potential impacts to dusky footed wood rats, the following measures shall be incorporated into the conditions of the grading permit;

1. Completely avoid impacts by establishing a construction exclusion zone around woodrat nests that could be impacted by construction. Retain as much of the surrounding habitat as possible.
2. If avoidance is not possible, move sticks from the woodrat nest(s) into nearby suitable woodrat habitat (with authorization from the CDFG) or create new habitat (e.g., slash piles) which woodrats can colonize.
3. Conduct follow-up resource monitoring during the first 2 years following construction to determine if relocated woodrat structures become occupied by woodrats, and report these findings to the County and to the CDFG.
4. Prior to nest disturbance, the biologist shall obtain from CDFG a scientific collection permit for the trapping of the dusky-footed wood rats.
5. Nests shall be disturbed/dismantled only during the non-breeding season, between October 1 and December 31.
6. At least two weeks prior to construction, the qualified biologist shall survey the project disturbance area to confirm the wood rat nest location and locate any other nests that may have been built in the project vicinity that may be affected by the proposed development.
7. Prior to nest disturbance, wood rats shall be trapped at dusk of the night set for relocation of the nest(s).
8. Any existing nest that may be disturbed by construction activities shall be mostly dismantled and the material spread in the vicinity of identified nest relocation site(s).
9. In order to avoid the potential health effects associated with handling rodents and their milieu, all workers involved in the handling of the wood rats or the nest materials should wear protective gear to prevent inhalation of contaminant particulates, contact with conjunctiva (eyes), and protection against flea bites; a respirator, eye protection and skin protection should all be used.
10. Dismantling shall be done by hand, allowing any animals not trapped to escape either along existing woodrat trails or toward other available habitat.
11. If a litter of young is found or suspected, nest material shall be replaced, and the nest left alone for 2-3 weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling.
12. Woody debris shall be collected from the area and relocated nests shall be partially constructed in an area determined by the qualified biologist to be both suitable for the wood rats and far enough away from the construction activities that they will not be impacted.
13. Rats that were collected at dusk shall be released hours before dawn near the newly constructed nests to allow time for rats to find refuge.
14. Once construction is complete, the biologist shall survey the nest area to note whether the new nests are in use, the wood rats have built new nests, or the nest area has been completely abandoned. This information shall be reported in a letter report to the Environmental Planning Section of the Planning Department, and the local CDFG biologist.

EXHIBIT D

Environmental Review
Initial Study

Application Number: 08-0532

Date: June 1, 2009
Staff Planner: Jessica deGrassi

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Hamilton Swift LUDC **APN**: 074-181-01

OWNER: Lichen Oaks LLC **SUPERVISORAL DISTRICT**: 5

LOCATION: Located on the northwest corner of the intersection of Quail Hollow Road and East Zayante Road.

SUMMARY PROJECT DESCRIPTION: Proposal to restore the existing Quail Hollow Brook pond by removing sediment and distributing sediment onsite, replacing the existing drainage pipes, and to remove and replace the existing headwall located at the lower pond area. Requires a Grading Permit and Riparian Exception.

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.

x	Geology/Soils	____	Noise
x	Hydrology/Water Supply/Water Quality	____	Air Quality
____	Energy & Natural Resources	____	Public Services & Utilities
____	Visual Resources & Aesthetics	____	Land Use, Population & Housing
x	Cultural Resources	____	Cumulative Impacts
____	Hazards & Hazardous Materials	____	Growth Inducement
____	Transportation/Traffic	____	Mandatory Findings of Significance

DISCRETIONARY APPROVAL(S) BEING CONSIDERED

____	General Plan Amendment	____	Use Permit
____	Land Division	x	Grading Permit

___ Rezoning

___ Development Permit

___ Coastal Development Permit

___ x ___ Riparian Exception

___ Other:

NON-LOCAL APPROVALS
Other agencies that must issue permits or authorizations:
Army Corp of Engineers
California Department of Fish and Game
Regional Water Quality Control Board

ENVIRONMENTAL REVIEW ACTION
On the basis of this Initial Study and supporting documents:

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

X 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 the attached mitigation measures have been added to the project. 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.

Matt Johnston
Matt Johnston

June 4, 2009
Date

For: Claudia Slater
Environmental Coordinator

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Size: 90.927 acres
Existing Land Use: *Homesite*
Vegetation: Grassland, Sandhills, scattered small brush, Oak Woodland, riparian woodland and redwood groves
Slope in area affected by project: 100 0 - 30% ___ 31 – 100%
Nearby Watercourse: Quail Hollow Brook and Zayante Creek
Distance To: adjacent

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Groundwater Supply: none mapped
Water Supply Watershed: none mapped
Groundwater Recharge: yes
Timber or Mineral: none mapped
Agricultural Resource: none mapped
Biologically Sensitive Habitat: Riparian, Sandhills
Fire Hazard: none mapped
Floodplain: none mapped
Erosion: Moderate to High
Landslide: none mapped

Liquefaction: none mapped
Fault Zone: none mapped
Scenic Corridor: none mapped
Historic: none mapped
Archaeology: yes
Noise Constraint: none mapped

Electric Power Lines: none mapped
Solar Access: Adequate
Solar Orientation: Adequate
Hazardous Materials: none

SERVICES

Fire Protection: Zayante Fire
School District: SLVUSD
Sewage Disposal: Septic

Drainage District: Flood Zone 8
Project Access: Quail Hollow Road
Water Supply: Well

PLANNING POLICIES

Zone District: SU
General Plan: RR
Urban Services Line: ___ Inside _x_ Outside
Coastal Zone: ___ Inside _x_ Outside

Special Designation: No

PROJECT SETTING AND BACKGROUND:

The proposed Lichen Oaks Ranch Pond Restoration project site is located off Quail Hollow Road, in Felton CA. The pond to be restored is an in-channel pond located within Quail Hollow Brook, approximately 600 feet upstream of the confluence with Zayante Creek. Quail Hollow Brook is a perennial stream, with four biotic habitats within the vicinity, including annual grassland, coast live oak-mixed riparian forest, wetlands and aquatic habitat.

Quail Hollow Brook Pond was originally built in the 1930's by installation of a levee in Quail Hollow Brook. The pond has an elliptical shape with an area of roughly two-thirds

EXHIBIT D

of an acre and an original depth of 15 feet. There is a 55-foot long dock that has an 18-inch vertical outlet culvert that drains downstream of the levee into Quail Hollow Brook. A valve is located at the bottom of the vertical culvert in order to drain the pond. A second 36-inch culvert is located at the typical pond water level (east of the levee) and drains excess water flow continuously into the Quail Hollow Brook located below the levee in order to maintain the pond's water level.

After roughly four years of erosion occurring upstream, about 2700 cubic yards of sediment has deposited in Quail Hollow Brook Pond. This erosion occurred as a result of a failed culvert on the County of Santa Cruz property, known as Quail Hollow Ranch. The original 36-inch culvert was approximately 80-feet long, and failed in sections over the course of several years. The culvert failed after heavy rains caused joint failure, and siltation of Quail Hollow Brook Pond followed. The deposition of sediment has taken up roughly two-thirds of the pond's original capacity. The pond has now become a stream that runs from the northeast portion of the brook entry point down to the 36-inch culvert, in turn bypassing the pond. The accumulation of silt has also submerged the original outlet valve, which has made this valve unusable.

The goal of the proposed project is to protect downstream water quality and aquatic habitat in Quail Hollow Brook and Zayante Creek, by replacing and repairing culverts, headwalls and removing sediment. The project also includes long-term maintenance by removing sediment to maintain the ponds' capacity for sediment retention. These actions will greatly reduce the existing potential for dam failure and overtopping by floodwaters. The project will result in secondary benefits to biological resources by improving California red-legged frog habitat in the pond and protect salmonid habitat downstream in Zayante Creek.

DETAILED PROJECT DESCRIPTION:
Quail Hollow Brook Pond will be restored in two phases. The first phase will temporarily divert the Quail Hollow Brook flow along the pond's northeastern bank with a 12-inch PVC pipe, by dewatering the construction area with installation of Best Management Practices (BMPs) to protect downstream water quality. This temporary diversion will allow the contractor to access the southern portion of the pond and remove about 80% of the accumulated sediment. This diversion will also allow for the contractor to access the existing levee and install and repair the two pipes, which run through the levee and remove and install a new head wall at the toe of the existing levee.

Phase 2 will temporarily divert the Quail Hollow Brook flow to the 18-inch gate valve at the bottom of the Lichen Oaks Pond with a 12-inch PVC pipe. This realignment of the diversion pipe will allow the contractor to access the northeastern bank of the pond to remove the final 20% of accumulated sediment. This diversion will also allow the contractor to repair the existing culvert located on the northeastern bank.

Once the site has been dewatered, the sediment will be excavated out of the pond and spread in a thin layer across a portion of the adjacent pasture (annual grasslands)

located between Quail Hollow Road and Quail Hollow Brook. A permanent, gravel access road (approximately 12-feet wide) will be installed on the southwest side of the pond in close proximity to the sediment disposal area. Excavators, bulldozer, wheel loader and dump truck will be used to conduct the excavation and sediment disposal work. The project will employ standard BMPs to prevent the downstream transport of silt including:

- Limiting work to the dry season (April 15-Oct15)
- Dewatering the pond prior to excavation
- Diverting the creek flow through a culvert bypass to prevent flow from contacting the construction area
- Silt fencing
- Erosion control seeding

The project also includes installation of wildlife exclusion and tree protection fencing to minimize impacts to certain special-status species and riparian trees. The wildlife exclusion/tree protection fencing design is included in the projects' Landscape Plans (H. T.Harvey & Associates 2008, Sheet L2). The wildlife exclusion fence was specifically designed to avoid impacts to Mt. Hermon June beetle (*Polyphylla barbata*) habitat and to exclude California red-legged frog (*Rana draytonii*) and western pond turtle (*Clemmys marmorata*) from the work area. Final construction will entail installation of riparian mitigation plantings, broadcast seeding and straw installation on all disturbed soil surfaces.

Long-term Maintenance. Long-term maintenance excavation of pond sediments will be performed during the dry season with the same water quality protection BMPs as listed above. The permanent access ramp will be utilized by heavy equipment to access the pond. It is anticipated that smaller equipment such as a Bobcat/Tractor will be utilized for maintenance excavation work, since the quantities of sediment to be removed will be substantially less than the initial excavation work. Maintenance excavation will be performed when sediments accumulate to fill greater than approximately 20% of the pond capacity. The frequency of maintenance excavation is unknown, but is anticipated to be necessary once every 5-10 years.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

III. ENVIRONMENTAL REVIEW CHECKLIST

A. Geology and Soils

Does the project have the potential to:

1. Expose people or structures to potential adverse effects, including the risk of material 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 as identified by other substantial evidence?				X

The project is not located in a mapped fault zone

B. Seismic ground shaking?			X	

A geotechnical investigation for the proposed project was performed by Bauldry Engineering, dated February 2009 (Attachment 5). The report concluded that the project will be designed to accommodate significant seismic shaking during the lifetime of the project. The potential for landsliding to occur in the area is considered low. There is a potential for pockets of loose saturated sandy soil to liquefy during a large magnitude earthquake, and that the existing dam may settle and deform. The proposed improvements to the down slope face of the dam will strengthen the existing dam and help mitigate the adverse effects of liquefaction.

C. Seismic-related ground failure, including liquefaction?			X	

See section 1 B above.

D. Landslides?			X	

See section 1 B above.

2. Subject people or improvements to damage from soil instability as a result of on- or off-site landslide, lateral spreading, to subsidence, liquefaction, or structural collapse?			X	

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Develop land with a slope exceeding 30%?	____	____	____	X

There are slopes that exceed 30% on the property. However, no improvements are proposed on slopes in excess of 30%.

4. Result in soil erosion or the substantial loss of topsoil?	____	____	X	____

Some potential for erosion exists during the construction phase of the project, however, this potential is minimal because standard erosion control Best Management Practices are a required condition of the project. Prior to approval of a grading or building permit, the project must have an approved Erosion Control Plan, which will specify detailed erosion and sedimentation control measures. The plan will include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion.

5. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code(1994), creating substantial risks to property?	____	____	____	X

The geotechnical report for the project did not identify any elevated risk associated with expansive soils.

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?	____	____	____	X

No septic systems are proposed.

7. Result in coastal cliff erosion?	____	____	____	X

The project is not located on a coastal bluff.

EXHIBIT D

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

B. Hydrology, Water Supply and Water Quality

Does the project have the potential to:

1. Place development within a 100-year flood hazard area?			X	

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated April 15, 1986, no portion of the project site lies within a 100-year flood hazard area (Attachment 1).

2. Place development within the floodway resulting in impedance or redirection of flood flows?			X	

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated April 15, 1986, no portion of the project site lies within a 100-year flood hazard area (Attachment 1).

3. Be inundated by a seiche or tsunami?				X

The project is not located by the coast

4. Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit, or a significant contribution to an existing net deficit in available supply, or a significant lowering of the local groundwater table?			X	

The project does not have the potential to deplete groundwater because water will continue to infiltrate during construction and will temporarily flow through a short length of pipe.

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

Quail Hollow Brook is a tributary to Zayante Creek which eventually enters the San Lorenzo River, a public water source for the City of Santa Cruz. This project is necessary to protect the excess sedimentation of the San Lorenzo River. No

EXHIBIT

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

commercial or industrial activities are proposed that would contribute a significant amount of contaminants to a public or private water supply. Potential siltation from the proposed project will be mitigated through implementation of erosion control measures.

6.	Degrade septic system functioning?	____	____	____	X

There is no indication that existing septic systems in the vicinity would be affected by the project.

7.	Alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which could result in flooding, erosion, or siltation on or off-site?	____	____	X	____

Quail Hollow Brook Pond will be restored in two phases. The first phase will temporarily divert the Quail Hollow Brook flow along the pond's northeastern bank with a 12-inch PVC pipe, by dewatering the construction area with installation of Best Management Practices (BMPs) to protect downstream water quality. This temporary diversion will allow the contractor to access the southern portion of the pond and remove about 80% of the accumulated sediment. This diversion will also allow for the contractor to access the existing levee and install and repair the two pipes, which run through the levee and remove and install a new head wall at the toe of the existing levee.

Phase 2 will temporarily divert the Quail Hollow Brook flow to the 18-inch gate valve at the bottom of the Lichen Oaks Pond with a 12-inch PVC pipe. This realignment of the diversion pipe will allow the contractor to access the northeastern bank of the pond to remove the final 20% of accumulated sediment. This diversion will also allow the contractor to repair the existing culvert located on the northeastern bank.

Once the site has been dewatered, the sediment will be excavated out of the pond and spread in a thin layer across a portion of the adjacent pasture (annual grasslands) located between Quail Hollow Road and Quail Hollow Brook. A permanent, gravel access road (approximately 12-feet wide) will be installed on the southwest side of the pond in close proximity to the sediment disposal area. Excavators, bulldozer, wheel loader and dump truck will be used to conduct the excavation and sediment disposal work. The project will employ standard BMPs to prevent the downstream transport of silt including:

- *Limiting work to the dry season (April 15-Oct15)*
- *Dewatering the pond prior to excavation*
- *Diverting the creek flow through a culvert bypass to prevent flow from contacting the construction area*
- *Silt fencing*
- *Erosion control seeding*

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	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

Based on the above construction guidelines the project will not result in flooding, erosion or siltation on or offsite.

8.	Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems, or create additional source(s) of polluted runoff?			X	

DPW staff has determined that existing storm water facilities 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.	Contribute to flood levels or erosion in natural water courses by discharges of newly collected runoff?				X

No new impervious surfaces are proposed as part of the project, thus there will be no additional storm water runoff that could contribute to flooding or erosion.

10.	Otherwise substantially degrade water supply or quality?			X	

See B.5.

C. Biological Resources

Does the project have the potential to:

1.	Have an adverse effect 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?		X		

A Biotic Report was prepared for this project by HT Harvey and Associates dated 4/20/09 (Attachment 13). This report has been reviewed and accepted by the Planning Department Environmental Section (Attachment 8). Recommended measures to reduce impacts to less than significant have been incorporated into the project proposal as described below. Further measures not included in the report but deemed necessary to reduce potential impacts are identified and would be incorporated as mitigation measures.

Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

Populations of native and special-status wildlife will not be significantly affected by construction due to measures included in the project proposal to address species-level impacts (see below sections). These include wildlife exclusion fencing, temporary dewatering, and biological construction monitoring.

Impacts to Foraging Special-Status Wildlife Species

A number of special-status wildlife species may occur on the project site only as rare visitors, migrants, or transients. These species may occasionally forage on the site, but they are not expected to breed there. These species include golden eagle, peregrine falcon, northern harrier, long-eared owl, western burrowing owl, Vaux's swift, olive-sided flycatcher, yellow-breasted chat, tricolored blackbird, loggerhead shrike, Townsend's big-eared bat, western mastiff bat, western red bat, American badger, and ringtail. The project will have no effect on the breeding success of any of these species. Dredging and associated activities may result in a very small and temporary reduction of foraging habitat available to these species locally. Due to the abundance of similar habitats locally and regionally and the infrequency with which most of these species occur on the project site, the project's impacts do not meet the CEQA standard of having a substantial adverse effect on these species' populations, and the project will have a less than significant impact on these species.

Impacts to Nesting Special-Status Birds

Two special-status birds, the yellow warbler (a California species of special concern) and white tailed kite (a state fully protected species), could potentially nest in the coast live oak-mixed riparian forest on the project site. Construction activities could impact these species by destroying nests during tree removal, disturbing nesting birds (possibly to the point of abandoning eggs or young), and temporarily impacting foraging habitat. No more than one pair of either species would nest in the project area, and thus the project could affect at most a very small fraction of the regional populations of these species. Given the low probability of these species' occurrence as breeders on the site (since white-tailed kites were not observed during our surveys and habitat on-site is of relatively low quality for breeding yellow warblers), coupled with the very low proportion of the regional populations that could be affected, the project's impacts do not meet the CEQA standard of having a substantial adverse effect on these species' populations, and the project will have a less than significant impact on these species. However, individuals, eggs, and young of both species are protected by the federal Migratory Bird Treaty Act and the California Fish and Game Code.

Impacts to Coho Salmon, Steelhead, and Water Quality

Central California Coast coho salmon were historically present in Zayante Creek and the San Lorenzo River, and individuals may still occur occasionally in the San Lorenzo River watershed. Central California Coast steelhead are present in Zayante Creek, into which Quail Hollow Brook flows, and the San Lorenzo River, which is fed by Zayante Creek. It is possible that some fish could enter the Quail Hollow Brook itself during high flows. However, the portion of Quail Hollow Brook below the pond that is within the project footprint is narrow, shallow, and does not contain spawning gravels.

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Therefore, there is a low potential for these fish to enter the project area. The project will provide a net benefit to these species by preventing siltation of Zayante Creek and the San Lorenzo River from the sediment sources that instigated the need for the current project. Without the proposed dredging, the pond will quickly fill with sediment, which will begin spilling into downstream areas, reducing habitat quality in downstream areas. The project area will be dewatered and constructed in such a way that coho and steelhead will not be present within the impact areas during construction and that water quality will not be adversely affected downstream from the pond. The materials used to line the pipe that drains the bottom of the pond will not be allowed to spill into Quail Hollow Brook downstream. Prior to construction of the new outfall and installation of rock below the pond, the pipe that drains the bottom of the pond will be blocked so that the impact area immediately below the pond will be dewatered. Due to the existing topography of this area, there are no pools in which fish could be stranded, and any fish in this short reach of channel will move downstream as water levels drop. Thus, when work commences on the new outfall and erosion control features, no fish will be present within the construction area.

Flow from the reach of creek above the pond will still be bypassed around the construction area, maintaining flow conditions within the creek downstream from the project area. If silt from the pond were mobilized during excavation, increased suspended sediment discharge could adversely impact water quality and the quality of spawning habitat in downstream areas.

The incorporation of BMPs for the protection of water quality into the project will prevent such impacts. The project will employ standard BMPs to prevent the downstream transport of silt, including limiting work to the dry season (15 April – 15 October), dewatering the pond prior to excavation, diverting creek flow around the excavation area, installation and maintenance of silt fencing, and erosion control seeding. An erosion control plan has been prepared for the project (see plan set sheet C5). Due to the incorporation of BMPs and construction methods that will avoid impacts to water quality and salmonids, as well as the net benefit to these resources that the project will confer in the long term, impacts to coho salmon, steelhead, and water quality are considered less than significant.

Impacts to Mount Hermon June Beetle

Suitable habitat occurs for the federally-endangered Mount Hermon June beetle on and adjacent to the project area (Figure 2, Appendix D). Impacts to the beetle or its subterranean habitat could occur as a result of grading or other soil disturbance, soil compaction, root pruning, or tree removal. However, the project has been designed to avoid impacts to June beetle habitat which is located on the north and east side of the pond outside of the riparian corridor. All areas to the north and east of the pond outside of the riparian corridor will be avoided and separated from the work areas within and on the south side of the pond using wildlife exclusion/tree protection fencing (see landscape plan sheet L2).

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In the event that access is required to the existing junction box on the east side of the pond levee to plug the existing culvert with concrete (Figure 2, plan sheet C2 and C3), fencing shall be installed to leave a corridor from the work area over the existing dam to the box (see landscape plan sheet L2). This access will be provided so that a worker can take a concrete-filling pipe on-foot over the levee to the junction box without causing impacts to the steep riparian bank just north of the existing headwall (plan set C1). This will allow work access that will not cause significant compaction by excluding equipment access to the area, while at the same time protecting the bank of the dam (and personnel) from potential access-related bank slides. Thus, all project activities will be restricted to areas that do not provide suitable habitat for Mount Hermon June beetles, and potential project-related impacts to Mount Hermon June beetles and their habitat have been consciously avoided by the project design. With incorporation of all the avoidance measures, impacts to this species are thus considered to be less than significant.

Impacts to San Francisco Dusky-footed Woodrats

During reconnaissance surveys, two woodrat nests were discovered within or immediately adjacent to the proposed project footprint: one nest was located at the northeastern edge of the pond, and another was found on the southwestern edge of the pond. Suitable habitat for woodrats exists both upstream and downstream of the pond, and nests could become established in any of the riparian habitat in the project area prior to the initiation of project activities.

Based on observations at the site, it appears that woodrat densities on the site are relatively low, and only a few nests are expected to occur on or near the project's impact areas. Project activities could result in direct impacts to individuals through destruction of a small number of nests (possibly only one, based on existing conditions), possibly leading to mortality of woodrats, and the loss of a small amount of woodrat habitat. Because this species is relatively abundant within its range, only a very small fraction of the species' regional populations will be impacted. The following mitigation measures would be sufficient to ensure the project will have a less than significant impact on this species;

1. *Completely avoid impacts by establishing a construction exclusion zone around woodrat nests that could be impacted by construction. Retain as much of the surrounding habitat as possible.*
2. *If avoidance is not possible, move sticks from the woodrat nest(s) into nearby suitable woodrat habitat (with authorization from the CDFG) or create new habitat (e.g., slash piles) which woodrats can colonize.*
3. *Conduct follow-up resource monitoring during the first 2 years following construction to determine if relocated woodrat structures become occupied by woodrats, and report these findings to the County and to the CDFG.*
4. *Prior to nest disturbance, the biologist shall obtain from CDFG a scientific collection permit for the trapping of the dusky-footed wood rats.*
5. *Nests shall be disturbed/dismantled only during the non-breeding season,*

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between October 1 and December 31.

6. *At least two weeks prior to construction, the qualified biologist shall survey the project disturbance area to confirm the wood rat nest location and locate any other nests that may have been built in the project vicinity that may be affected by the proposed development.*
7. *Prior to nest disturbance, wood rats shall be trapped at dusk of the night set for relocation of the nest(s).*
8. *Any existing nest that may be disturbed by construction activities shall be mostly dismantled and the material spread in the vicinity of identified nest relocation site(s).*
9. *In order to avoid the potential health effects associated with handling rodents and their milieu, all workers involved in the handling of the wood rats or the nest materials should wear protective gear to prevent inhalation of contaminant particulates, contact with conjunctiva (eyes), and protection against flea bites; a respirator, eye protection and skin protection should all be used.*
10. *Dismantling shall be done by hand, allowing any animals not trapped to escape either along existing woodrat trails or toward other available habitat.*
11. *If a litter of young is found or suspected, nest material shall be replaced, and the nest left alone for 2-3 weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling.*
12. *Woody debris shall be collected from the area and relocated nests shall be partially constructed in an area determined by the qualified biologist to be both suitable for the wood rats and far enough away from the construction activities that they will not be impacted.*
13. *Rats that were collected at dusk shall be released hours before dawn near the newly constructed nests to allow time for rats to find refuge.*
14. *Once construction is complete, the biologist shall survey the nest area to note whether the new nests are in use, the wood rats have built new nests, or the nest area has been completely abandoned. This information shall be reported in a letter report to the Environmental Planning Section of the Planning Department, and the local CDFG biologist.*

Impacts to California Red-legged Frogs (CRLF)

As described previously, there is some potential for individual red-legged frogs to occur in the pond anytime of year, and they could potentially attempt to breed within the pond. In the long term, the project will likely have a beneficial effect on red-legged frogs by preventing the siltation of the pond (thus maintaining its value as aquatic habitat, at least for nonbreeding adults that are unlikely to be depredated by bullfrogs). Additionally, the wetland and willow riparian habitat mitigation will benefit red-legged frog in the long-term by increasing cover and substrate for attaching egg masses around the pond.

During construction, frogs using the pond could be killed or injured by workers or equipment, and aquatic, wetland, and riparian habitat for this species will be temporarily impacted. Consultation with the USFWS regarding the potential take of

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red-legged frogs will be undertaken during Clean Water Act permitting for the project. In addition, the following measures are proposed by the applicant and will be implemented in order to reduce potential impacts to red-legged frogs to less than significant levels:

- ***CRLF Measure 1.*** *Project work will be conducted during the nonbreeding season (1 May to 15 October) to the extent practicable in order to avoid the peak breeding period and to minimize risks to breeding frogs, egg masses, and larvae due to dredging and related activities. If red-legged frog egg masses are present, work shall not begin until after June 1. No work will be conducted at night or during rain events.*

- ***CRLF Measure 2.*** *Prior to the inception of project activities, a qualified biologist with expertise in the biology and ecology of California red-legged frogs will conduct training sessions for all project contractors and their employees. The biologist will describe the California red-legged frog and its habitat, display photographs, explain the legal status of the species and its protection under the Federal Endangered Species Act, and elucidate the measures being taken to avoid impacts to the species during improvement activities. A fact sheet conveying the above information in English (and Spanish if needed) shall be prepared and provided to all project workers.*

- ***CRLF Measure 3.*** *Prior to any ground disturbance at the project site, a temporary barrier to red-legged frog movement (wildlife exclusion fence) will be constructed along the limits of project activities around the pond and Quail Hollow Brook. The barrier will consist of 3-ft tall silt fencing held in place by rigid stakes or other stable means. This barrier will be installed according to Sheet L2 of the Landscape Plans (H. T. Harvey & Associates 2008). A qualified biologist will inspect the work area prior to installation of barriers. These barriers will remain in place until all earthwork and culvert construction work has been completed. These barriers will be inspected daily and maintained and repaired as necessary to ensure that they are functional and not a hazard to red-legged frogs on the outer side of the fence.*

- ***CRLF Measure 4.*** *Red-legged frogs will not be handled or relocated without approval by the USFWS via a Biological Opinion issued specifically for this project. After the exclusion barrier has been installed, a qualified biologist will conduct a nighttime survey of the area within the barrier to find, capture, and relocate any observed California red-legged frogs. The pond will also be seined for red-legged frog larvae. Any red-legged frogs detected will be relocated by the biologist to suitable habitat, with larvae being relocated to suitable pools and adults and juveniles being located to suitable habitat. The on-site biologist shall move the animal(s) to a USFWS-approved location and monitor relocated frogs/larvae to determine that they not imperiled by predators or other dangers. Relocation sites should be devoid of invasive predators (e.g., fish, crayfish,*

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bullfrogs). Any bullfrogs or non-native fish detected during project activities will be disposed of to help reduce predation pressure on the site.

- ***CRLF Measure 5.*** *A qualified biologist (i.e., one approved by the USFWS under the authority of a Biological Opinion issued specifically for this project) shall be on-site during all activities, including sediment excavation, pumping, and construction activities, that could result in the take of a California red-legged frog; the need for the biologist's presence shall be determined by the biologist. We anticipate that the biologist will need to be present during all activities within the exclusion barrier until the pond is drained, the barrier has proven to be functioning correctly (e.g., frogs relocated outside the fence are not moving back inside the fence), and in the opinion of the biologist there is no longer any potential for red-legged frogs to be present inside the fencing.*

- ***CRLF Measure 6.*** *If a California red-legged frog, or any amphibian believed to be a California red-legged frog, is encountered by the on-site biologist or anyone else at any time during project activities, the following protocol shall be followed:*

  1. *All work that could result in direct injury, disturbance, or harassment of the animal shall immediately cease.*
  2. *The foreman shall be immediately notified.*
  3. *The foreman shall contact a qualified biologist (if the biologist is not already on-site).*
  4. *The biologist shall immediately notify the USFWS via telephone or electronic mail.*
  5. *The biologist shall move the California red-legged frog(s) to an appropriate habitat selected by the applicant in consultation with the USFWS prior to pre-construction surveys. The individual(s) will be monitored until it is determined that the animal(s) is(are) not imperiled by predators or other dangers.*

- ***CRLF Measure 7.*** *California red-legged frogs are attracted to cavities such as pipes and may enter stored pipes and become trapped. Therefore, any construction pipes, culverts, or similar structures that are stored at the Project site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the construction foreman/manager before the pipe is subsequently buried, capped, or otherwise used or moved in any way. Additionally, the on-site biologist and/or construction foreman/manager will check for red-legged frogs under all construction equipment/vehicles before use. If a California red-legged frog is discovered inside a pipe or under construction equipment/vehicles by the on-site biologist or anyone else, the on-site biologist shall move the animal to the USFWS-approved location, as described above, and monitor it until it is determined that it is not imperiled by predators or other dangers.*

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- ***CRLF Measure 8.*** *To avoid attracting predators of red-legged frogs, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site.*

- ***CRLF Measure 9.*** *Plastic monofilament netting (erosion control matting) or similar material shall not be used at the Project site because California red-legged frogs may become entangled or trapped in it.*

- ***CRLF Measure 10.*** *Pesticides and herbicides shall not be used during construction of the project.*

Impacts to Western Pond Turtles

The pond and adjacent grassland within the project area provide suitable breeding and nonbreeding habitat for western pond turtles, and turtles have been observed in the pond, as noted above. In the long term, the project will help maintain high-quality aquatic habitat by providing a deep pond (with some basking habitat at the edges) for this species. However, short term impacts may occur. Western pond turtles often nest communally, so the loss of one nesting area may have population-level impacts. A focused survey of the grassland in the project area yielded no evidence of nesting turtles, but there is some potential for eggs within existing nests to be destroyed, or for young to be killed, due to soil compaction during spreading of dredged sediments or burial of nests to depths too deep for successful hatching or emergence of young. Such impacts cannot be avoided given the virtual impossibility of detecting active nests of this species. Short-term loss of suitable nesting habitat will occur as sediment is spread over the adjacent fields, but vegetation will be re-established in the grasslands and these areas will once again provide suitable nesting habitat. Sediment excavation in the pond could result in injury or mortality of individual turtles. Temporary loss of aquatic habitat will also occur during construction. The measures described above to avoid and minimize impacts to California red-legged frogs will serve to protect western pond turtles as well. Any western pond turtles detected by the biologist during site survey and monitoring activities will be relocated to a suitable location approved by the CDFG. Additionally, a qualified biologist will conduct a pre-construction survey for pond turtle nests and aestivating turtles during the nesting season in upland habitat within the project site. If active nests or aestivating turtles are found, the biologist will establish exclusion zone(s) with plastic-mesh construction fencing to exclude construction activity from these areas. The biologist will monitor these exclusion zones to determine when construction can resume without resulting in harm to western pond turtle individuals. These measures will reduce potential impacts to western pond turtles to less than significant levels.

Potential Impacts to Roosting Bats

Several large oaks and other trees in the project area provide suitable roosting habitat for the pallid bat, a California species of special concern, as well as for other non-special-status bat species. All large oaks will be left intact, but one red willow, which

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may provide roosting habitat, will be removed as part of the construction process. Even if trees being used as roosts remain intact, bat colonies could be disturbed by the noise and vibrations associated with construction, potentially resulting in roost abandonment. Abandonment of a pallid bat roost, particularly a maternity roost, could result in the mortality of adult and/or young bats. Bats disturbed during the daytime could be subject to increased predation as they attempt to find new roosts. Removal of an active pallid bat maternity roost, disturbance of an active non-breeding pallid bat roost during the daytime, or loss of a large roost of non-special-status bats would result in a significant impact under CEQA. In order to reduce potential impacts to less than significant levels, the following measures are proposed by the applicant and will be undertaken:

- ***Bat Measure 1**. Because the aforementioned survey will be conducted prior to the breeding season, several months may pass between that survey and the initiation of construction or demolition in a given area. Therefore, another pre-construction/predemolition survey for roosting bats, following the methods described above, will be conducted within 15 days prior to the commencement of these activities in a given area to determine whether bats have occupied a roost in or near the project's impact areas. This survey, which would be conducted using the methods described for Measure 7a, would be facilitated considerably by information (e.g., on potential roost trees) gathered during the previous survey.*

- ***Bat Measure 2**. If a maternity roost of any bat species is present, the bat biologist will determine the extent of a construction-free buffer around the active roost that will be maintained. This buffer would be maintained from 1 April until the young are flying, typically after 31 August.*

- ***Bat Measure 3**. If a roost of any kind is found in a tree that will not be disturbed by construction, or that can be avoided, the roost structure will not be impacted if feasible.*

- ***Bat Measure 4**. If a day roost is found in a tree that is to be removed, individual bats will be safely evicted under the direction of a qualified bat biologist. Eviction of bats will occur at night, so that bats will have less potential for predation compared to daytime roost abandonment. Eviction will occur between 1 September and 15 October and/or between 15 February and 15 April but will not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey is not available or bats are in torpor. If feasible, one-way doors will be used to evict bats from tree roosts. If use of a one-way door is not feasible, or the exact location of the roost entrance in a tree is not known, the trees with roosts that need to be removed should first be disturbed by removal of some of the trees' limbs not containing the bats. Such disturbance will occur at dusk to allow bats to escape during the darker hours. These trees would then be removed the following day. All of these activities will be*

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performed under the supervision of the bat biologist.

- ***Bat Measure 5.*** *Although project activities that require removal of or work near a pallid bat maternity roost site would occur during the nonbreeding season, such activities may result in the removal or abandonment of such a roost site. If a roost site that is used as a maternity roost by pallid bats is removed or abandoned as a result of project activities, an alternative roost will be constructed. The design and placement of this structure will be determined by a qualified bat biologist based on the location of the original roost and the habitat conditions in the vicinity. This bat structure will be erected at least one month prior to removal of the original roost structure, or as soon as possible after a roost site is determined to have been abandoned as a result of project activities.*

- ***Bat Measure 6.*** *In some circumstances, it may be beneficial to allow roosting bats to continue using a roost while construction is occurring on or near the roost site. For example, if a tree found to contain a day roost is located near the construction area but will not be removed, a qualified bat biologist (in consultation with the CDFG) will determine whether the bats should be evicted or whether they should remain in place. If it is determined that the risks to bats from eviction (e.g., increased predation or exposure, or competition for roost sites) are greater than the risk of colony abandonment, then the bats will not be evicted.*

- ***Bat Measure 7 (recommended but optional).*** *If feasible, a survey for roosting bats will be conducted prior to the beginning of the breeding season (i.e., prior to March 1) in the year in which project activities are scheduled to occur so that adequate measures can be implemented to evict the bats during the nonbreeding season. It may be done to avoid the issues that arise from late detection of maternal roosts. This survey will include an assessment of all trees on and in the vicinity of the project for their potential use by roosting bats. Any such trees that are identified by a qualified bat biologist as being high-potential roost sites will be surveyed more intensively. The survey should be conducted by a qualified bat biologist (i.e., a biologist holding a CDFG collection permit and a Memorandum of Understanding with CDFG allowing the biologist to handle and collect bats). If suitable roost sites are found but a visual survey is not adequate to determine presence or absence of bats (which would be particularly likely in the case of potential roost trees), acoustical equipment will be used to determine occupancy. This measure is not mandatory, as an additional pre-construction survey and other measures will be performed as described below. However, implementing this measure will allow for bat exclusion prior to the breeding season, thus minimizing the potential bat-related constraints to the timing of construction.*

Direct or Indirect Impacts to Special-Status Plants

There is potential for 7 species of special-status plants to occur within or adjacent to

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the project boundaries. The project site has already been cleared for one late-summer blooming species, Santa Cruz tarplant, based on protocol level surveys conducted by H. T. Harvey & Associates in 2008. The remaining (spring blooming) species identified as being potentially present on-site include the state endangered species San Francisco popcorn-flower, the state rare species Dudley's lousewort, and the CNPS list 1B species bent fiddleneck, Ben Lomond buckwheat, marsh microseris, and San Francisco campion. Effects could occur directly by grading, placement/disposal of excavated sediment, vegetation removal or trampling, or other project-related disturbance. Impacts could also occur indirectly by increased siltation, erosion, or exposure. The following measures are proposed by the applicant and would reduce potential impacts to special-status plants to a less than significant level.

- ***Plant Measure 1: Conduct Protocol-level Surveys.*** *Protocol-level surveys for the remaining six spring-blooming plants identified above will be conducted by a qualified plant ecologist during appropriate blooming periods to determine whether any populations of these species occur within or adjacent to impact areas and could be potentially affected. The protocol described in the Botanical Survey Methods Section will be followed, using a minimum of three surveys of impact areas in spring of 2009 (March, April, and June) to assess presence or absence of these remaining six species.*

- ***Plant Measure 2 (Recommended but Optional): Avoid Impacts to Special-status Plant Populations and Observe an Adequate Buffer Zone.*** *If surveys determine that any populations of the species listed above occur within or adjacent to the impact areas, the applicant will redesign the project in consultation with a qualified plant ecologist to avoid and minimize impacts to the population. Simply avoiding direct impacts to the population may not be sufficient to prevent adverse effects to the population if an adequate buffer (minimum 15 ft) of non-impacted habitat is not also protected. Buffer zones will help protect these sensitive plants from the effects of erosion, root disturbance, loss of associate species, and new weed infestations. An appropriate buffer width will be determined by the qualified plant ecologist after consideration of species biology, population size, and regional importance of the population, but should be no less than 15 ft.*

- ***Plant Measure 3: Enhance and Preserve Habitat for Affected Species.*** *If Mitigation Measure 4b above is not feasible, the project applicant shall provide mitigation through preservation of off-site habitat or management of nearby, existing populations, should any exist. If no existing populations are available for the compensatory mitigation, the applicant shall mitigate for impacts to habitat capable of supporting the above-named species. In this case, similar, existing, offsite, riparian, sandhills, wetland, open woodland, or grassland habitat shall be preserved in perpetuity at a 3:1 mitigation ratio (3 acres preserved for each acre impacted). The preserved habitat shall be of similar habitat quality and provide similar edaphic conditions to the impacted areas in terms of soil texture, extent*

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of disturbance, vegetation structure, and dominant species composition, as determined by a qualified plant ecologist. The applicant shall work with appropriate agencies such as CDFG to identify appropriate nearby mitigation lands and ensure their permanent protection through an appropriate mechanism, such as a conservation easement or fee title purchase. A conservation easement could be held by CDFG, USFWS, or an approved land management entity, and shall be recorded within a time frame agreed upon by CDFG or USFWS. Alternatively, if a sandhills-adapted rare plant species will be impacted, mitigation credits may be purchased at the Zayante Sandhills Conservation Bank with approval from the County Board of Supervisors.

2.	Have an adverse effect on a sensitive biotic community (riparian corridor), wetland, native grassland, special forests, intertidal zone, etc.)?	____	____	X	____

Four biotic habitats are found within the project site: California annual grassland, coast live oak mixed riparian forest, wetlands, and aquatic. These habitats are described in detail below, and their distribution within the project site is shown in Figure 2 of the HT Harvey Report. This report has been reviewed and accepted by the Planning Department Environmental Section (Attachments 8 and 9). Recommended measures to reduce impacts to less than significant have been incorporated into the project proposal.

Impacts to California Grassland Habitat

Permanent impacts will occur to approximately up to 2.14 ac of California annual grassland as a result of fill deposition activities. A further 0.13 ac of temporary impacts will occur as a result of increased use of the existing unimproved roads leading from the dredging site, south to Derrick Lane, and north again to the deposition site (Figure 2, also see 95% plan set, sheet C1). The area where fill will be deposited has already been disturbed by previous fill deposit activities from other (upland) construction activities, mowing, and grazing, and therefore does not represent high-quality habitat. Additionally, the California annual grassland habitat type is very common on both a local and regional scale. Eventually, natural re-colonization of the grassy vegetation will occur in the areas where fill has been deposited, although it may be of a slightly different suite of species due to differences in soil texture between the deposited fill and the underlying native loams. However, the existing species mix is dominated by non-natives and the area is already impacted by fill deposition; thus, these impacts are expected to be less than significant and require no mitigation.

Impacts to Riparian Habitat

Mixed riparian forest habitat occurs within and adjacent to the construction area both around the pond perimeter and immediately downstream of the pond levee and associated culvert outlets to Quail Hollow Brook. The project proposes to install a permanent access road into the pond, excavate recently deposited sediments from the

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Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

pond side slopes, and install a new culvert through the south side of the pond dam. These construction activities will impact riparian habitat. The project has been carefully designed, in collaboration with H. T. Harvey & Associates restoration ecologists and arborist, to avoid and minimize riparian habitat impacts to the maximum extent practicable. Approximately 1928 ft2 of high-quality, riparian habitat will be permanently impacted by these activities. Sheet L3 of the Landscape Plans shows the approximate location of the trees to be impacted (H. T. Harvey & Associates 2008).

Temporary impacts will occur to approximately 0.06 ac of riparian habitat as a result of grading to access the headwall reconstruction area, to replace the existing headwall, install gabions or large rock protection in the channel bottom downstream of the headwall, and to grade into the pond dam to create an emergency overflow path. The impacts will involve trimming of understory riparian vegetation and removal of herbaceous vegetation on the downstream dam slope to reconstruct a stable fill slope, upslope of the new headwall. These impacts will, however, result in an improvement to existing conditions. This is because there is presently no existing emergency overflow, so that large flood events (>10 year event) currently overtop the dam when the culvert flow capacity is exceeded. In addition, the channel bottom is incised for approximately 10 ft downstream of the headwall/culvert outlet. These conditions if left untreated, could destabilize the dam and lead to a catastrophic blowout of the pond, which would have substantial undesirable biological impacts for downstream habitats. Implementation of the following measures as proposed by the project applicant would reduce these impacts to a less-than significant level.

- ***Riparian Measure 1. Re-establish Soil Conditions if Compacted.*** *A restoration ecologist will inspect the graded slopes within the riparian corridor around the headwall and dam for soil compaction. Compaction will be reduced in the upper 6 inches of soil in this zone by tilling and incorporation of composted organic matter, if warranted and as directed by the restoration ecologist. The tilled surface will be lightly track-walked with the tracks oriented on contour. This will facilitate seed germination and establishment.*

- ***Riparian Measure 2. Hand-broadcast Clean Straw and a Native Seed Mixture.*** *Following project completion and light-ripping of any compacted areas if needed as per Measure 2a above, all areas impacted by ground disturbance will be seeded with a native seed mix (to be specified in the project's Riparian Habitat Mitigation and Monitoring Plan, see below). Following this, a layer of clean straw will be applied to these areas to prevent erosion and provide soil protection until germination occurs.*

- ***Riparian Measure 3. Tree Protection Fencing.*** *Tree protection fencing will be installed between existing riparian trees to be saved and the limit of construction work. The fencing will be installed with materials sufficient to visually demarcate the limit of construction access. The fencing plan is shown on Sheets L2 and L3 of the Landscape Plans (H. T. Harvey & Associates 2008).*

Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

- ***Riparian Measure 4. Construction Monitoring.*** *A biologist will monitor construction to prescribe construction techniques that minimize impacts to riparian vegetation, including avoidance of large roots to the extent feasible and techniques for pruning.*

- ***Riparian Measure 5. Riparian Habitat Restoration.*** *As noted above, 1928 sqft of high quality, riparian habitat will be permanently impacted. These impacts will be mitigated by the restoration of new riparian habitat at the ratios shown in Table 3. Therefore, at least 3918 ft2 of riparian mitigation will be required. Riparian habitat will be restored on-site at the following two locations:*

  1. *Willow riparian habitat will be restored on an existing low-elevation, floodplain adjacent to the upstream end of pond excavation. The existing floodplain at this location is suitable for willow riparian habitat restoration. This area consists of recently deposited, sparsely vegetated alluvium and is currently degraded by the presence of a single, invasive silver wattle (Acacia dealbata). The riparian mitigation in this area will entail the removal of the silver wattle and revegetation of the site with red and arroyo willow.*
  2. *Coast live oak riparian habitat will be restored to widen the existing riparian corridor along the south side of the corridor, just upstream of the pond. Sheet L5 of the Landscape Plans show the planting plans for these two mitigation areas (H. T. Harvey & Associates 2008). Riparian habitat mitigation will also include the removal of all non-native, invasive plant species (e.g., French broom) from the project site.*

A Riparian Habitat Mitigation and Monitoring Plan will be prepared by a qualified restoration ecologist during the regulatory agency permitting phase of the project and will provide the following:

1) *Brief summary of the proposed project*
2) *Summary of habitat impacts and proposed mitigation ratios, including:*
   a) *Brief description of functions and values of regulated habitats, wildlife and botanic resources in the impact area(s)*
   b) *Quantification of regulated habitat impacts*
   c) *Map showing the habitat impact locations*
   d) *Basis for proposed mitigation ratios*
3) *Description of the primary goal(s) of the mitigation*
4) *Location of mitigation site(s) and description of existing site conditions (both physical and biotic)*
5) *Mitigation design:*
   a) *Existing and proposed site hydrology*
   b) *Soil amendments and other site preparation elements as appropriate*
   c) *Conceptual planting plan*

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Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

d) Conceptual irrigation and maintenance plans

6) Monitoring plan (including final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule)

a) Remedial measures/adaptive management plan for mitigation elements that do not meet performance or final success criteria

Temporary Impacts to, and Conversion, of Wetland to Aquatic Habitat

A small surface area of low-quality wetland habitat (approximately 0.01 ac) growing along the pond perimeter will be removed during sediment removal/excavation. This wetland habitat is early successional, patchy, low-quality habitat, which has colonized the recently deposited sediments along the pond perimeter. In addition, a small portion of these impacted wetlands may be converted to aquatic habitat. The applicant had previously controlled the formation of extensive, low-quality wetlands (via manual removal) in response to increasing sediment load within the pond, in an attempt to maintain open water surface. If this management practice were to persist after the project, the project would result in a permanent loss of low-quality wetland habitat. additionally, the rate of natural wetland recolonization around the pond perimeter could be reduced, if construction equipment overly compacts the upper ~10% of the pond side slopes (approximately between elevations 375 ft and 377 ft) where the hydroperiod is suitable for wetland establishment. The implementation of the mitigation measures cited below (soil decompaction and cessation of wetland vegetation control) will ensure that wetland vegetation rapidly establishes around the pond perimeter (within 1-2 years). These measures should result in an increase in emergent wetland habitat around the pond compared to the existing condition. Therefore, implementation of the following mitigation measures will reduce wetland impacts to a less than significant level.

- ***Aquatic/wetland Measure 1. Re-establish Soil Conditions Around Pond Compacted.*** *A restoration ecologist will inspect the upper ~10% of the pond side slopes (approximately between elevation 375 ft and 377 ft) for compaction, after sediment removal excavation is completed. This constitutes a band approximately 5-10 ft wide around the pond perimeter. Compaction will be reduced in the upper 1 ft of soil in this zone by ripping/tilling, if needed and as directed by the restoration ecologist. The interior dam slope will not be ripped to preserve the integrity of the dam.*

- ***Aquatic/wetland Measure 2. Cease Wetland Vegetation Control.*** *Following project construction, the applicant will alter vegetation management regimes on-site to allow wetland vegetation to establish in a narrow band (~5-10 ft wide) around the pond perimeter approximately between elevations 375 ft and 377 ft. No further spraying, topping, or pulling of wetland vegetation is to take place in this zone.*

- ***Aquatic/wetland Measure 3. Monitor Wetland Vegetation Establishment for 3 Years.*** *A restoration ecologist will qualitatively monitor wetland vegetation*

	Significant Or *Potentially* Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

establishment around the pond perimeter, once annually, for 3 years following construction. The ecologist will characterize the species composition of establishing wetland vegetation, visually estimate percent cover, and take photographs from permanent photo-documentation points.

Impacts to Aquatic Habitat

Temporary impacts will occur to 0.38 ac of aquatic habitat on-site primarily as a result of the excavation of pond sediments. However, the proposed project will improve aquatic habitat quality by increasing depth (and therefore providing cooler water temperatures) and reducing the suspended sediment load to downstream aquatic habitat. An additional 0.03 ac of aquatic habitat will be permanently impacted (although not lost) by the construction of a permanent gravel access road into the pond and the placement of large rocks or corrosion-resistant gabion blocks in the brook channel downstream of the pond levee (see plan set sheets C2 and C3). This will also represent an improvement on the existing condition, as it will protect the channel bottom and slow water velocity exiting the culvert, thus reducing erosion downstream of the culvert outlet. No surface area of aquatic habitat will be lost due to sediment removal, as the footprint of the pond will remain constant. Therefore, impacts to aquatic habitat are less than significant and require no further mitigation.

3.	Interfere 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?	____	____	X	____
4.	Produce nighttime lighting that will illuminate animal habitats?	____	____	X	____

No new sources of light will be constructed with the proposed project.

5.	Make a significant contribution to the reduction of the number of species of plants or animals?	____	____	X	____

See B.1.

6.	Conflict with any local policies or ordinances protecting biological resources (such as the Significant Tree Protection Ordinance, SensitiveHabitat Ordinance, provisions of the Design Review ordinance protecting trees with trunk sizes of 6	____	____	X	____

EXHIBIT D

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
inch diameters or greater)?				

The project will not conflict with any local policies or ordinances.

7. Conflict with the provisions of an adopted Habitat Conservation Plan, Biotic Conservation Easement, or other approved local, regional,or state habitat conservation plan?			X	

None present on this parcel.

D. Energy and Natural Resources

Does the project have the potential to:

1. Affect or be affected by land designated as "Timber Resources" by the General Plan?			X	

The project is adjacent to land designated as Timber Resource. However, the project will not affect the resource or access to harvest the resource in the future. The timber resource may only be harvested in accordance with California Department of Forestry timber harvest rules and regulations.

2. Affect or be affected by lands currently utilized for agriculture, or designated in the General Plan for agricultural use?				X

The project site is not currently being used for agriculture and no agricultural uses are proposed for the site or surrounding vicinity.

3. Encourage activities that result in the use of large amounts of fuel, water, or energy, or use of these in a wasteful manner?				X
4. Have a substantial effect on the potential use, extraction, or depletion of a natural resource (i.e., minerals or energy resources)?				X

E. Visual Resources and Aesthetics

Does the project have the potential to:

EXHIBIT D

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Have an adverse effect on a scenic resource, including visual obstruction of that resource?				x

The project will not directly impact any public scenic resources, as designated in the County's General Plan (1994), or obstruct any public views of these visual 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?				x

The project site is not located along a County designated scenic road or within a designated scenic resource area.

3. 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 ridge line?				x

The existing visual setting is an existing pond within a large open pasture with mature trees surrounding the pond. The proposed project is designed and landscaped so as to fit into this setting.

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

The project will not increase night lighting.

5. Destroy, cover, or modify any unique geologic or physical feature?				x

There are no unique geological or physical features on or adjacent to the site that would be destroyed, covered, or modified by the project.

F. Cultural Resources

Does the project have the potential to:

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Cause an adverse change in the significance of a historical resource as defined in CEQA Guidelines 15064.5?			x	

An archaeological report was prepared by Mary Doane dated 4/30/09 states there is no evidence of potentially significant historic resources in the project area.

2. Cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines 15064.5?			x	

According to the archaeological report prepared by Mary Doan dated 4/30/09 (Attachment 7), 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?			x	

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?				x

No paleontological resource mapped on this parcel.

G. Hazards and Hazardous Materials

Does the project have the potential to:

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Create a significant hazard to the public or the environment as a result of the routine transport, storage, use, or disposal of hazardous materials, not including gasoline or other motor fuels?				X
2. 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?				X

Not on the list dated 4/23/09 from the Department of Environmental Health.

3. Create a safety hazard for people residing or working in the project area as a result of dangers from aircraft using a public or private airport located within two miles of the project site?				X
4. Expose people to electro-magnetic fields associated with electrical transmission lines?				X
5. Create a potential fire hazard?				X

The project design incorporates all applicable fire safety code requirements and will include fire protection devices as required by the local fire agency.

6. Release bio-engineered organisms or chemicals into the air outside of project buildings?				X

H. Transportation/Traffic

Does the project have the potential to:

EXHIBIT D

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				X

There will be no impact because no additional traffic will be generated.

2. Cause an increase in parking demand which cannot be accommodated by existing parking facilities?				X
3. Increase hazards to motorists, bicyclists, or pedestrians?				X
4. Exceed, either individually (the project alone) or cumulatively (the project combined with other development), a level of service standard established by the county congestion management agency for designated intersections, roads or highways?				X

There will be no impact because no additional traffic will be generated.

I. Noise

Does the project have the potential to:

1. Generate a permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

No permanent noise will be generated as part of the proposed project.

2. Expose people to noise levels in excess of standards established in the General Plan, or applicable standards of other agencies?			X	

The project site is isolated from people and the nearest roadway and/or private

EXHIBIT

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
residence is approximately 600 feet away.				
3. Generate a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	____	____	X	____

See I.2.

J. Air Quality

Does the project have the potential to: (Where available, the significance criteria established by the MBUAPCD may be relied upon to make the following determinations).

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

The North Central Coast Air Basin does not meet State standards for ozone and particulate matter (PM10). Therefore, the regional pollutants of concern that would be emitted by the project are ozone precursors (Volatile Organic Compounds [VOCs] and nitrogen oxides [NOx]), and dust. Four heavy machinery vehicles will be used to construct the proposed project for a limited amount of time, which will contribute a less than significant amount of pollutants. They will not exceed Monterey Bay Unified Air Pollution Control District (MBUAPCD) thresholds for these pollutants and therefore there will not be a significant contribution to an existing air quality violation.

2. Conflict with or obstruct implementation of an adopted air quality plan?	____	____	X	____

The project will not conflict with or obstruct implementation of the regional air quality plan. See J-1 above.

3. Expose sensitive receptors to substantial pollutant concentrations?	____	____	X	____

The project will not conflict with or obstruct implementation of the regional air quality plan. See J-1 above.

4. Create objectionable odors affecting a substantial number of people?	____	____	X	____

EXHIBIT D

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

The project will not conflict with or obstruct implementation of the regional air quality plan. See J-1 above.

K. Public Services and Utilities

Does the project have the potential to:

1.	Result in the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
	a. Fire protection?	____	____	____	X
	b. Police protection?	____	____	____	X
	c. Schools?	____	____	____	X
	d. Parks or other recreational activities?	____	____	____	X
	e. Other public facilities; including the maintenance of roads?	____	____	____	X
2.	Result in the need for construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	____	____	X	____

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.

3.	Result in the need for construction of new water or wastewater treatment facilities or expansion of existing	____	____	____	X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than *Significant* Or No Impact	Not Applicable
facilities, the construction of which could cause significant environmental effects?	____	____	____	____

The project will not result in any increase in demand or use of water nor will it produce any excess wastewater.

4. Cause a violation of wastewater treatment standards of the Regional Water Quality Control Board?	____	____	X	____

Standard best management practices will be implemented as part of the proposed project and will prevent accidental release of wastewater.

5. Create a situation in which water supplies are inadequate to serve the project or provide fire protection?	____	____	____	X

The proposed project is a pond restoration project and will have no impact on water supplies.

6. Result in inadequate access for fire protection?	____	____	____	X
7. Make a significant contribution to a cumulative reduction of landfill capacity or ability to properly dispose of refuse?	____	____	____	X
8. Result in a breach of federal, state, and local statutes and regulations related to solid waste management?	____	____	____	X

L. Land Use, Population, and Housing

Does the project have the potential to:

1. Conflict with any policy of the County adopted for the purpose of avoiding or mitigating an environmental effect?	____	____	____	X

The proposed project does not conflict with any policies adopted for the purpose of avoiding or mitigating an environmental effect.

EXHIBIT D

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
2. Conflict with any County Code regulation adopted for the purpose of avoiding or mitigating an environmental effect?	____	____	____	X

The proposed project does not conflict with any regulations adopted for the purpose of avoiding or mitigating an environmental effect.

3. Physically divide an established community?	____	____	____	X

The project will not include any element that will physically divide an established community.

4. Have a potentially significant growth inducing effect, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	____	____	____	X

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

5. Displace substantial numbers of people, or amount of existing housing, necessitating the construction of replacement housing elsewhere?	____	____	____	X

EXHIBIT D

M. Non-Local Approvals

Does the project require approval of federal, state, or regional agencies? Yes x No ____

Army Corp of Engineers
California Department of Fish and Game
Regional Water Quality Control Board

N. Mandatory Findings of Significance

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, substantially reduce the number or restrict the range of a rare or endangered plant, animal, or natural community, or eliminate important examples of the major periods of California history or prehistory? Yes ____ No x

2. Does the project have the potential to achieve short term, to the disadvantage of long term environmental goals? (A short term impact on the environment is one which occurs in a relatively brief, definitive period of time while long term impacts endure well into the future) Yes ____ No x

3. 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, and the effects of reasonably foreseeable future projects which have entered the Environmental Review stage)? Yes ____ No x

4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Yes ____ No x

EXHIBIT D

TECHNICAL REVIEW CHECKLIST

	REQUIRED	COMPLETED*	N/A
Agricultural Policy Advisory Commission (APAC) Review			X
Archaeological Review		X	
Biotic Report/Assessment		X	
Geologic Hazards Assessment (GHA)			X
Geologic Report			X
Geotechnical (Soils) Report		X	
Riparian Pre-Site		X	
Septic Lot Check			X

Other:

Attachments:

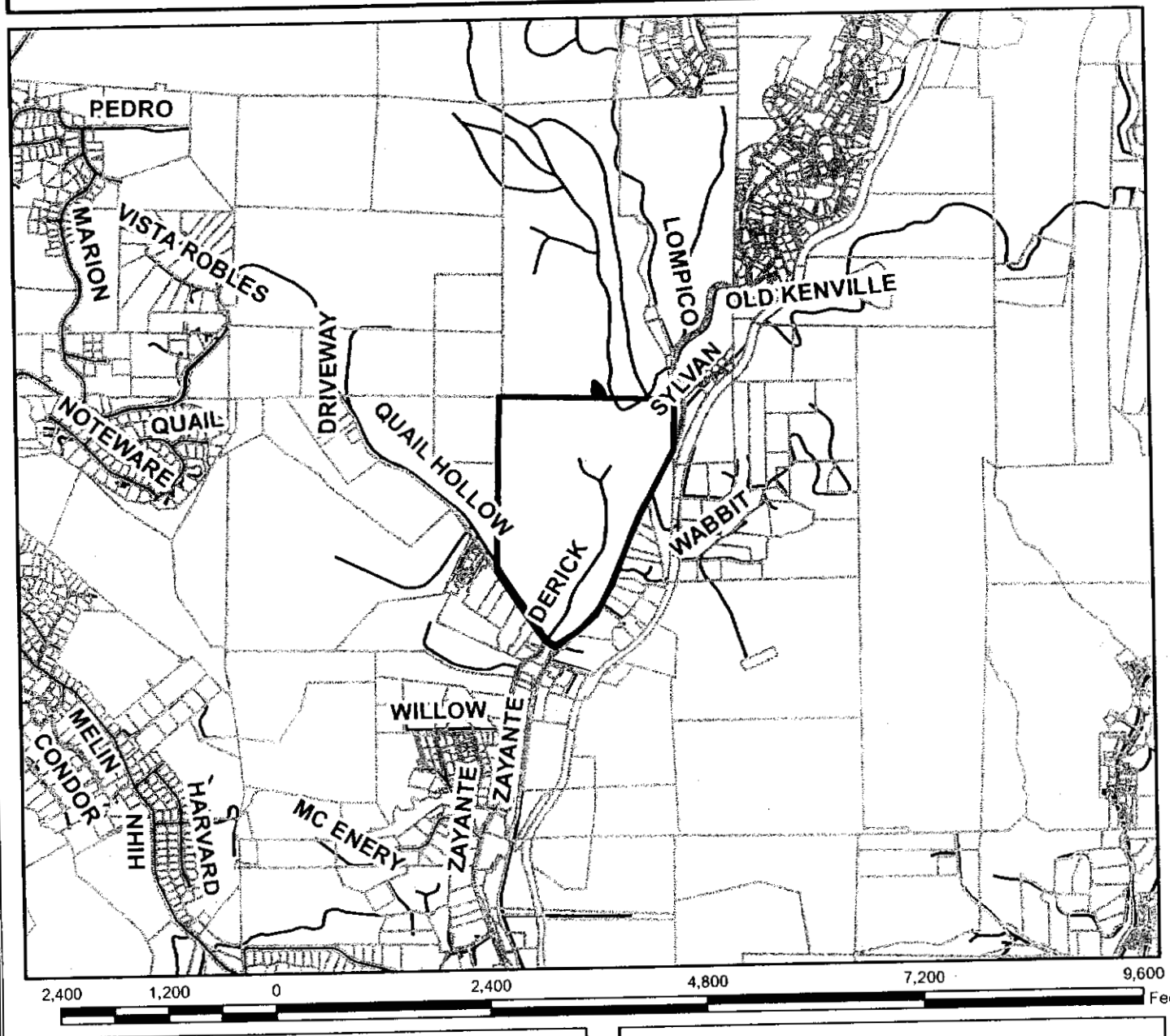
1. Project Maps
2. Civil plan sheets C1-C3, EC1, S1-S2 prepared by Ifland Engineers dated 1/26/09
3. Landscape Plans prepared by HT Harvey dated 12/16/2008, 6 sheets
4. Geotechnical Review Letter prepared by Carolyn Banti, dated March 19, 2009
5. Geotechnical Investigation (Conclusions and Recommendations) prepared by Bauldry Engineering, dated February 2009
6. Drainage calculations prepared by Ifland Engineers, dated February 2009
7. Archeological Reconnaissance Survey Letter prepared by Archaeological Consulting, dated April 30, 2009
8. Biotic Report Introduction prepared by H.T. Harvey and Associates, dated December 15, 2008, updated April 20, 2009
9. Biotic Report Review Letter prepared Matt Johnston, Environmental Planning dated March 25, 2009
10. Discretionary Application Comments, dated March 25, 2009

References on file with the County of Santa Cruz:

- Lichen Oaks Ranch Pond Restoration Project Final Biotic Study, prepared by H.T. Harvey and Associates dated December 15, 2008, updated April 20, 2009

EXHIBIT D

Location Map



LEGEND

APN: 074-181-01

Assessors Parcels

Streets

N

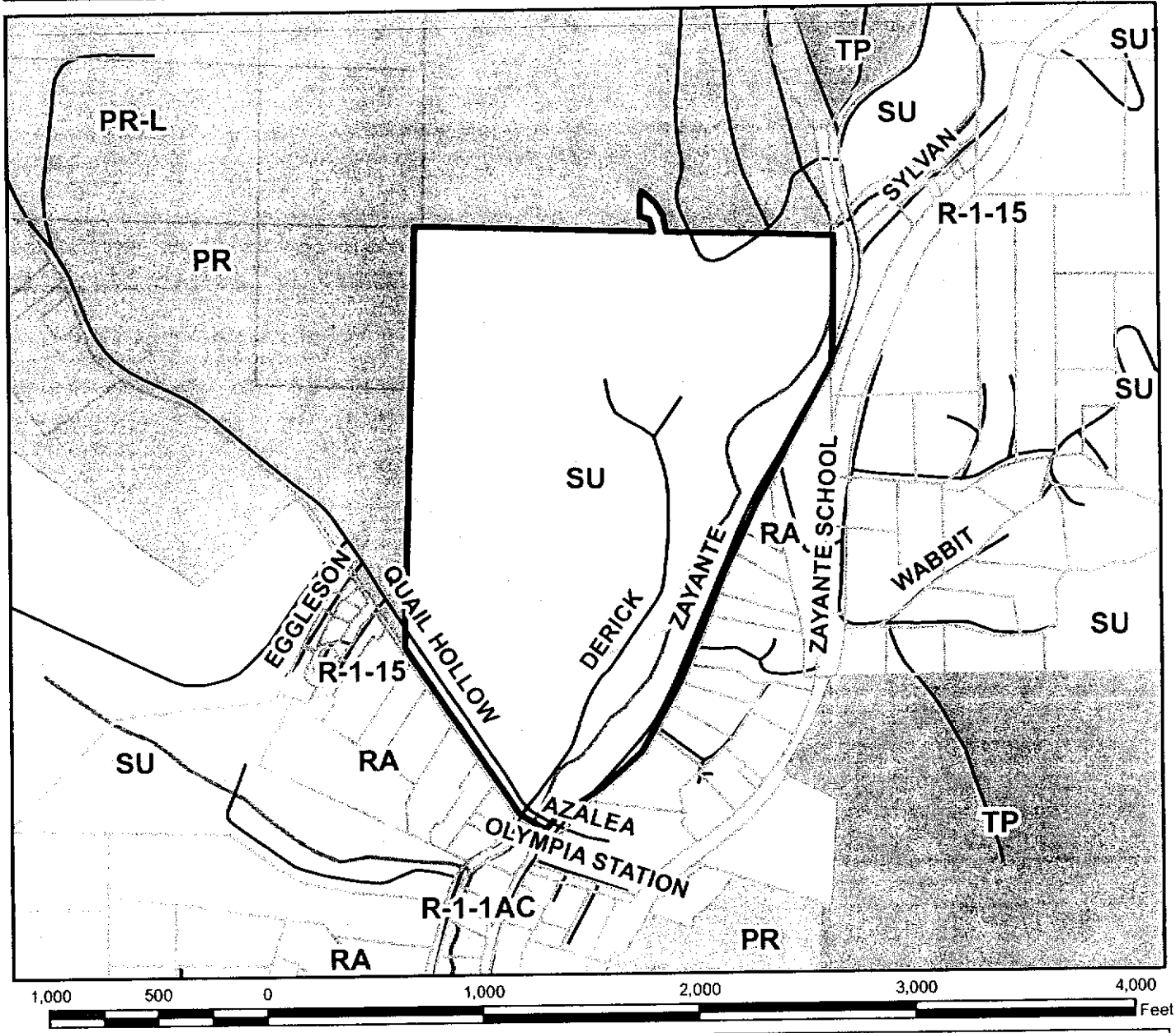
W E

S

Map Created by
County of Santa Cruz
Planning Department
September 2009

EXHIBIT

Zoning Map



LEGEND

- APN: 074-181-01
- Assessors Parcels
- Streets

STREAMTYPE

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

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Map Created by
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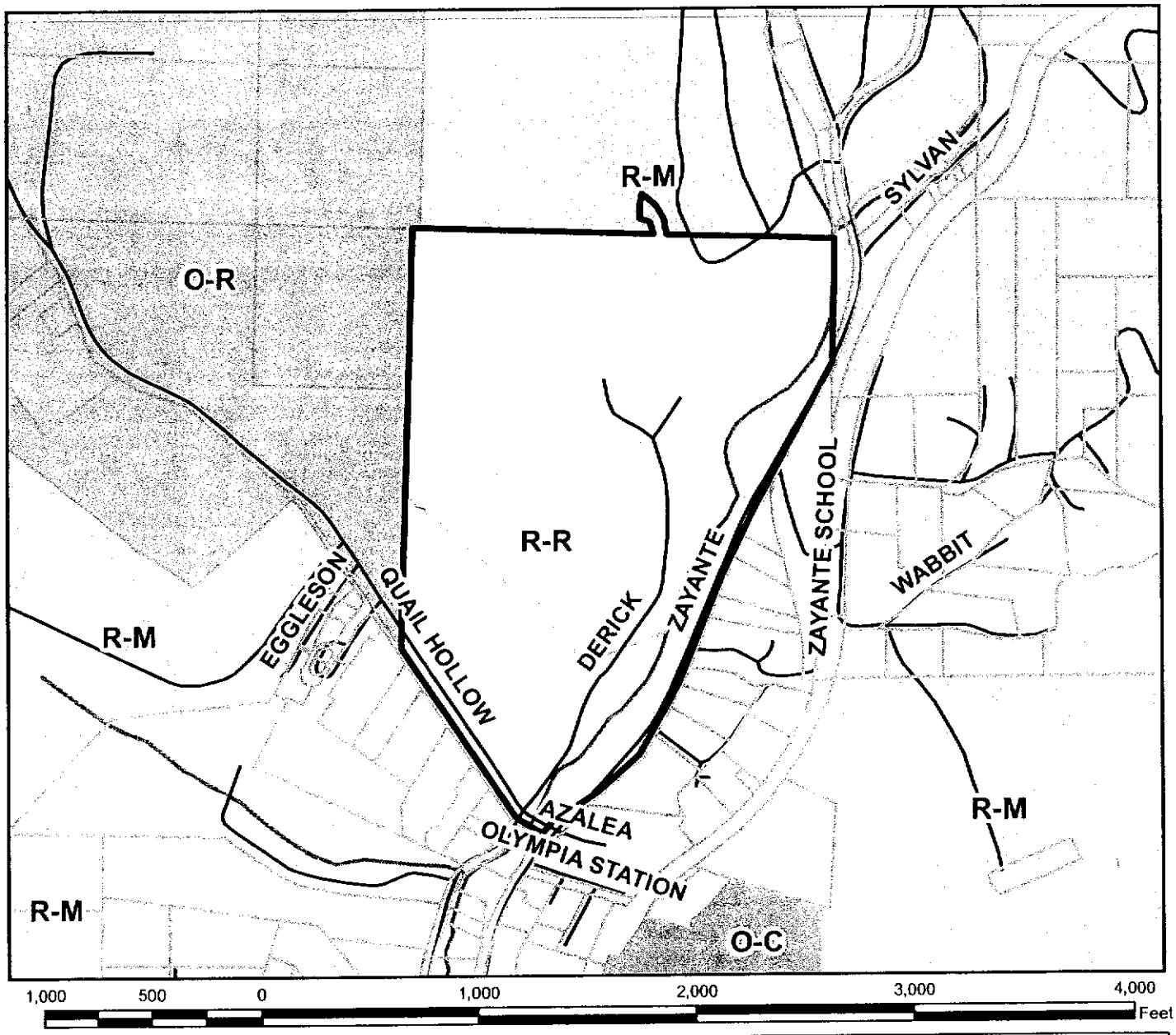
Planning Department
September 2009

EXHIBIT B

General Plan Designation Map



LEGEND

- APN: 074-181-01
- Assessors Parcels
- Streets

STREAMTYPE

- PERENNIAL
- INTERMITTENT

- Residential-Rural
- Residential-Mountain
- Parks and Recreation
- Resource Conservation

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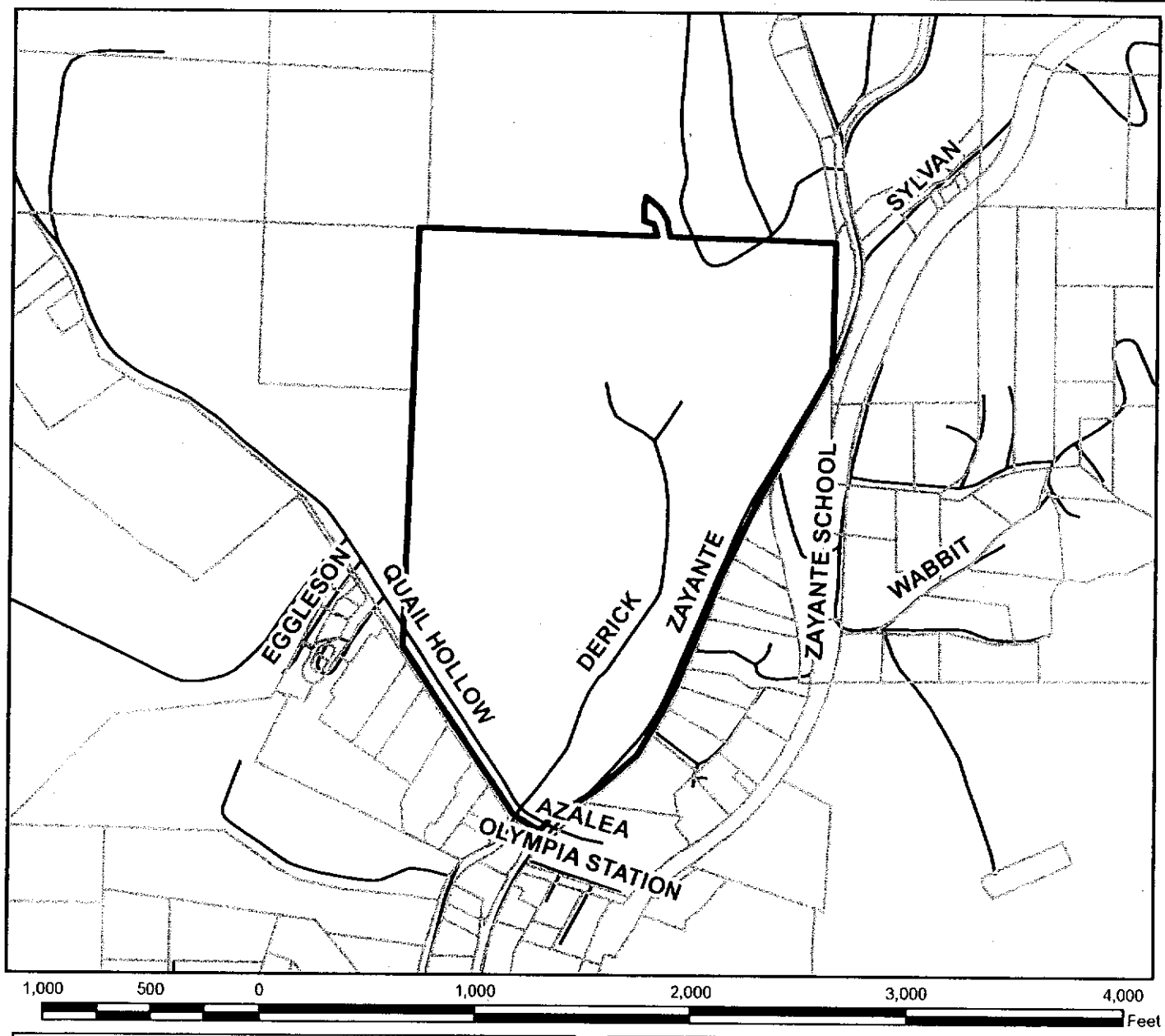
Map Created by
County of Santa Cruz
Planning Department
September 2009

EXHIBIT E

Parcel Map



LEGEND

- APN: 074-181-01
- Assessors Parcels
- Streets

N
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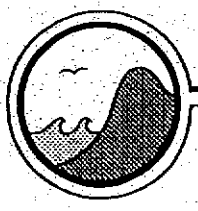
Map Created by
County of Santa Cruz
Planning Department
September 2009

EXHIBIT E

LICHEN OAKS RANCH
POND RESTORATION PROJECT
FINAL BIOTIC STUDY



H. T. HARVEY & ASSOCIATES

ECOLOGICAL CONSULTANTS

EXHIBIT F 4

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

LICHEN OAKS RANCH
POND RESTORATION PROJECT
FINAL BIOTIC STUDY

Prepared by:

H. T. Harvey & Associates

Prepared for:

Bogard Construction, Inc.
350-A Coral Street
Santa Cruz, CA 95060
Attn: Robert B. Martin

20 April 2009

Project # 867-02

EXHIBIT D

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INTRODUCTION

H. T. Harvey & Associates ecologists prepared the following Biotic Study Report in accordance with the County of Santa Cruz *Guidelines for the Preparation of Biological Reports.*

PROJECT DESCRIPTION

Applicant Information

Applicant Name: Floyd and Jean Kvamme

County Permit Number: To be determined

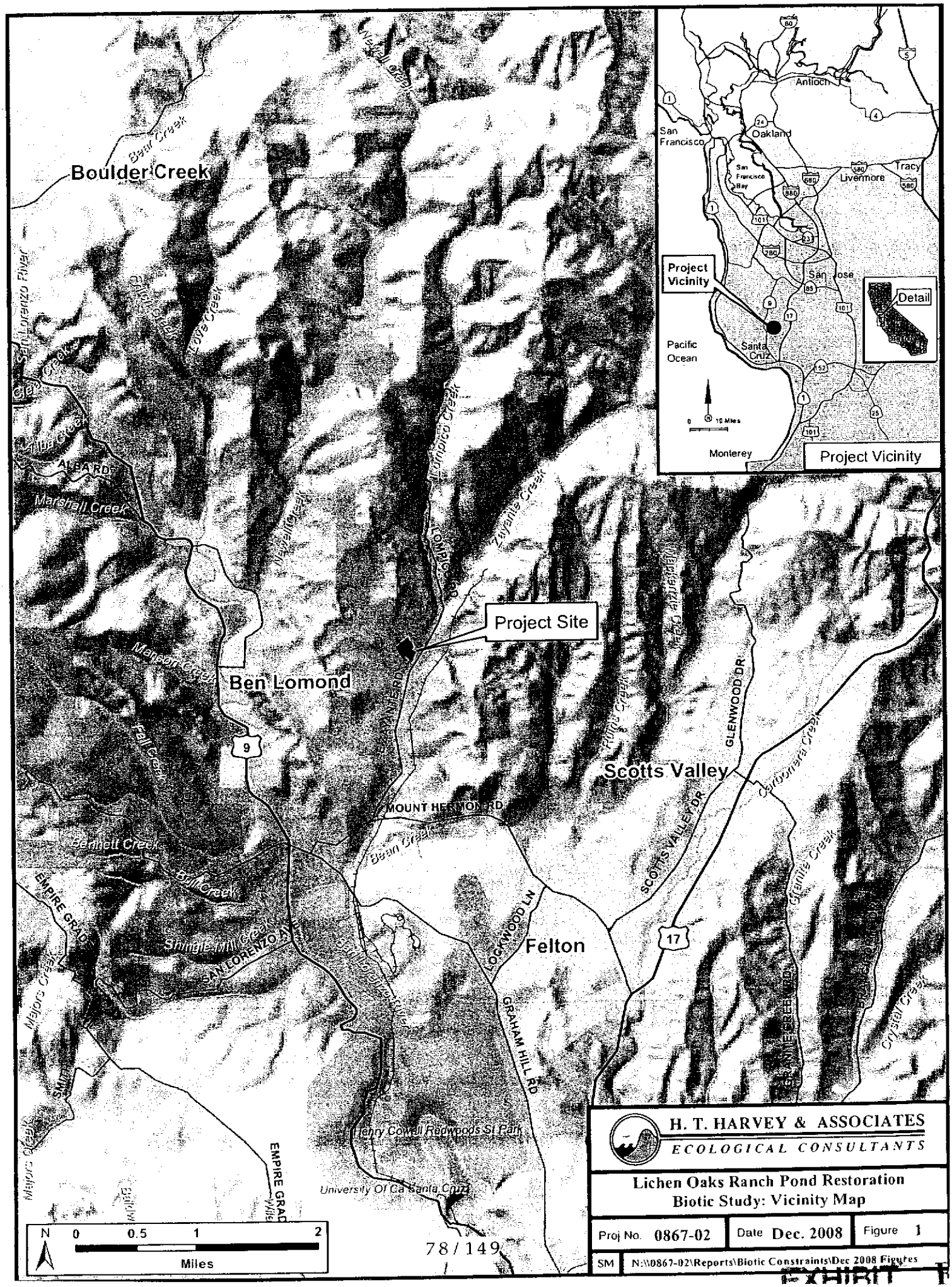
Assessors Parcel Number: 074-181-01

Location and History

The proposed Lichen Oaks Ranch Pond Restoration project site is located on the mountainous, heavily-forested western slope of the Santa Cruz Range within the San Lorenzo River watershed (Figure 1). The town of Ben Lomond is located approximately 2 miles east of the site. The site is bounded by the Quail Hollow County Park to the west, Quail Hollow Road to the south, and Zayante Creek to the east. The pond to be restored is an in-channel pond located within Quail Hollow Brook, approximately 600 ft upstream of its confluence with Zayante Creek. Quail Hollow Brook is a perennial stream. Four biotic habitats occur on the project site, including California annual grassland, coast live oak-mixed riparian forest, wetlands, and aquatic habitat.

The Quail Hollow Brook Pond was likely installed in the 1930s by building a dam across the brook (Ifland Engineers 2008). The pond has since been utilized by the ranch as a water source for irrigation and a pump is currently operated to pump water from the pond to irrigate a row of redwood trees adjacent to Quail Hollow Road. Additionally, the pond has been used by fire helicopters as a water source, with a capacity of approximately 2 million gallons. The pond was constructed with an original depth of approximately 15 ft. Water surface elevations are controlled by wooden flashboards fitted to a culvert through the dam. The pond is also fitted with a second, lower elevation culvert through the dam, with a manual gate valve. The inlet and gate valve for this culvert are located at the bottom of the pond to facilitate drainage of the pond. The outflow culverts discharge into Quail Hollow Brook just downstream of the outboard slope of the pond levee and upstream of the confluence of Quail Hollow Brook with Zayante Creek.

EXHIBIT F



H. T. HARVEY & ASSOCIATES
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Lichen Oaks Ranch Pond Restoration
Biotic Study: Vicinity Map

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A large quantity of sediment (~2700 cubic yards) has been deposited into the pond from Quail Hollow Brook since approximately 2004 (Ifland Engineers 2008). The deposited sediment is derived from a substantial creek bank failure located in Quail Hollow Brook, approximately 1800 ft upstream of the pond within the Quail Hollow County Park (Ifland Engineers 2008). Approximately 66% of the pond capacity has been lost to sediment deposition. Future creek bank erosion is likely to occur given the condition of the creek banks at the upstream bank failure site (Brian Bauldry, pers. comm. 2008). The federally-threatened steelhead (*Oncorhynchus mykiss*) and federally-endangered Coho salmon (*Oncorhynchus kisutch*) are present in Zayante Creek downstream of its confluence with Quail Hollow Brook. The pond has functioned to trap sediment from the creek bank failure site, likely protecting downstream water quality and spawning habitat in Zayante Creek. As the pond continues to fill with sediment, its capacity to detain and filter sediment from the water column will decrease. Therefore, future creek bank erosion from County Parks land will likely lead to increases in sediment transport downstream into Zayante Creek (Brian Bauldry, pers. comm. 2008). Additionally, the project engineers have determined that the culverts and culvert headwall that transfer creek flows from the pond to Quail Hollow Brook, are in poor condition and in need of repair.

Project Goals

The goal of the proposed project is to protect downstream water quality and aquatic habitat in Quail Hollow Brook and Zayante Creek by repairing the failing culverts, replacing the culvert headwall located immediately downstream of the dam, and removing pond sediment. The project includes both the initial sediment removal and the long-term maintenance removal of sediments to maintain the ponds capacity for sediment retention. These actions will greatly reduce the potential for dam failure and overtopping by floodwaters and increase the ponds' capacity to retain future sediment loads. The project will result in secondary benefits to biological resources by improving California red-legged frog habitat in the pond and protecting salmonid (i.e. steelhead and Coho salmon) habitat downstream in Zayante Creek.

Construction Methods and Timing

Initial Construction. Construction will entail the following:

- dewatering of the construction area with installation of Best Management Practices (BMPs) to protect downstream water quality
- demolition and replacement of the existing concrete culvert headwall located immediately downstream of the pond dam on Quail Hollow Brook
- repair of the leaky lower elevation culvert with a cured in place plastic lining.
- installation of a new culvert and weir to transmit the typical flows on the south side of the pond
- excavation, hauling, and on-site disposal of pond sediments.
- installation of riparian mitigation plantings
- broadcast seeding and straw installation on all disturbed soil surfaces after construction

The existing culvert and weir located on the north side of the pond and dam, will either be plugged with concrete or retained to provide additional flood flow capacity. Approximately 2700 cubic yards of sediment will be removed from the pond. The excavated sediments will be

disposed in a thin layer across a portion of the adjacent pasture (annual grasslands) located between Quail Hollow Brook and Quail Hollow Road. A permanent, gravel access road (approximately 12 ft wide) will be installed on the southwest side of the pond in close proximity to the sediment disposal area. An excavator, bulldozer, wheel loader, and dump truck will be used to conduct the excavation and sediment disposal work.

The project will employ standard BMPs to prevent the downstream transport of silt, including:

- limiting work to the dry season (15 April – 15 October)
- dewatering the pond prior to excavation
- diverting creek flow through a culvert bypass to prevent flow from contacting the construction area
- silt fencing
- erosion control seeding

The project also includes the installation of wildlife exclusion and tree protection fencing to minimize impacts to certain special-status wildlife species and riparian trees. The wildlife exclusion/tree protection fencing design is included in the projects' Landscape Plans (H. T. Harvey & Associates 2008, Sheet L2). The wildlife exclusion fence was specifically designed to avoid impacts to Mt. Hermon June beetle (*Polyphylla barbata*) habitat and to exclude California red-legged frog (*Rana draytonii*) and western pond turtle (*Clemmys marmorata*) from the work area.

Long-term Maintenance. Long-term maintenance excavation of pond sediments will be performed during the dry season with the same water quality protection BMPs as listed above. The permanent access ramp will be utilized by heavy equipment to access the pond. It is anticipated that smaller equipment such as a Bobcat/Tractor will be utilized for maintenance excavation work, since the quantities of sediment to be removed will be substantially less than the initial excavation work. Maintenance excavation will be performed when sediments accumulate to fill greater than approximately 20% of the pond capacity. The frequency of maintenance excavation is unknown, but is anticipated to be necessary once every 5-10 years.

GENERAL PROJECT AREA DESCRIPTION

The site is located on the outskirts of Felton, in Santa Cruz County, and within the 7.5-minute USGS Felton quadrangle (Figure 1). The study area for the project site occurs along Quail Hollow Brook within a grazed, grassy pasture setting in the Santa Cruz sandhills region. A densely wooded riparian canopy surrounds Quail Hollow Brook and the in-stream pond between two fenced, well-maintained pastures. The pond is located approximately 300 ft upstream of the confluence of Quail Hollow Brook and Zayante Creek. To the southeast, the site is bordered by Quail Hollow Road. A single-family residence and associated farm buildings supporting the horse ranch are situated to the north and west of the project area. The ranch itself (although not the project action area) is bordered to the west by Quail Hollow Park.

SURVEY FOCUS AND ANALYSIS

H. T. Harvey & Associates biologists conducted reconnaissance-level and focused field surveys of the site. Specifically, surveys were conducted to 1) describe existing biotic habitats; 2) assess

the site for its potential to support special-status species and their habitats; and 3) identify sensitive habitats and other resources, including riparian habitat; 4) identify potential jurisdictional habitats, including those regulated by the United States Army Corps of Engineers (USACE), and; 5) to provide the project team with biotic constraints information to facilitate the development of an environmentally sensitive design. The analysis included a review of all available background information, coupled with our field observations, to determine the suitability of the site for supporting special-status species.

SURVEY METHODS

Background Information Review

H. T. Harvey & Associates' ecologists reviewed pertinent background information prior to surveying the project site. The following is a list of the primary information sources that we reviewed:

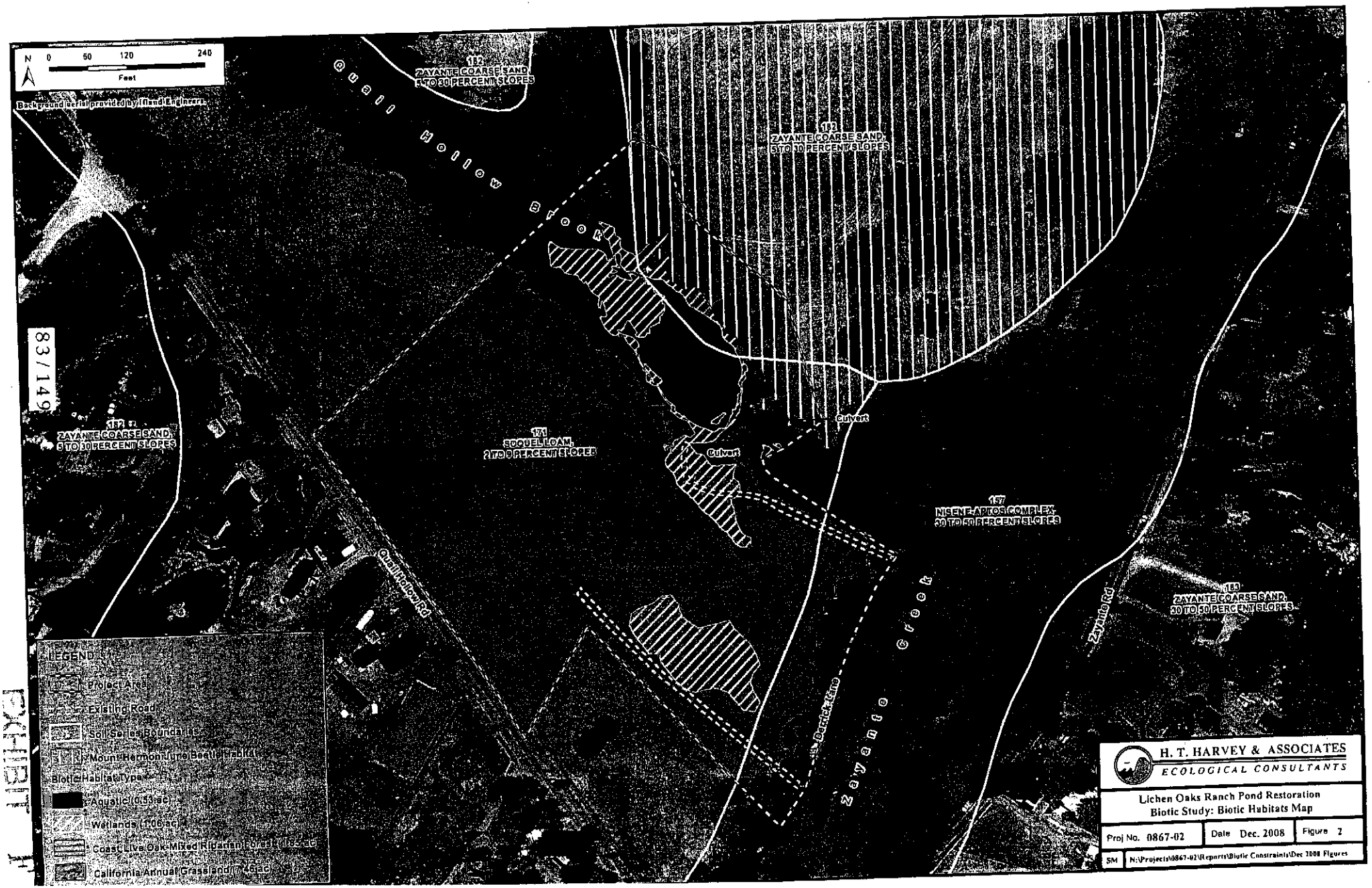
- Avian Knowledge Network (AKN 2008)
- California Wildlife Habitat Relationships species notes (CDFG 1988, 1990a, 1990b)
- Cornell Lab of Ornithology eBird data system (eBird 2008)
- National Wetland Inventory (2008)
- The California Natural Diversity Database (CNDDB 2008)
- The California Native Plant Society's (CNPS) *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2008)
- The Jepson Manual (Hickman 1993)
- Quail Hollow Biological Constraints Analysis (H. T. Harvey and Associates 1994)
- Soil Survey of Santa Cruz County, California (Soil Conservation Service 1980)

The California Natural Diversity Database (CNDDB 2008) was queried for information on the local distribution of special-status species. USGS topographic maps and aerial photographs (Google Earth, NAIP 2005) of the area were also reviewed prior to the site visit to locate habitat features on or near the site that could potentially support sensitive wildlife, and to locate potential wetlands. Additionally, soils mapping data from the Soil Conservation Service (SCS) was used to identify any soils on-site with the capacity to support special-status plants with specific edaphic requirements, and the NWI was queried to further focus efforts to locate potential wetlands (NWI 1985). H. T. Harvey & Associates' documents concerning previous surveys on and in the vicinity of the site were also consulted (H. T. Harvey & Associates 1994).

Field Surveys

Personnel, Survey Dates, and Survey Boundary. H. T. Harvey & Associates' ecologists conducted reconnaissance-level field surveys of the site on 20 August 2008. Survey personnel included senior wildlife ecologist Steve Rottenborn, Ph.D., wildlife ecologist Nellie Thorngate, M.S., and plant ecologist Kelly Hardwicke, Ph.D. Figure 2 shows the boundaries of the project area, which includes the extent of all proposed construction activities (including sediment transport routes) and a small buffer for the purpose of mapping adjacent habitats.

EXHIBIT F



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Lichen Oaks Ranch Pond Restoration
Biotic Study: Biotic Habitats Map

Proj No. 0867-02	Date Dec. 2008	Figure 2
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Focused wildlife and botanical surveys were then conducted when reconnaissance-level surveys revealed the presence of suitable habitat for special-status species on the project site. H. T. Harvey & Associates herpetologist Jeff Wilkinson, Ph.D. visited the site on 11 September 2008 to conduct focused surveys for western pond turtle nests and California red-legged frogs. Plant ecologist Kelly Hardwicke, Ph.D returned to the site on 15 and 16 September 2008 to perform focused surveys for the Santa Cruz Tarplant and to initiate surveys for a formal wetland delineation. Dr. Richard Arnold of Entomological Consulting Services conducted a focused survey for suitable Mt. Hermon June beetle and Zayante band-winged grasshopper (*Trimerotropis infantilis*) habitat on 28 October 2008. Finally, H. T. Harvey & Associates certified arborist, Susan Infalt, M.S. and restoration ecologist Max Busnardo, M.S. conducted a survey of tree impacts and mitigation requirements on 13 November 2008.

Botanical Survey Methods. Our botanical surveys followed the revised Botanical Survey Guidelines of the California Native Plant Society (June 2001) and General Rare Plant Survey Guidelines (2002). These guidelines state that "all surveys for rare plants should be conducted in accordance with the standardized guidelines issued by the regulatory agencies (U.S. Fish and Wildlife Service 1996; California Department of Fish and Game 2000)." As per the guidelines, our surveys were or will be conducted during the appropriate season and will be floristic in nature, aiming to identify any and all rare plant species on-site. The complete set of rare plant surveys for the project includes the late summer 2008 surveys (already completed) and will also require multiple site visits in the 2009 spring blooming seasons. A qualified plant ecologist walked parallel transects spaced 16 to 33 ft apart throughout the entire site during surveys in 2008, regardless of subjective habitat evaluations (i.e., even the area impacted by previous fill deposits was checked). This procedure will be repeated for spring blooming period surveys scheduled for 2009. Plants found on-site were identified using one or several of the following resources: *A California Flora and Supplement* (Munz and Keck 1968), *The Jepson Manual* (Hickman 1993), and *Plants of the San Francisco Bay Region: Mendocino to Monterey* (Biedleman and Kozloff 2003).

Wildlife Survey Methods. Prior to the site visit, the CNDDB was queried for special-status wildlife species occurring within the USGS 7.5-minute Felton Quadrangle in which the project is located and within the 8 quadrangles surrounding the project site: Santa Cruz, Davenport, Big Basin, Castle Rock Ridge, Los Gatos, Laurel, and Soquel (CNDDB 2008). Twelve special-status animal species were identified as occurring within the 5 mi of the project site, as shown in Figure 3b (CNDDB 2008). In addition, we reviewed the results of previous surveys conducted by H. T. Harvey & Associates for special-status species in the site vicinity (H.T. Harvey & Associates 1994), and queried the eBird and Avian Knowledge Network databases (eBird 2008, AKN 2008) for special-status birds occurring in the project vicinity.

A reconnaissance survey was then performed, which entailed walking the entire project area and adjacent reaches of stream above and below the pond, focusing on areas that may provide habitat for these species and for other special-status animals thought to occur in the region. During the reconnaissance survey our primary goal was to determine the suitability of habitat within the project area for special-status wildlife species; our secondary goal was to search for evidence of the presence of special-status wildlife. Focused surveys for western pond turtles, conducted by

Dr. Wilkinson, entailed walking a series of transects across the grassland adjacent to the pond searching for signs of nesting turtles, primarily old egg shells. His focused California red-legged frog surveys entailed searching the pond and areas immediately upstream and downstream using a spotlight. This survey was conducted in the early evening, as red-legged frogs are more detectable at night than during the day. At night, red-legged frogs can be detected using spotlighting by the distinct red color of their eyeshine. Dr. Arnold performed a habitat assessment survey on the project site for the endangered Mount Hermon June beetle and Zayante band-winged grasshopper. This survey entailed examining the entire project site on foot for suitable beetle and grasshopper habitats, examining soils mapping and edaphic conditions on-site, and driving through adjacent areas to view nearby habitats.

LOCAL, STATE, AND FEDERAL PERMITS AND MEMORANDA OF UNDERSTANDING

Appendix A provides a summary of the local, state and federal regulations that are relevant to this project.

SETTING

PHYSIOGRAPHIC SETTING

Natural topography on the project site is dominated by gentle hills sloping from the northeast to the confluence of Zayante Creek and Quail Hollow Brook. The ranch property rises into the western foothills of the Santa Cruz Mountains to the northeast, beyond the immediate project area. Elevations on the project site range from approximately 350 to 400 ft National Geodetic Vertical Datum (NGVD). Two main soil types underlay the project action area. Generally, areas to the north and east of Quail Hollow Brook are mapped as Zayante coarse sand, 5 to 30 percent slopes, which is a well-drained, rapidly permeable, coarse soil with moderate acidity (SCS 1980). Areas to the south of the creek are mapped as Soquel loam, 2 to 9 percent slopes, which is a finer textured, very deep, slower permeability soil type. Additionally, areas surrounding Zayante Creek to the immediate east of the project site are mapped as Nisene-Aptos Complex, 30 to 50 percent slopes, which contains both Aptos fine sandy loams and Nisene loams. Soil textures are essentially moderate to coarse across the project action area.

Average annual precipitation ranges from 30 to 48 inches per year, and average annual temperatures are between 55 and 57 degrees Fahrenheit (SCS 1980). The National Wetland Inventory (NWI) has not identified wetlands within the general vicinity of the project area except the pond itself, which is mapped as palustrine, unconsolidated bottom, permanently flooded, excavated wetlands. However, other wetlands do exist on-site that are not reported on the large-scale, aerial-based NWI mapping effort, such as seeps and wetlands within the riparian canopy of Quail Hollow Brook (see Biotic Habitats below). The NWI does recognize Quail Hollow Brook as intermittent riverine aquatic habitat with unconsolidated shores, seasonally flooded. Zayante Creek is classified in the vicinity of the proposed project as upper perennial riverine aquatic habitat with an unconsolidated bottom and permanent flooding. Again, our own assessment showed certain inconsistencies with the NWI in that as late as August and September 2008, Quail Hollow Brook was still flowing. This may indicate the brook has a more perennial, rather than intermittent, character, at least in the reach close to the confluence with Zayante Creek.

LAND USES

The project site and the land immediately adjacent to the project footprint is part of an approximately 80-acre, privately-owned working ranch that serves as a horse stabling facility. The pond, initially created in the 1930's, is currently utilized by the ranch as a water source for irrigation of planted redwood trees. Additionally, the pond has been used by fire helicopters as a water source during regional fire incidents.

Land use adjacent to the project site is primarily private homes and open space used for ranching and other activities. Public open space is located approximately 800 ft to the west of the project site, at the approximately 300-acre, Quail Hollow Ranch County Park.

EXHIBIT F

EXISTING CONDITIONS

The following section provides a description of the biotic habitats found within the project vicinity and their functions and values. The habitat descriptions are primarily based upon the California Department of Fish and Game's (CDFG) *List of California Terrestrial Natural Communities* (CNDDB 2003), and habitats are considered sensitive if they support vegetation alliances considered sensitive by CDFG's Natureserve Alliance lists (CNDDB 2007).

Vegetation

Four biotic habitats are found within the project site: California annual grassland, coast live oak-mixed riparian forest, wetlands, and aquatic. These habitats are described in detail below, and their distribution within the project site is shown in Figures 2. Table 1 provides the approximate acreage of each habitat within the project vicinity. A list of all vascular plant species observed within or adjacent to the project vicinity is provided in Appendix B.

Table 1. Existing Biotic Habitats.

Biotic Habitat	Surface Area Within Survey Area (ac)
California Annual Grassland	7.46
Coast Live Oak-Mixed Riparian Forest	1.85
Wetlands	1.06
Aquatic	0.53
Total	**10.9**

California Annual Grassland. Approximately 7.46 ac of the 10.9 ac survey area supports a mixture of annual grasses, and native and non-native herbaceous species; best termed California annual grassland (Figure 2). These areas are used for grazing pasture. The field to the south of Quail Hollow Brook has been used for fill soil storage and is mowed for hay production. Two existing, unimproved roads lead northeast toward the pond and the proposed fill disposal area on the southeast side of Quail Hollow Brook. The area slopes gently to the southwest, in a mild terrace pattern, towards Quail Hollow Brook and Zayante Creek and the associated riparian corridors. Frequent seep outlets occur where these terraces slope downwards (see "Wetlands" below). During surveys in August and September 2008, most of the grasses had lodged and been somewhat broken down by senescence and mowing activities, which occur on the order of 2-3 times per year in the southern pasture. Moderately large areas of the southern pasture were covered in bare soil due to previous fill deposition activities. In general, the soils to the south of Quail Hollow Brook are loamy and a dark grey color, while soils to the north of the brook are coarse, sandy, and lighter in color. These sandy soils support slightly more sparsely distributed grassland vegetation than was observed on the loams of the non-filled portion of the south pasture. Overall, ground cover was observed at approximately 75-90 percent vegetation and litter. The percent cover of vegetation was too dense, and these areas were not dominated with sufficient native cover to be classified as sand parkland habitat, although this habitat type occurs to the northeast in slightly more hilly areas of the ranch. Canopy height was approximately 16 inches in August and about 6-8 inches in September after mowing activities. Occasional small-

scale soil disturbances were observed but no ground squirrel or larger animal burrows were noted.

Dominants included a typical suite of several annual grassland species common to the Santa Cruz area. These included the annuals hare barley (*Hordeum murinum*), rattlesnake grass (*Briza maxima*), and wild oats (*Avena barbata*). Late summer-flowering annual herbs were also observed, such as grassland tarweed (*Hemizonia increscens),* yellowflower tarweed *(Holocarpha virgata),* and vinegarweed (*Trichostema lanceolatum*). Occasional small coyote brush (*Baccharis pilularis*) shrubs occur sporadically along fence rows and in grassy areas along the edge of the riparian corridors. Due to proximity to both the brook and creek, the moderate average rainfall experienced by this area (30-48 inches per year, SCS 1980) and from the abundance of seep outlets on-site, the grasslands have a semi-mesic character. This is evidenced by a moderate degree of grassland species within the uplands that can tolerate moist soils, such as Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), annual wild rye (*Lolium multiflorum*), and the perennial non-natives velvet grass (*Holcus lanatus*), rescuegrass (*Bromus catharticus*), and rough bluegrass (*Poa trivialis*). Around the edges of seeps, where vegetation control activities have opened up areas of bare ground, doveweed (*Eremocarpus setigerus*) occurs sparsely. In the southeast corner of the southern field, just outside the project area, a single large Ponderosa pine (*Pinus ponderosa*) occurs (Figure 2).

Coast Live Oak-Mixed Riparian Forest. Areas adjacent to Quail Hollow Brook are heavily forested with a high-quality, well-tiered riparian canopy, comprising approximately 1.85 ac within the project area (Figure 2). The riparian forest is diverse both in terms of the species it supports as well as the structure, and it is dominated by native species. In general, a thick carpet of leaf litter with some sparse grass and herb cover, mostly hairgrass (*Deschampsia* sp.) and threepetal bedstraw (*Galium trifidum*), occurs along the riparian floor. Larger perennial herbs included mugwort (*Artemisia douglasiana*) and Western lady-fern (*Athyrium felix-femina*). Natives provide a diverse, well-developed shrubby understory including poison oak (*Toxicodendron diversilobum*), Pacific blackberry (*Rubus ursinus*), whitebark raspberry (*Rubus leucodermis*), creek dogwood (*Cornus sericea*), twinberry (*Lonicera involucrata*), large individuals of giant chain fern (*Woodwardia fimbriata*), and spreading gooseberry *(Ribes divaricarum*). A lower tree canopy rises above this, supporting shorter red willows (*Salix laevigata*) and arroyo willows (*Salix lasiolepis*); as well as other shorter individual trees such as red alder (*Alnus rubra*), blue elderberry (*Sambucus mexicana*), and California buckeye (*Aesculus californicus*). The overstory is dominated by coast live oak (*Quercus agrifolia*) and Valley oak (*Quercus lobata*) occurs along the edges. Some willows are tall enough to reach overstory height as well, but the tallest overstory trees in the study area are mainly black cottonwoods (*Populus balsamifera*). Additionally, ponderosa pine trees and one pine snag are interspersed through the northwest section of the corridor .

Wetlands. Approximately 1.06 ac within the 10.9-ac study area can be classified as some type of wetland (Figure 2). Wetlands on-site are mostly perennial, fed either by hydrology from the brook (emergent, perennial forested wetlands within the canopy), a high water table around the pond rim, or perennial groundwater seeps which also support some wet meadow vegetation.

EXHIBIT F

Wetlands on-site are mostly somewhat disturbed due to ranch operations such as mowing and other vegetation control activities. However, the perennial forested wetlands within and adjacent to the creek channel north of the pond are of higher quality. Several woody and shrubby species described in the riparian section above occur along the edges of these forested wetlands. Additionally, these wetlands support willowherb (*Epilobium ciliatum*), stinging nettle (*Urtica dioecia*), and in the wettest areas, watercress (*Rorippa nasturtium-aquaticum*), and a variety of rushes (*Juncus* sp., including *Juncus mexicanus*), and sedges (*Carex* sp.). Narrowleaf bur-weed (*Sparganium angustifolium*) and cattails (*Typha occidentalis* and *Typha angustifolia*), as well as three-square (*Scirpus pungens*) occur as emergents in areas inundated with deeper water within forested areas.

Wetlands in the sunnier areas within and around the pond were more affected by vegetation removal (some emergent vegetation had been removed around the lake perimeter), rising and lowering pond levels, continuing sediment accumulation from the upstream source, and herbicide application. These areas were mostly sparsely vegetated but did support some hydrophytes such as willowherb, lady-thumb (*Polygonum persicaria*), water smartweed (*Polygonum punctatum*) common plaintain (*Plantago major*), tall flat-sedge (*Cyperus eragrostis*), and rough bluegrass. A few emergent tule (*Scirpus acutus* var. *occidentalis*) were also observed, and cattails were present in patches surrounding sediment "islands".

Perennial groundwater seeps are common on-site and occur both surrounding the pond and in the southern pasture (Figure 2). These areas have also been disturbed somewhat from vegetation removal, herbicide application, and in one area, grading to make a road at some point in the past. Dominant vegetation within the seeps included water pepper (*Polygonum hydropiperoides*), dooryard knotweed (*Polygonum arenastrum*), and toad rush (*Juncus bufonius*). These areas also supported many non-natives such as annual bluegrass (*Poa annua*), rough bluegrass, bristly ox-tongue (*Picris echioides*), bird's-foot trefoil (*Lotus corniculatus*), scarlet pimpernel (*Anagallis arvensis*), and sow-thistle (*Sonchus oleraceus*). Standing water was observed in some of the seep outlet points. The seeps become progressively less moist around the outer edges (especially in the southern pasture) until these areas grade into thickly carpeted, still-green, wet meadows supporting mostly Mexican rush, velvet grass, and rough bluegrass.

Aquatic (Freshwater). Approximately 0.53 ac of the 10.9-ac study site is covered in open water aquatic habitat, including water contained within culverts that convey brook flows through and around the pond dam (Figure 2). Vegetation is sparse and consists mainly of aquatics such as duckweed (*Lemma minor*), emergent lady-thumb, and marsh pennywort (*Hydrocotyle* sp.). Water quality is better downstream of the pond as it acts as a sort of sediment catchment basin. Downstream, flows are fast, and the water is cool and shallow. Upstream, water is slower and warmer, and shallow in many places due to sediment accumulation. The pond itself is fairly deep but murky from the sediment load, and its bottom is lined with large deposits of soft, silty, unconsolidated sediments. Downstream of the pond dam and headwall where the brook flows from the out-of-pond culverts (Figure 2), the channel bottom and lower sides consist mainly of large, degraded concrete-block riprap or exposed bedrock.

EXHIBIT F

Rare, Endangered, and Sensitive Plant Species

A review of previous studies conducted at the larger Lichen Oaks ranch site indicated that suitable habitat for at least 16 special-status plant species occurs within the ranch boundaries (H. T. Harvey & Associates 1994). On 20 August, 2008, H. T. Harvey & Associates biologists conducted an updated assessment of habitat types and quality on the current project site (which encompasses a small subset of habitats within the ranch). In preparation for the current report, an updated analysis was conducted to ensure all plants currently regarded as special-status were considered for the purposes of impact analysis. We queried the CNDDB and the CNPS *Online Inventory of Rare and Endangered Plants* (2008) to produce a list of all special-status plants (CNPS lists 1-3) known to occur within the Felton USGS 7.5-minute quadrangle or any adjacent quadrangle including the Los Gatos, Laurel, Soquel, Castle Rock Ridge, Big Basin, Davenport, and Santa Cruz quadrangles. Figure 3 shows the results of the CNDDB query within a 5-mile radius of the site. We did not query for list 4 species because the small area of impacts and extent of site disturbance indicated that any project-related disturbance to potentially-occurring list 4 species (which are considered to be plants with a limited distribution) would not likely meet CEQA guidelines for a significant adverse impact resulting in a reduced range, significant reduction (i.e. 10% of species) in individuals, or impacts otherwise sufficient to reduce the ability of the species to recover. Our updated query produced a list of 55 plants to consider; of these 48 were rejected from consideration for one of the following reasons. The results of this analysis are presented in Appendix C:

1) Lack of serpentinite or strongly alkaline soils;

2) The species is a perennial shrub that was not observed during site surveys in August and September of 2008, a time of year when the plant would have been readily identifiable;

3) Other edaphic/hydrologic conditions required for the species are not present within the impact areas on site, such as gravels, rocks, carbonate, etc. Wetlands on-site were permanently rather than seasonally inundated, and/or under a thick tree canopy. Additionally, many special-status plants in the area require inland marine sands and although this soil and habitat type does occur within the ranch boundaries, only marginal, transitional sandy areas exist within the current action area;

4) The project site occurs outside the elevation range for the species, outside the small endemic range known for the species, or the species is considered extinct from the County of Santa Cruz and nearby areas;

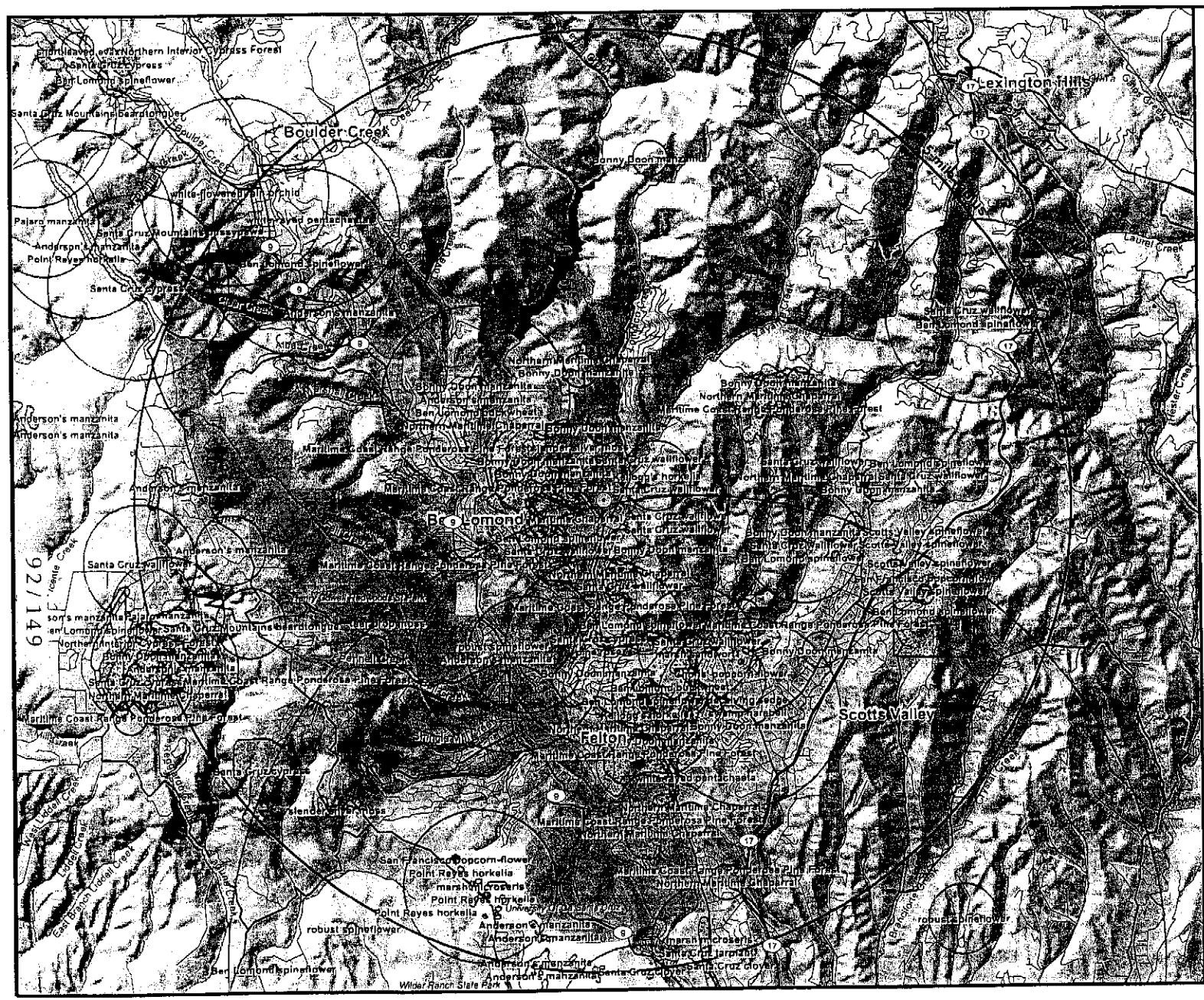
5) The species requires habitat types not found within the current action area. Many habitat types that occur within the larger ranch area are not present within the potential impact areas for the proposed pond restoration and dredge placement activities, such as sand parkland (inland marine sandhills), ponderosa pine forest, chaparral, coastal scrub, coastal prairie, and coast live oak forest; and/or

6) The available habitat for the species is highly degraded and not expected to support rare plants. This includes much of the California (non-native) annual grasslands on-

EXHIBIT F

site (which were somewhat disturbed by mowing, sediment placement, and grazing activities), as well as the pondside wetlands, which are typically disturbed by sediment accumulation from the upstream culvert failure and by ongoing vegetation removal activities.

EXHIBIT F



CNDDB Legend

Plants

- Specific Location
- Approximate Location
- General Area

Terrestrial Communities

- Approximate Location
- General Area

- Project Location

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Miles

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Lichen Oaks Ranch Pond Restoration
Biotic Study: CNDDB Plant Records

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Therefore, only seven species were not excluded from consideration using the above criteria, including: Santa Cruz tarplant (*Holocarpha macradenia*), bent-flowered fiddleneck (*Amsickia lunaris*), Ben Lomond buckwheat (*Eriogonum nudum* var. *decurrens*), marsh microseris (*Microseris paludosa*), Dudley's lousewort (*Pedicularis dudleyi*), San Francisco popcorn-flower (*Plagiobothrys diffusus*), and San Francisco campion (*Silene verecunda* ssp. *verecunda*). Survey methods for these rare species are outlined above in the Botanical Survey Methods section. One set of protocol-level surveys has been completed (for the late-summer blooming plant, Santa Cruz tarplant). A second set of surveys for the remaining plants will be conducted during a minimum of three survey visits in 2009. These seven species are listed in Table 2 and are described in greater detail below.

Santa Cruz tarplant (*Holocarpha macradenia*); Federally-listed Threatened (20 March 2000); State-listed Endangered (September 1979); CNPS List 1B.1. Santa Cruz tarplant is found on grassy coastal terraces at elevations ranging from 33 to 726 ft (CNPS 2008, Hickman 1993). Suitable habitats include coastal prairie, coastal scrub, and valley and foothill grasslands. It has a late summer-fall blooming period, with potential to bloom from June to October. This species often occurs on moderately disturbed, sandy or clay soils (CNPS 2008). However, specific microhabitat preferences for this plant are not well known and some populations described in the California Natural Diversity Database occur on loamy soils (CNDDB 2008). Santa Cruz tarplant, which is now known from only 15 occurrences, has a highly endemic range in the Santa Cruz Mountains and coastal terraces of the bay area. The only remaining native occurrences are known from Santa Cruz and Monterey Counties, and the species has been largely extirpated from Marin and Alameda Counties, and it is thought that the last remaining Bay Area population was extirpated by development in 1993 (CNPS 2008). Two extant populations in Contra Costa County are recent re-introductions; most re-introduced populations have failed (CNPS 2008). This species is severely threatened by urbanization, agriculture, and non-native plants. It also depends on appropriate ecological disturbance for persistence in an area, which may be lacking from many areas.

Twelve populations occur within the Santa Cruz area within the same or surrounding USGS 7.5-minute quadrangles as the project site. One population occurs within the immediate vicinity of the Project site east of Paradise Park (CNDDB 2008). Suitable habitat was found to be present on the Project site, primarily within the more open, grassy, sandy or loamy areas to the north and south of the pond. Areas disturbed by sediment placement do not currently represent good habitat for the species. Focused surveys performed on 20 August 2008 and again on 15 and 16 September 2008 only detected the closely related common species *Hemizonia increscens* and *Holocarpha virgata*. Therefore, Santa Cruz tarplant is assumed to be absent from the proposed pond restoration and sediment disposal site and no further surveys are necessary for the purposes of impact assessment.

This survey made the first known observation of *Hemizonia increscens* in Santa Cruz County. At the request of the County, an additional survey for this species will be conducted during its blooming period. If this species is detected, a voucher specimen will be collected and submitted to the Jepson Herbarium in Berkeley, California and the County will be notified.

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Table 2. Special-status Plant and Animal Species, Their Status, and Potential Occurrence at the Project Site.

Name	Status*	Habitat	Potential For Occurrence On Site
Federal or State Threatened or Endangered Species			
Santa Cruz Tarplant (*Holocarpha macradenia*)	FT, SE, CNPS 1B.1	Sandy or clayey grasslands in the Santa Cruz area	Absent: Habitat exists on-site but protocol-level surveys conducted in August and September 2008 failed to detect species.
Dudley's Lousewort (*Pedicularis dudleyi*)	SR, CNPS 1B.2	Found in maritime chaparral, cismontane woodlands, North Coast coniferous forests, and valley and foothill grassland habitats along the California Central Coast	Possible: The wide range of suitable habitats for this species, many of which are present or similar to habitats occurring on-site, indicate that presence of this species cannot be ruled out without protocol-level surveys.
San Francisco Popcorn-flower (*Plagiobothrys diffusus*)	ST, CNPS 1B.1	Endemic to San Francisco Bay Area, occurs in coastal prairies or mesic sites in valley and foothill grassland	Possible: This species has a small possibility of occurrence in the grassland seeps or pondside wetlands on-site.
Zayante Band-winged Grasshopper (*Trimerotropis infantilis*)	FE	Endemic to the sparsely vegetated Zayante sand hills in Santa Cruz County	Absent: No suitably open sand parkland vegetation present within impact areas. This species requires very open, sandy, ridgetop habitats (see Appendix D).
Mount Hermon (= Barbate) June Beetle (*Polyphylla barbata*)	FE	Strictly associated with the very sandy, sparsely vegetated habitat in the Zayante Sand Hills. Larvae feed on roots of woody vegetation including Ponderosa pine, oak, and manzanita	Possible: Occurs in the sand hill parklands adjacent to the study site, and is commonly associated with coarse Zayante sands such as those present in the grassland areas on the northern side of the pond within the project area (Figure 2).
Ohlone Tiger Beetle (*Cicindela ohlone*)	FE	Occurs on coastal terraces that support remnants of native grasslands, on poorly drained sand or clay soils	Absent: All poorly drained sandy areas near the pond are highly disturbed and degraded by vegetation removal activities and continuing sediment accumulation. No native grasslands present on-site. All areas with potentially suitable edaphic conditions lack the appropriate vegetation and are under a closed canopy.
Smith's Blue Butterfly (*Euphilotes enoptes smithi*)	FE	Obligate association with two species of native buckwheat: coast buckwheat and/or seacliff buckwheat	Absent: No suitable buckwheat species on site.
Tidewater Goby (*Eucyclogobius newberryi*)	FE, CSSC	Found in small coastal lagoons and the lower reaches of coastal streams, in vegetated pools of slow-moving, fresh to brackish water	Absent: Project site is outside current known distribution.
Coho Salmon – Central California Coast Evolutionarily Significant Unit (ESU) (*Oncorhynchus kisutch*)	FE	Small, clear, cool perennial streams with deep, well-shaded pools; riffles over loose, coarse, silt-free gravel for egg-laying	Unlikely: Known to occur historically in Zayante Creek and the San Lorenzo River, but intensive surveys have failed to find adult coho in the San Lorenzo watershed since the 1990s (H. T. Harvey & Associates 2003), and juveniles have not been detected since 1981, with the exception of one fry in Bean Creek in 2005 (SLVWD 2007). Not known to occur in Quail Hollow Brook below the pond, which is likely too narrow and has flow too shallow to allow coho passage except during the highest flows. The pond's dam prevents access to the pond and upstream areas. Quail Hollow Brook is not located within designated critical habitat.
Steelhead – Central California Coast Distinct Population	FT	Small, clear, cool perennial streams with deep,	Possible: Known to occur presently in Zayante Creek and the San

Name	Status*	Habitat	Potential For Occurrence On Site
Segment (DPS) (*Oncorhynchus mykiss*)		well-shaded pools; riffles over loose, coarse, silt-free gravel for egg-laying	Lorenzo River. Not known to occur in Quail Hollow Brook below the pond, which is likely too narrow and has flow too shallow to allow coho passage except during the highest flows. The pond's dam prevents access to the pond and upstream areas. Quail Hollow Brook is not located within designated critical habitat.
California Tiger Salamander (*Ambystoma californiense*)	FT, CSSC	Occurs in vernal or temporary pools in annual grasslands, or open stages of woodlands	Absent: No suitable temporary pools on site; nearest known record is 13 mi away (CNDDB 2008), so this species is not expected to use upland portions of the site.
Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*)	FE, SE	Breeds in streams, ponds or lagoons in a restricted region of northern Monterey and southern Santa Cruz counties	Absent: Project site is outside of the known range of this species.
California Red-legged Frog (*Rana draytonii*)	FT, SP, CSSC	Frequents streams, freshwater pools, and ponds with overhanging vegetation	Possible: Potential breeding and nonbreeding habitat occurs on, and upstream and downstream from, the site, though the abundance of bullfrogs would limit reproductive success. Known to occur in the project vicinity. Site not located within designated critical habitat.
American Peregrine Falcon (*Falco peregrinus anatum*)	SE, SP	Forages in many habitats; nests on cliffs and similar human-made structures	Possible: Known to occur near the project area, and may forage here occasionally, primarily during migration and winter. Does not currently breed in the project area.
Marbled Murrelet (*Brachyramphus marmoratus*)	FT, SE	Nests in old growth redwood trees near the coast	Absent: No old growth redwood forest on or near project site.
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	FT, CSSC	Nests on sandy beaches and salt pan habitats	Absent: No suitable salt pan or sandy beach habitat on site.
California Species of Special Concern and CNPS Species			
Antioch Sphecid Wasp (*Philanthus nasalis*)	CSSC	Found only in the Zayante and Ben Lomond Sand Hills area, in purely sandy soil. Adults require nectar sources for foraging.	Absent: Soils are of a transitional nature within Project boundaries and are not sufficiently sandy or otherwise do not support a suitably open vegetation layer. No known nectar species were observed.
Foothill Yellow-legged Frog (*Rana boylii*)	CSSC	Found in rocky, low- to mid-elevation streams with partial shading and gravely beds, in chaparral or open woodland habitats; prefers perennial streams, but may also be found in intermittent waters where riffles occur	Unlikely: Quail Hollow Brook provides only marginal yellow-legged frog habitat, due to the degree of sedimentation on the stream floor and the presence of bullfrogs in the watershed. Nearby Zayante Creek provides suitable habitat, but no occurrences have been recorded in the area.
Western Pond Turtle (*Clemmys marmorata*)	CSSC	Lives in permanent or nearly permanent fresh or brackish water in a variety of habitats	Present: Known to occur in the pond; may nest in adjacent upland areas, although no evidence of old nests was observed during a focused survey.
Coast Horned Lizard	CSSC	Inhabits sandy soils, usually in dry creek	Unlikely: Habitat on-site is marginal, and there are no recent

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Name	Status*	Habitat	Potential For Occurrence On Site
(*Phrynosoma coronatum frontale*)		channels or coastal dunes; grasslands and brushlands with sandy soils	records from anywhere in the site vicinity.
Golden Eagle (*Aquila chrysaetos*)	SP	Cliffs or tall trees for nesting; open grasslands, chaparral, and oak woodland for foraging	Possible: Birds have been detected in the vicinity of the project area. Limited marginal nesting and foraging habitat near the Project area, but no nest records nearby.
Bald Eagle (*Haliaeetus leucocephalus*)	SE, SP	Nests and roosts in tall trees within ~ 1 mi of a lake, reservoir, stream, or ocean	Unlikely: No records of breeding birds in Santa Cruz County; no suitable foraging habitat on site due to the small size of the pond.
Northern Harrier (*Circus cyaneus*)	CSSC	Nests in extensive marshes and wet fields, forages in marshes, grasslands, and ruderal habitats	Possible: Small patches of marginal foraging habitat within and adjacent to project site. No suitable breeding habitat in the vicinity.
Black Swift (*Cypseloides niger*)	CSSC	Nests in coastal cliffs	Absent: Project side outside of known distribution; no coastal cliffs in the vicinity.
Long-eared Owl (*Asio otis*)	CSSC	Nests in woodlands adjacent to open grasslands or shrublands. Require dense cover around nesting substrate	Unlikely: No suitable nesting habitat on the project site. May occasionally occur nearby where mixed hardwood forests and riparian woodlands provide suitable cover for nesting, or as a nonbreeding forager.
Western Burrowing Owl (*Athene cunicularia hypugea*)	CSSC	Breeds in flat grasslands and ruderal habitats where ground squirrel or other mammal burrows are available to provide nesting cavities	Unlikely: No suitable burrows (e.g., California ground squirrel burrows) were observed on the project site. No known nesting in project vicinity. Very low probability of occurrence as a non-breeding visitor in grasslands.
Vaux's Swift (*Chaetura vauxi*)	CSSC (nesting)	Strongly associated with redwood forests. Nests in cavities in a variety of tree species, as long as suitably large cavities are available	Present: Nonbreeding birds observed foraging over project site. No breeding habitat available in project area. Only considered a special-status species when nesting.
Olive-sided Flycatcher (*Nyctiphrynus niger*)	CSSC (nesting)	Breeds in late-successional coniferous forests with open canopies, but may also nest in mature riparian forests near coniferous habitats	Possible: Individuals may forage on or near project site. No breeding habitat on site. Only considered a special-status species when nesting.
Loggerhead Shrike (*Lanius ludovicianus*)	CSSC (nesting)	Breeds in shrublands and open woodlands with areas of grassy or bare ground. Require tall perches for hunting perches and open grassy or bare areas for foraging	Possible: Known to occur in the project vicinity during nonbreeding season, but few breeding records in the vicinity, and not expected to breed on the site. No suitable breeding habitat on project site. Only considered a special-status species when nesting.
California Yellow Warbler	CSSC	Breeds in riparian woodlands, particularly those	Possible: Occasional records in the project vicinity during

Name	Status*	Habitat	Potential For Occurrence On Site
(*Dendroica petechia brewsteri*)	(nesting)	dominated by willows and cottonwoods	migration and the breeding season. Limited breeding habitat within the project area, and suitable breeding habitat upstream and downstream of the project. Only considered a special-status species when nesting.
Yellow-breasted Chat (*Icteria virens*)	CSSC (nesting)	Nests in early successional riparian habtiats with a dense shrub layer and open canopy	Possible: Suitable nesting habitat upstream and downstream of the project area, but available data on timing of occurrence suggest that Chats only occupy the area during spring migration (eBird 2008). No breeding records in the area. Only considered a special-status species when nesting.
Tricolored Blackbird (*Agelaius tricolor*)	CSSC (nesting)	Breeds near freshwater in dense emergent vegetation	Possible: No suitable breeding habitat on site. May forage in grassland portions of the project area during the nonbreeding season. Not expected to breed in the project vicinity. Only considered a special-status species when nesting.
Pallid Bat (*Antrozous pallidus*)	CSSC	Roosts in large cavities in trees, cliffs, caves, and human structures, forages in and over a variety of habitat types.	Possible: Suitable roost trees present on project site. May forage over water or grassland within and adjacent to project site.
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	CSSC	Forages in a variety of habitats including coniferous forests and riparian woodlands; roosts primarily in caves, but may also use buildings and hollow trees	Unlikely: Some individuals could potentially roost in trees within the project site or in nearby buildings or bridges, but roost sites within and near the project area are limited.
Western Red Bat (*Lasiurus blossevillii*)	CSSC	Roosts in caves, buildings, bridges and trees; forages over open water	Possible: Has been observed in the vicinity. Suitable roosting and foraging habitat within and adjacent to the Project area.
Western Mastiff Bat (*Eumops perotis californicus*)	CSSC	Forages in a variety of habitats, including oak woodlands, ponderosa pine woodlands, and mixed coniferous forests near open meadows; roosts and breeds in rock crevices, or crevices in trees and buildings	Unlikely. Limited suitable roost sites occur adjacent to the project area. No detections noted in the project vicinity.
San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)	CSSC	Inhabits densely brushy areas in riparian, scrub, mixed hardwood, and redwood habitats, preferably near water	Present: Woodrat nests observed within riparian corridor on the project site.
American Badger	CSSC	Burrows in grasslands, forages primarily in	Unlikely: No burrows detected within project area; no detections

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Name	Status*	Habitat	Potential For Occurrence On Site
(*Taxidea taxus*)		open habitats but may occasionally forage in chaparral and riparian zones	recorded in project vicinity. Could potentially forage in the chaparral and riparian areas adjacent to the project area.
State Protected Species or CNPS Species			
Bent-flowered Fiddleneck (*Amsinckia lunaris*)	CNPS 1B.2	Cismontane woodlands, coastal bluff scrub, and valley and foothill grassland habitats	Possible: Some areas of oak woodlands and grasslands on-site may provide suitable habitat for the species, presence cannot be ruled out without protocol-level surveys.
Ben Lomond Buckwheat (*Eriogonum nudum* var. *decurrens*)	CNPS 1B.1	Sandy soils in lower montane coniferous forests, chaparral, cismontane woodland, and maritime ponderosa pine sandhill habitats	Unlikely: Potentially suitable habitat occurs in the north side of the pond, in areas mapped as Zayante Sands with sparse oak cover, such as along the riparian edge; presence cannot be ruled out without protocol-level surveys.
Marsh Microseris (*Microseris paludosa*)	CNPS 1B.2	Closed cone coniferous forests, cismontane woodland, coastal scrub, and valley and foothill grassland habitats; occurs in moist grassy openings in wooded or scrubby habitat types	Possible: Several moist grassy areas present on-site, particularly near the pond and within and surrounding the grassland seeps; presence cannot be ruled out without protocol-level surveys.
San Francisco Campion (*Silene verecunda* ssp. *verecunda*)	CNPS 1B.2	Sandy soils in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland habitats	Possible: Sandy areas, such as occur on the north side of the pond and brook, could provide suitable habitat for this species; presence cannot be ruled out without protocol-level surveys.
White-tailed Kite (*Elanus leucurus*)	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats	Likely: Likely to forage in annual grassland habitats within project area. Some breeding habitat available on and adjacent to the project site.
Ringtail (*Bassariscus astutus*)	SP	Inhabits coniferous, mixed hardwood forests, or scrub habitats where rocky outcroppings, canyons, or talus slopes are present; attracted to riparian habitat.	Possible: No suitable denning habitat on project site. May forage in the pond and in the riparian drainage above and below the project site.

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SPECIAL STATUS SPECIES CODE DESIGNATIONS

FE = Federally listed Endangered
FT = Federally listed Threatened
SE = State listed Endangered
CSSC = California Species of Special Concern
SP = State Protected Species

DEFINITIONS REGARDING POTENTIAL OCCURRENCE

Present: Species or sign of their presence observed on the site
Likely: Species or sign not observed on the site, but reasonably certain to occur on the site
Possible: Species or sign not observed on the site, but conditions suitable for occurrence
Unlikely: Species or sign not observed on the site, conditions marginal for occurrence
Absent: Species or sign not observed on the site, conditions unsuitable for occurrence

Bent-flowered fiddleneck (*Amsinckia lunaris*). Federal Listing Status: None; State Listing Status: None; CNPS List Status: 1B.2. Bent-flowered fiddleneck occurs or has been known to occur in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo counties within cismontane woodland, coastal bluff scrub, and valley and foothill grassland habitat at elevations of 10 to 1640 ft. Bent-flowered fiddleneck is an annual herb in the forget-me-not family (Boraginaceae) that blooms from March to June. It is known from fewer than 35 occurrences in the North and Central Coast Ranges and many of these have not been observed in recent years (CNPS 2008). It is threatened by development and mining.

Ben Lomond buckwheat (*Eriogonum nudum* var. *decurrens*). Federal Listing Status: None; State Listing Status: None; CNPS Listing Status: 1B.1. Ben Lomond buckwheat is a perennial herb in the buckwheat family (Polygonaceae) that blooms from June to October. This variety occurs in sandy soils in lower montane coniferous forests, chaparral, cismontane woodland, and maritime ponderosa pine sandhill habitats at an elevation range of 164 to 2625 ft. This California endemic is documented in three USGS quadrangles in Alameda, Santa Clara, and Santa Cruz counties. Threats to this variety are development and sand mining (CNPS 2008).

Marsh microseris (*Microseris paludosa*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. This perennial herb in the composite (Asteraceae) family occurs in closed cone coniferous forests, cismontane woodland, coastal scrub, and valley and foothill grassland habitats at elevations of approximately 15 - 1000 ft (CNPS 2008). This species prefers moist grassy openings in wooded or scrubby habitats, and moist grasslands (Hickman 1993, CNPS 2008). The blooming period extends from April to June, and rarely, into July. Marsh microseris is known from 23 USGS 7.5-minute quadrangles in Mendocino, Monterey, Marin, San Benito, Santa Cruz, San Luis Obispo, and Sonoma counties. It is presumed extirpated from its historic range in San Francisco and San Mateo counties. This species is similar to the more common northwestern species cut leaved scorzonella (*Microseris laciniata* spp. *leptosepala*) (CNPS 2008).

Dudley's lousewort (*Pedicularis dudleyi*). Federal Listing: None; State Listing: Rare (September 1979); CNPS List 1B.2. Dudley's lousewort is a perennial herb in the figwort family (Scrophulariaceae) that blooms from April to June. This species occurs in maritime chaparral, cismontane woodlands, North Coast coniferous forests, and valley and foothill grassland habitats along the California central coast at an elevational range of approximately 195 to 2980 ft. This species is known from fewer than 10 occurrences in six USGS 7.5-minute quadrangles in Monterey, San Luis Obispo, and San Mateo counties, and may be extirpated from its historic range in Santa Cruz County (CNPS 2008). The population from San Luis Obispo (by Arroyo de la Cruz) may represent another species as they are morphologically distinct from the northern populations. Dudley's lousewort is thought to be threatened by trampling and development.

San Francisco popcorn-flower (*Plagiobothrys diffusus*). Federal Listing Status: None; State Listing Status: Endangered (September 1979); CNPS List 1B.1. San Francisco popcorn-flower is an annual herb in the borage family (Boraginaceae) that can bloom from March to June (CNPS 2008). This coastal species occurs within moist valley and foothill grasslands and coastal

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prairies at elevations of approximately 195 to 1200 ft. It is found in seven USGS 7.5-minute quadrangles in Alameda, Santa Cruz, and San Mateo counties, and has been extirpated from its historic range in San Francisco County. San Francisco popcorn-flower appears to be declining and is now known from approximately ten occurrences. This species is threatened by development and non-native plants (CNPS 2008).

San Francisco Campion (*Silene verecunda* ssp. *verecunda*) Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. San Francisco campion is a perennial herb in the pink (Caryophyllaceae) family that occurs in nine USGS 7.5 minute quadrangles within the counties of Santa Cruz, San Francisco, San Mateo, and Sutter. It occurs in sandy soils in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland habitats at elevations of 98 to 2116 ft. San Francisco campion typically blooms from March to June, but can be found blooming as late as August. It is known from fewer than 20 occurrences and is threatened by development (CNPS 2008).

Wildlife Habitat/Observed and Likely Wildlife Species

California annual grassland. The annual grassland within and adjacent to the project area provides habitat for a number of common wildlife species. American kestrels (*Falco sparverius*) often forage for gophers and other small mammals in open grasslands. Red-winged blackbirds (*Agelaius phoeniceus*), Brewer's blackbirds (*Euphagus cyanocephalus*), and brown-headed cowbirds (*Molothrus ater*) frequently forage in open grasslands, particularly those near stabling facilities. Corvids such as western scrub-jays (*Aphelocoma californica*) and American crows (*Corvus brachyrhynchos*) regularly cache food items in open grasslands adjacent to wooded areas. Western meadowlarks (*Sturnella neglecta*) may nest in the fields within the study area. In areas where the grassland is fringed by large oaks and occasional ponderosa pines, the house finch (*Carpodacus mexicanus*), California towhee (*Pipilo crissalis*), western scrub-jay, mourning dove (*Zenaida macroura*), oak titmouse (*Baeolophus inornatus*), northern flicker (*Colaptes auratus*), and European starling (*Sturnus vulgaris*) were observed during the reconnaissance survey. Special-status birds that may occur here include the white-tailed kite (*Elanus leucurus*), which could breed in these trees and forage in the on-site grassland, and tricolored blackbird (*Agelaius tricolor*), which may use the area for foraging but is not expected to nest in the study area due to a lack of extensive marsh habitat.

Evidence of Botta's pocket gophers (*Thomomys bottae*) and broad-footed moles (*Scapanus latimanus*) was seen in the grassland area during the reconnaissance survey. California voles (*Microtus californicus*) and mule deer (*Odocoileus hemionus*) could also occur there. Pallid bats (*Antrozous pallidus*) and other bat species may roost in the larger oaks and occasional ponderosa pines where cavities or large crevices are available, and forage in or over the grasslands.

Western fence lizards (*Sceloporus occidentalis*) and southern alligator lizards (*Gerrhonotus multicarinatus*) are likely to occur near the edges of the grassland habitat where fences and shrubs are available for cover. The western pond turtle (*Actinemys pallidus*), a California species of special concern, could potentially use the grassland as nesting habitat, although no evidence of any nests was discovered during a focused survey.

The federally endangered Mount Hermon June beetle is closely associated with the Zayante coarse sand soil series (see Figure 2 for the extent of Zayante coarse sands on-site). It has also

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been observed in transitional bands between other soils types and sand-based soils, but not in loams or fine-textured soils. It does not tolerate soil saturation such as would occur in wetlands, and it is not known to occur beneath closed-canopy habitats such as riparian forests. Mount Hermon June beetles are thought to feed on the roots of ponderosa pine, oaks, monkey-flower, bracken ferns, and some scrub species. The habitat assessment by Dr. Arnold determined that suitable habitat for the species is present on the northeastern side of Quail Hollow Brook, outside the riparian corridor, where sufficiently sandy soils and appropriate host plants occur.

Coast live oak-mixed riparian forest. The coast live oak-mixed riparian forest along Quail Hollow Brook in the vicinity of the pond supports a diverse array of wildlife species. Birds observed using the riparian habitat around the pond and in the areas immediately upstream and downstream included the acorn woodpecker (*Melanerpes formicivorus*), black phoebe (*Sayornis nigricans*), chestnut-backed chickadee (*Poecile rufescens*), Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird (*Calypte anna*), and western wood-pewee (*Contopus sordidulus*). One wood duck (*Aix sponsa*) was observed at the site during the reconnaissance survey, and a wood duck nesting box was observed nailed to a tree. Violet-green swallows (*Tachycineta thalassina*) and Vaux's swifts (*Chaetura vauxi*) were observed foraging overhead, and barn swallows (*Hirundo rustica*) are likely to occur in the summer. The riparian zone upstream and downstream of the pond provides habitat for a number of riparian-associated breeding bird species including the black-headed grosbeak (*Pheucticus melanocephalus*), warbling vireo (*Vireo gilvus*), Wilson's warbler (*Wilsonia pusilla*), and yellow warbler (*Dendroica petechia*), a California species of special concern. However, the study area provides only limited habitat for such species due to the relatively limited extent of riparian habitat. Small raptors such as Cooper's hawks (*Accipiter cooperii*) could nest in the taller willows along the edge of the pond, or in the riparian zones along the stream.

The riparian habitats up- and downstream of the pond provide suitable habitat for San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*); two nests of this species were found, on either side of the upper (northwestern) end of the pond. Raccoon (*Procyon lotor*) tracks were detected along the edge of the pond. Other mammals that may use the riparian areas around the pond and adjacent stream channels include common species such as California mouse (*Peromyscus californicus*), deer mouse (*Peromyscus maniculatus*), striped skunk (*Mephitis mephitis*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), and mule deer.

California red-legged frogs (*Rana draytonii*) are known to occur in the project vicinity (CNDDB 2008), and the riparian areas around the pond and in the upstream and downstream channels provide suitable nonbreeding habitat for dispersal. The riparian habitat within and adjacent to the project area provides similarly suitable habitat for the Pacific treefrog (*Hyla regilla*), and fallen branches and logs provide cover for California newts (*Taricha torosa*).

Wetlands. Waterbirds including egrets and herons use the wetland fringes of freshwater ponds for foraging. The population of bullfrogs (*Rana catesbeiana*) in the pond provides a substantial food source for such species, and waterbird tracks were observed on one bank of the pond during the reconnaissance survey. Killdeer may forage in both the vegetated and unvegetated wetlands at the pond's edge. The lack of extensive emergent vegetation would limit the use of wetlands within the project site by mallards (*Anas platyrhynchos*) and other waterbirds which might use

pond habitats for loafing or breeding areas. Wetlands up- and downstream of the pond provide suitable breeding habitat for many riparian-associated bird species.

Emergent vegetation functions to provide cover for amphibians in and out of the water. Although such vegetation was sparse at the time of our surveys, algae within the pond provides some cover for bullfrogs, Pacific treefrogs, and California red-legged frogs. The wetlands upstream and downstream of the pond provide suitable nonbreeding habitat for frogs, and for snakes such as the Santa Cruz garter snake (*Thamnophis atratus atratus*). One Santa Cruz garter snake was observed in wetland vegetation just upstream of the pond during the reconnaissance survey.

Aquatic (Freshwater). The existing pond provides suitable breeding and nonbreeding aquatic habitat for the native California red-legged frog and Pacific treefrog, as well as the non-native bullfrog; individuals of the latter two species were observed in the pond during the reconnaissance survey. The high numbers of bullfrogs using the pond suggests that breeding success by California red-legged frogs (the larvae of which are preyed upon by bullfrogs) would be low, and no red-legged frogs were seen during the focused survey. However, red-legged frogs could occur in the pond, particularly considering potential breeding habitats available upstream and downstream. The pond provides suitable habitat for western pond turtle, and several turtles have been seen using the pond according to ranch manager Roger Ross. The pond also provides suitable aquatic habitat for the western toad (*Bufo boreas*) and Santa Cruz garter snake.

Central California Coast steelhead (*Oncorhynchus mykiss*) are known to occur in Zayante Creek, which is fed by Quail Hollow Brook, and Central California Coast Coho salmon (*Oncorhynchus kisutch*) may occur in Zayante Creek as well. Neither species is expected to occur in Quail Hollow Brook upstream as far as the pond due to its narrow, low-flow conditions, and the pond would prevent these species from accessing areas farther upstream even during high flows. Currently the pond is acting as a sediment trap, catching silt coming into the drainage as a result of the upstream bank failure and preventing it from making its way down into Zayante Creek and the San Lorenzo River, thus protecting salmon and steelhead breeding habitat. The proposed dredging and continual maintenance of the pond would extend that protection into the future. If the pond is not dredged it will eventually fill in, releasing sediment into coho and steelhead habitat.

Rare, Endangered, and Sensitive Wildlife Species

A number of special-status wildlife species are known to occur in the project vicinity; the legal status and likelihood of occurrence of these species is presented in Table 2. The following special-status animal species were judged to be absent because the site is outside of known distributions, the habitat at the site is not suitable, or recent records are lacking in the site vicinity: Zayante band-winged grasshopper (*Trimerotropis infantilis*), Ohlone tiger beetle (*Cicindela ohlone*), Smith's blue butterfly (*Euphilotes enoptes smithi*), Antioch sphecid wasp (*Philanthus nasalis*), tidewater goby (*Eucyclogobius newberryi*), California tiger salamander (*Ambystoma californiense*), Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), foothill yellow-legged frog (*Rana boylii*), California horned lizard (*Phrynosoma coronatum*), bald eagle (*Haliaeetus leucocephalus*), marbled murrelet (*Brachyramphus*

marmoratus), western snowy plover (*Charadrius alexandrinus nivosus*), black swift (*Cypseloides niger*), and San Francisco common yellowthroat (*Geothlypis trichas sinuosa*). Many special-status species may occur on the site rarely, or only as occasional foragers, but are not expected to occur in any numbers or to breed on the site, and would not be affected by project implementation. These species include golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus anatum*), northern harrier (*Circus cyaneus*), long-eared owl (*Asio otis*), western burrowing owl (*Athene cunicularia hypugea*), Vaux's swift (*Chaetura vauxi*), olive-sided flycatcher (*Contopus cooperi*), yellow-breasted chat (*Icteria virens*), tricolored blackbird (*Agelaius tricolor*), loggerhead shrike (*Lanius ludovicianus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), American badger (*Taxidea taxus*), and ringtail (*Bassariscus astutus*).

Several special-status species could regularly occur or are known to occur on the site and may breed there; expanded discussions of those species follow.

California red-legged frog (*Rana draytonii*); Federal Status: Threatened; State Status: Special Concern. The California red-legged frog is a denizen of perennial freshwater pools, streams and ponds throughout the central California coast ranges and in isolated pockets on the western slope of the Sierra Nevada (Fellers 2005). Loss of riparian, wetland, and aquatic habitat, pesticides, and aquatic predators including the bullfrog and non-native fish have contributed to precipitous declines in red-legged frog populations throughout their range (Davidson et al. 2001, Doubledee et al. 2004, Fellers 2005). During the breeding season red-legged frogs require deep perennial pools (at least 2 ft deep), preferably with emergent vegetation for attaching egg clusters (Fellers 2005) and shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994). Nonbreeding frogs may be found adjacent to streams and ponds in grasslands and woodlands, and may travel up to 2 mi from their breeding locations, across a variety of upland habitats, to suitable nonbreeding habitats (Bulger et al. 2003, Fellers and Kleeman 2007). Critical habitat has been designated for the California red-legged frog, and the USFWS has recently proposed revised critical habitat boundaries; the project site does not fall within the established or proposed critical habitat (USFWS 2008).

The Lichen Oaks pond provides ostensibly suitable breeding habitat for California red-legged frogs due to its depth and the presence of some emergent vegetation and other objects, such as woody debris, to which egg masses could be attached. However, the abundance of bullfrogs indicates that predation pressure in the pond would be high, particularly for larvae and juveniles, and the periodic removal of emergent vegetation by the owner reduces habitat quality by reducing cover and egg mass attachment sites. No red-legged frogs were found during a focused survey conducted on 11 September 2008, and it is unlikely that an established breeding population occurs here. However, red-legged frogs have been detected as close as Bull Creek, which is located approximately 2.5 mi from the project site (CNDDB 2008), and suitable aquatic breeding and nonbreeding habitat are present both upstream and downstream of the pond. Therefore, red-legged frogs could potentially attempt breeding in the pond, could use it as non-breeding aquatic habitat, or could occur in the project area during dispersal.

Mount Hermon June beetle (*Polyphylla barbata*); Federal Status: Endangered; State Status: None. The Mount Hermon June Beetle is a small scarab endemic to the sparsely

EXHIBIT F

vegetated Zayante Sand Hills in Santa Cruz County, California (i.e., roughly analogous to areas in this region of Santa Cruz County also termed sand parkland [H. T. Harvey & Associates 1994], inland marine sands [CNPS 2008], or Maritime Coast Range Ponderosa Pine Forest

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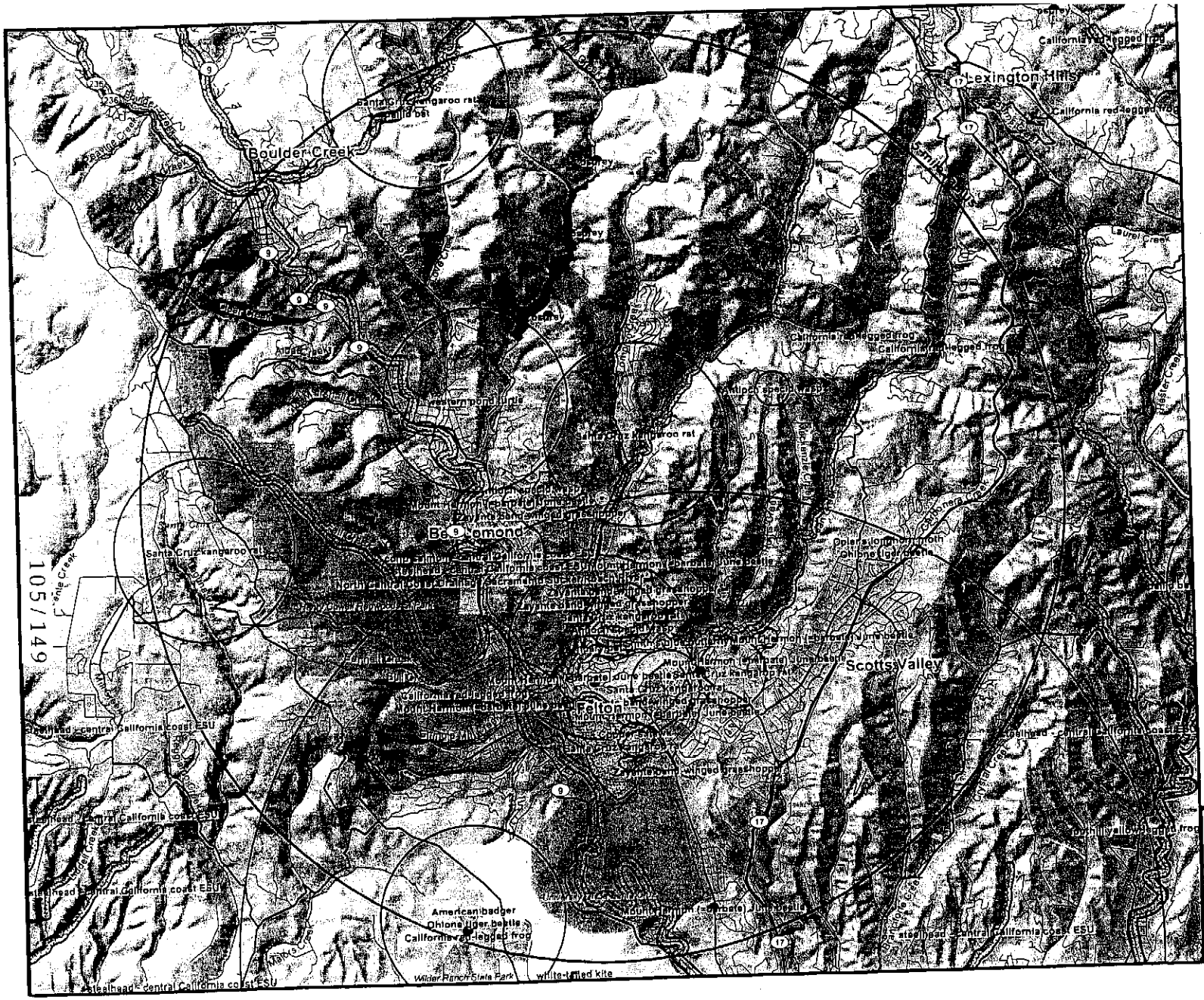

CNDDB Legend

Animals

- Specific Location
- Approximate Location
- General Area
- Aquatic Species
- Project Location

N

0 1 2

Miles

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

Lichen Oaks Ranch Pond Restoration
Biotic Study: CNDDB Animal Records

Proj No. 0867-02	Date Dec. 2008	Figure 4
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[CNDDB 2008, Figure 3]). The Zayante Sand Hills ecosystem, rapidly disappearing as a result of land conversion and sand mining, is characterized by loose, dry, sandy soil, and a plant community dominated by "sand specialty" flora (McGraw 2004). Mount Hermon June beetles spend most of their lives underground, foraging on the roots of woody plants. They are closely associated with silverleaf manzanita (*Arctostaphylos silvicola*) and ponderosa pine, but may also be found at the roots of oaks, ferns, and other vegetation (Arnold 2004). The larvae are entirely subterranean; adult females come above ground during the breeding season, but do not fly. Adult males become mobile for several weeks in the summer, when they fly in search of females that have emerged from their burrows (Arnold 2004). After mating, females lay their eggs on the roots of suitable tree species. Critical habitat has not been designated for this species.

Mount Hermon June beetles have been detected within 1 mi of the project site, in Quail Hollow Park (Figure 3). Dr. Richard Arnold's habitat assessment for the Mt. Hermon June beetle, which is presented in Appendix D, determined that the Lichen Oaks Pond Restoration site offers at least marginal habitat for the Mount Hermon June beetle due to the coarseness of the soils along the northeastern side of the brook and pond. Suitable habitat for this species is shown on Figure 2. As the beetle's host plant requirements and degree of specialization are not well understood, the best predictive feature of suitable habitat in this area is soil texture. Areas to the south and west of the centerline of the brook and pond are underlain with a loamy soil type (Soquel loam, Figure 2) and are not expected to support subterranean beetle populations. Areas to the north and east of the centerline of the brook and pond are underlain with Zayante sands, which are likely to support the beetle. Additionally, areas to the north of the brook mapped as Soquel loams actually support transitional soils with observed field textures in between Soquel loams and Zayante sands. These areas are suitably coarse and could also support beetle populations (Figure 2). The north side of the levee at the southeast end of the pond is also considered suitable beetle habitat, because although it is disturbed and compacted, it is primarily comprised of sands. However, because the beetles do not tolerate inundation and are not known from riparian habitats, any areas within wetland or riparian habitats or below top-of-bank of the brook are not considered suitable (Appendix D).

Coho salmon (*Oncorhynchus kisutch*) (Central California Coast ESU); Federal Status: Endangered; State Status: Endangered. The Coho salmon ranges from Alaska in the north to central coastal California in the south. The Central Coastal California ESU of the Coho salmon is concentrated in coastal watersheds between Punta Gorda in Humbolt County and the San Lorenzo River in Santa Cruz County (Spence et al 2005). Gravel mining, poor logging practices, urbanization, and other sources of streambed alteration have significantly reduced habitat for coho salmon; reduction in habitat combined with reduced genetic diversity, introduced diseases, overharvesting, and climate change have severely impacted coho salmon populations (Brown et al. 1994). Coho are anadromous, meaning that they spend only a portion of their annual cycle in the marine environment, swimming up coastal freshwater streams to spawn. Coho salmon spawn in cool, clear, freshwater streams and rivers with oceanic outlets. Forested streams provide the highest-quality habitat. Coho deposit eggs at the head of riffles with plentiful medium to small, clean gravel (Moyle 2002). Juveniles seek out cool, deep (> 3 ft) water with substantial overhead cover and instream cover such as woody debris (Moyle 2002). Critical habitat has been designated for this species by the National Marine Fisheries Service (NMFS 2000). The project site is not located within designated critical habitat.

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Central California Coast coho salmon were historically present in Zayante Creek, into which Quail Hollow Brook flows, and the San Lorenzo River, which is fed by Zayante Creek (Spence et al. 2005). However, habitat quality in the San Lorenzo River and its tributaries has declined in recent decades (SLVWD 2007), and intensive annual sampling for salmonids throughout the watershed has resulted in capture of only a few individuals. Several juvenile coho salmon were captured and released in Bean Creek (a tributary of Zayante Creek to the south of Quail Hollow Brook) in 2005; previous to that, the last juvenile coho found in the watershed was in 1981 (SLVWD 2007). The last adult to be discovered in the San Lorenzo watershed was found in the 1990s (H. T. Harvey & Associates 2003). Currently San Vincente Creek, Scott Creek, and Waddell Creek are the only drainages in Santa Cruz County that support viable coho populations (County of Santa Cruz 2004, SLVWD 2007). Both Zayante Creek and the San Lorenzo River still feature some areas of clean gravels that would be suitable for spawning coho (SLVWD 2007), and if the Lichen Oaks pond is not dredged and fills with sediment (e.g., from a large, recent upstream slide), those conditions could be degraded by an influx of sediment from Quail Hollow Brook. It is possible that coho could access the reach of Quail Hollow Brook just downstream of the pond during very high flows, but there is a low probability that this species would occur in the shallow, narrow channel, and there are no gravels suitable for spawning in this reach. In short, there is a very low probability that the species is present in Quail Hollow Brook below the pond. Fish would not be able to move into or past the Quail Hollow pond to move farther upstream, as the channel is completely blocked by the dam maintaining the pond.

Steelhead (*Oncorhynchus mykiss*) (Central California Coast DPS); Federal Status: Threatened; State Status: Species of Special Concern. Steelhead, the anadromous form of rainbow trout, occurs in most free-flowing coastal streams in central and northern California. The Central California Coast DPS steelhead ranges from the Russian River in the north to Aptos Creek in Santa Cruz County in the south, and includes populations in streams leading to the San Francisco and San Pablo bays as well (Moyle 2002). Streambed degradation, alteration, and blockages have significantly reduced steelhead habitat, and this reduction in habitat extent and quality, as well as reduced genetic diversity, has seriously impacted Central Coastal California DPS steelhead populations (Busby et al. 1996). In central California, adult steelhead migrate upstream to spawn from early winter to mid-spring, after winter storms provide sufficient flows to facilitate migration to spawning grounds (Moyle 2002). Spawning occurs between December and June, typically in gravelly substrates free of fine sediments. Most young steelhead remain in freshwater for 1 to 2 years in cool, clear streams with brisk currents, more riffles than pools, and abundant riparian cover (Moyle 2002), before they become smolts and enter the ocean. Critical habitat for the Central California Coast DPS steelhead was designated in 2005 (NMFS 2005). The project site is not located within designated critical habitat.

California Central Coast DPS steelhead are known to occur downstream of the project area in Zayante Creek, into which Quail Hollow Brook flows, and the San Lorenzo River, which is fed by Zayante Creek (CNDDB 2008). While Quail Hollow Brook itself is outside of designated critical habitat, both Zayante Creek and the San Lorenzo River have been designated as critical habitat for steelhead (NMFS 2005). Both waterways feature areas of clean gravels suitable for spawning steelhead, and if the Lichen Oaks pond is not dredged, those conditions could be degraded by an influx of sediment from Quail Hollow Brook. It is possible that steelhead could access the reach of Quail Hollow Brook just downstream of the pond during very high flows, but

there is a low probability that this species would occur in the shallow, narrow channel, and there are no gravels suitable for spawning in the project reach. In short, there is a very low probability that the species is present in the project reach of Quail Hollow Brook below the pond. Fish would not be able to move into or past the Quail Hollow pond to move farther upstream, as the channel is completely blocked by the dam maintaining the pond.

Western pond turtle (*Actinemys marmorata*); Federal Status: None; State Status: Special Concern. The western pond turtle can be found in freshwater aquatic habitats throughout the pacific states from Baja California Norte to northern Washington state (Bury and Germano 2008). The central California population was historically present in most drainages on the Pacific slope (Jennings and Hayes 1994), but streambed alterations and other sources of habitat destruction, exacerbated by frequent drought events, have caused substantial population declines throughout most of the range (Stebbins 2003). Western pond turtles can be found in intermittent and perennial slow-moving waters, including stock ponds, streams, marshes, and lakes. Turtles prefer areas with ample basking sites and underwater refugia (Bury and Germano 2008), and eggs are laid in grasslands or other open uplands up to 1/4-mi or more from water (Jennings and Hayes 1994). Pond turtles may also aestivate in upland areas when water sources are intermittent, but more study is needed (Bury and Germano 2008).

The pond and adjacent grassland within the project area provide suitable breeding and nonbreeding habitat for western pond turtles. According to ranch manager Roger Ross, up to 11 turtles (presumably western pond turtles) have been observed in the pond. The pond offers slow water and basking sites, while the grassland provides suitable nesting habitat. Although western pond turtles likely nest in grasslands within the project area, the focused survey on 11 September 2008 did not find any signs of nesting turtles (e.g., eggshells remaining from previous nesting attempts), suggesting at least that no traditional, communal nesting areas are present in the project area.

Yellow warbler (*Dendroica petechia*); Federal Status: None; State Status: Special Concern. The yellow warbler is a California species of special concern (only when breeding) that feeds primarily on invertebrates. Yellow warblers are neotropical migrants that breed within North America and winter from Mexico to northern South America. In Santa Cruz County, yellow warblers nest almost exclusively in riparian forests, usually those with an open canopy dominated by cottonwoods, willows, sycamores, or alders, and a dense understory, preferably adjacent to open foraging habitat. The riparian habitat within the Lichen Oaks project area provides relatively low-quality nesting habitat for this species due to the abundance of oaks, which are not typically used for nesting. However, it is possible that a pair of yellow warblers could breed in the project area. The species occurs on the site commonly during migration.

White-tailed kite (*Elanus leucurus*); Federal Status: None; State Status: Fully Protected. The white-tailed kite is a bird of prey that forages in grasslands and other open habitats for small mammals, lizards, snakes, and insects. They nest in isolated trees or small woodland patches, including riparian areas, surrounded by or close to extensive open foraging habitat. Although no white-tailed kites were observed on the Lichen Oaks project site during our surveys, the coast live oak-mixed riparian forest provides suitable nesting sites while the grassland on the site provides suitable foraging habitat, and this species could nest and/or forage on the site.

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Pallid Bat (*Antrozous pallidus*); Federal Status: Forest Service Sensitive Species; State Status: Special Concern. The pallid bat occurs throughout California with the exception of the northwest corner of the state and the high Sierra Nevada (Zeiner et al. 1990), but it is thought to be imperiled throughout the region (WBWG 1998). Pallid bat roosts are very susceptible to human disturbance, and urban development has been cited as the most significant factor contributing to their regional decline (Miner and Stokes 2005). Pallid bats are most commonly found in oak savannah and open dry habitats with rocky areas, trees, buildings, or bridges for roosting, and may also occur in open coniferous forests (Zeiner et al. 1990, Ferguson and Azerrad 2004). Coastal colonies typically roost in deep crevices in rocky outcroppings; in buildings; under bridges; and in the crevices, hollows, and exfoliating bark of trees. Although crevices are important for day roosts, night roosts often include open buildings, porches, garages, highway bridges, and mines (Lewis 1994). Colonies can range from a few individuals to over a hundred (Barbour and Davis 1969), and usually this species occurs in groups larger than 20 individuals (Wilson and Ruff 1999). Pallid bats typically winter in canyon bottoms and riparian areas. After mating with males during the late fall and winter, females leave to form maternity colonies, often on ridge tops or other warmer locales (Johnston et al. 2006).

Pallid bats have been detected as close to the project area as the lower reach of Bear Creek, which is approximately 4.8 mi from the site (CNDDB 2008). Several large oaks on the project site provide suitable roosting habitat for this species, and the grasslands on the site provide suitable foraging habitat. No focused surveys for bat roosts were conducted during this study, but this species may roost and forage in the project area.

San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); Federal Status: None; State Status: Special Concern. The San Francisco dusky-footed woodrat can be found in a variety of woodland and scrub habitats throughout the southern San Francisco Bay area and the adjacent central coast ranges south to the Pajaro River in northern Monterey County (Hall 1981, Bryiski et al 1990). Woodrats prefer riparian and oak woodland forests with dense understory, as well as thick chaparral habitat (Lee and Tietje 2005, Johnston *in prep.*). Although woodrats are locally common where they occur, habitat conversion and increased urbanization, as well as increasing populations of introduced predators such as domestic cats (*Felis cattus*) pose substantial threats to this subspecies (Johnston *in prep.*). Dusky-footed woodrats build large, complex nests of sticks and other woody debris, which may be maintained by a series of occupants for several years (Carraway and Verts 1991). Dens serve as nurseries, shelter from weather and predators, and food storage facilities (Carraway and Verts 1991). The breeding season begins in February and sometimes runs through September, with females bearing a single brood of 1 to 4 young per year (Carraway and Verts 1991).

The densely brushy sections of coast live oak-mixed riparian forest habitat above and below the pond provide suitable habitat for the dusky-footed woodrat. Two woodrat nests were discovered adjacent to the pond during reconnaissance visits. Suitable habitat also exists just upstream and downstream of the project site, and additional woodrat nests may be established virtually anywhere within the coast live oak-mixed riparian forest on the site. However, based on our observations, it appears as though the density of woodrat nests within the immediately project area is relatively low.

IDENTIFICATION OF REGULATED AND SENSITIVE HABITATS

Sensitive and Regulated Habitats

U. S. Army Corps of Engineers Jurisdictional Habitats. Areas meeting the regulatory definition of "Waters of the U.S." (jurisdictional waters) are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (CWA, 1972) and Section 10 of the Rivers and Harbors Act (RHA, 1899). Appendix A provides a more detailed regulatory overview for USACE jurisdiction.

A formal wetland delineation is presently underway for the survey area, pending winter season hydrologic monitoring to verify initial mapping efforts (shown in Figure 2 as wetlands or aquatic habitat). Initial field surveys were conducted on 15 and 16 September 2008 and the potential limits of USACE Section 404 and Section 10 jurisdiction are described below. These limits are considered potential, as a full 3-parameter wetland delineation must be performed in accordance with USACE regulations and guidelines before the true extent of jurisdictional limits can be assessed for permitting purposes. The potential jurisdictional mapping must then be officially verified by the USACE.

Survey Results. Potential USACE jurisdictional seasonal wetlands occur within the project site. Areas mapped as wetlands or aquatic (as shown on Figure 2) exhibit parameters indicating wetland hydrology, hydric soils, and wetland vegetation, or are considered "navigable waters" and as such are under the jurisdiction of the USACE. Wetlands (with the possible exception of the isolated grassland seeps) on the project sites are protected under Section 404 of the CWA. The USACE may officially disclaim the isolated grassland seeps during site verification, or they may determine that these seeps are jurisdictional because they are adjacent to "navigable waters." "Navigable waters" are protected under Section 10 of the RHA and Section 404 of the CWA and occur within the pond and below the OHW mark of Quail Hollow Brook. It is expected that impacts to USACE jurisdictional habitats will occur as a result of project construction, and will require an appropriate permit under Section 404 of the CWA to be issued prior to construction. To permit ongoing maintenance, it is suggested a Section 404(b)(1) Individual Permit and Alternatives Analysis be prepared for Project-related impacts.

California Department of Fish and Game Jurisdiction. Activities that result in the diversion or obstruction of the natural flow of a stream; substantially change its bed, channel or bank; or utilize any materials (including vegetation) from the streambed require that the project applicant enter into a Streambed Alteration Agreement with the CDFG under section 1602 of the California Fish and Game Code. CDFG does not typically claim jurisdiction over diked, muted, or tidal marshes.

Survey Results. Based on past experience working with CDFG representatives in similar habitats to those encountered on-site, it is our determination that all areas within the riparian canopy along Quail Hollow Brook will be claimed by CDFG. Impacts to areas within the riparian canopy, including all temporary and permanent ground disturbances, tree trimming or other vegetation removal, and placement of new riprap or other structures, will require a 1600 Streambed Alteration Agreement from CDFG.

EXHIBIT F

BIOTIC RESOURCE IMPACTS AND MITIGATION

OVERVIEW AND ASSUMPTIONS

This biotic resource impact assessment is based upon 95% site plans prepared by Ifland Engineers, dated 10 December 2008. The proposed project will have a number of effects on the biological resources of the site. CEQA and its Guidelines provide direction in evaluating project impacts and determining which impacts will be significant (Remy et al. 1999). CEQA defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." Under CEQA Guidelines section 15065 (Mandatory Findings of Significance), a project's effects on biotic resources are deemed significant where the project would:

- "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 an endangered, threatened, or rare species"

In addition to the section 15065 criteria that trigger mandatory findings of significance, Appendix G of the CEQA Guidelines provides a checklist of other potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

- "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"
- "have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"
- "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"
- "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 wildlife nursery sites"
- "conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance"
- "conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan."

EXHIBIT F

IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

Impacts to Aquatic Habitat

Temporary impacts will occur to 0.38 ac of aquatic habitat on-site primarily as a result of the excavation of pond sediments. However, the proposed project will improve aquatic habitat quality by increasing depth (and therefore providing cooler water temperatures) and reducing the suspended sediment load to downstream aquatic habitat. An additional 0.03 ac of aquatic habitat will be permanently impacted (although not lost) by the construction of a permanent gravel access road into the pond and the placement of large rocks or corrosion-resistant gabion blocks in the brook channel downstream of the pond levee (see Figure 2 and plan set sheets C2 and C3). This will also represent an improvement on the existing condition, as it will protect the channel bottom and slow water velocity exiting the culvert, thus reducing erosion downstream of the culvert outlet.

No surface area of aquatic habitat will be lost due to sediment removal, as the footprint of the pond will remain constant. Moreover, the functional quality of the aquatic habitat for aquatic species, such as red-legged frogs, will be improved within the pond by the removal of the sediment, which will allow for less turbid, cooler, deeper water. Populations of native and special-status wildlife will not be significantly affected by construction due to mitigation for species-level impacts (see below sections). These include wildlife exclusion fencing, temporary dewatering, and biological construction monitoring (see Mitigation Measures for Impacts to California red-legged frog, below). Therefore, impacts to aquatic habitat are less than significant and require no further mitigation.

Impacts to California Grassland Habitat

Permanent impacts will occur to approximately up to 2.14 ac of California annual grassland as a result of fill deposition activities. A further 0.13 ac of temporary impacts will occur as a result of increased use of the existing unimproved roads leading from the dredging site, south to Derrick Lane, and north again to the deposition site (Figure 2, also see 95% plan set, sheet C1). The area where fill will be deposited has already been disturbed by previous fill deposit activities from other (upland) construction activities, mowing, and grazing, and therefore does not represent high-quality habitat. Additionally, the California annual grassland habitat type is very common on both a local and regional scale. Eventually, natural re-colonization of the grassy vegetation will occur in the areas where fill has been deposited, although it may be of a slightly different suite of species due to differences in soil texture between the deposited fill and the underlying native loams. However, the existing species mix is dominated by non-natives and the area is already impacted by fill deposition; thus, these impacts are expected to be less than significant and require no mitigation.

Impacts to Foraging Special-Status Wildlife Species

A number of special-status wildlife species may occur on the project site only as rare visitors, migrants, or transients. These species may occasionally forage on the site, but they are not expected to breed there. These species include golden eagle, peregrine falcon, northern harrier, long-eared owl, western burrowing owl, Vaux's swift, olive-sided flycatcher, yellow-breasted chat, tricolored blackbird, loggerhead shrike, Townsend's big-eared bat, western mastiff bat,

western red bat, American badger, and ringtail. The project will have no effect on the breeding success of any of these species. Dredging and associated activities may result in a very small and temporary reduction of foraging habitat available to these species locally. Due to the abundance of similar habitats locally and regionally and the infrequency with which most of these species occur on the project site, the project's impacts do not meet the CEQA standard of having a *substantial* adverse effect on these species' populations, and the project will have a less than significant impact on these species.

Impacts to Nesting Special-Status Birds

Two special-status birds, the yellow warbler (a California species of special concern) and white-tailed kite (a state fully protected species), could potentially nest in the coast live oak-mixed riparian forest on the project site. Construction activities could impact these species by destroying nests during tree removal, disturbing nesting birds (possibly to the point of abandoning eggs or young), and temporarily impacting foraging habitat. No more than one pair of either species would nest in the project area, and thus the project could affect at most a very small fraction of the regional populations of these species. Given the low probability of these species' occurrence as breeders on the site (since white-tailed kites were not observed during our surveys and habitat on-site is of relatively low quality for breeding yellow warblers), coupled with the very low proportion of the regional populations that could be affected, the project's impacts do not meet the CEQA standard of having a *substantial* adverse effect on these species' populations, and the project will have a less than significant impact on these species. However, individuals, eggs, and young of both species are protected by the federal Migratory Bird Treaty Act and the California Fish and Game Code.

Impacts to Coho Salmon, Steelhead, and Water Quality

Central California Coast coho salmon were historically present in Zayante Creek and the San Lorenzo River, and individuals may still occur occasionally in the San Lorenzo River watershed. Central California Coast steelhead are present in Zayante Creek, into which Quail Hollow Brook flows, and the San Lorenzo River, which is fed by Zayante Creek. It is possible that some fish could enter the Quail Hollow Brook itself during high flows. However, the portion of Quail Hollow Brook below the pond that is within the project footprint is narrow, shallow, and does not contain spawning gravels. Therefore, there is a low potential for these fish to enter the project area.

The project will provide a net benefit to these species by preventing siltation of Zayante Creek and the San Lorenzo River from the sediment sources that instigated the need for the current project. Without the proposed dredging, the pond will quickly fill with sediment, which will begin spilling into downstream areas, reducing habitat quality in downstream areas.

The project area will be dewatered and constructed in such a way that coho and steelhead will not be present within the impact areas during construction and that water quality will not be adversely affected downstream from the pond. The materials used to line the pipe that drains the bottom of the pond will not be allowed to spill into Quail Hollow Brook downstream. Prior to construction of the new outfall and installation of rock below the pond, the pipe that drains the bottom of the pond will be blocked so that the impact area immediately below the pond will be dewatered. Due to the existing topography of this area, there are no pools in which fish could be

stranded, and any fish in this short reach of channel will move downstream as water levels drop. Thus, when work commences on the new outfall and erosion control features, no fish will be present within the construction area. However, flow from the reach of creek above the pond will still be bypassed around the construction area, maintaining flow conditions within the creek downstream from the project area.

If silt from the pond were mobilized during excavation, increased suspended sediment discharge could adversely impact water quality and the quality of spawning habitat in downstream areas. However, the incorporation of BMPs for the protection of water quality into the project will prevent such impacts. The project will employ standard BMPs to prevent the downstream transport of silt, including limiting work to the dry season (15 April – 15 October), dewatering the pond prior to excavation, diverting creek flow around the excavation area, installation and maintenance of silt fencing, and erosion control seeding. An erosion control plan has been prepared for the project (see plan set sheet C5).

Due to the incorporation of BMPs and construction methods that will avoid impacts to water quality and salmonids, as well as the net benefit to these resources that the project will confer in the long term, impacts to coho salmon, steelhead, and water quality are considered less than significant.

Impacts to Mount Hermon June Beetle

Suitable habitat occurs for the federally-endangered Mount Hermon June beetle on and adjacent to the project area (Figure 2, Appendix D). Impacts to the beetle or its subterranean habitat could occur as a result of grading or other soil disturbance, soil compaction, root pruning, or tree removal. However, the project has been designed to avoid impacts to June beetle habitat which is located on the north and east side of the pond outside of the riparian corridor. All areas to the north and east of the pond outside of the riparian corridor will be avoided and separated from the work areas within and on the south side of the pond using wildlife exclusion/tree protection fencing (see landscape plan sheet L2). In the event that access is required to the existing junction box on the east side of the pond levee to plug the existing culvert with concrete (Figure 2, plan sheet C2 and C3), fencing shall be installed to leave a corridor from the work area over the existing dam to the box (see landscape plan sheet L2). This access will be provided so that a worker can take a concrete-filling pipe on-foot over the levee to the junction box without causing impacts to the steep riparian bank just north of the existing headwall (plan set C1). This will allow work access that will not cause significant compaction by excluding equipment access to the area, while at the same time protecting the bank of the dam (and personnel) from potential access-related bank slides. Thus, all project activities will be restricted to areas that do not provide suitable habitat for Mount Hermon June beetles, and potential project-related impacts to Mount Hermon June beetles and their habitat have been consciously avoided by the project design. With incorporation of all the avoidance measures, impacts to this species are thus considered to be less than significant.

Impacts to San Francisco Dusky-footed Woodrats

During reconnaissance surveys, two woodrat nests were discovered within or immediately adjacent to the proposed project footprint: one nest was located at the northeastern edge of the pond, and another was found on the southwestern edge of the pond. Suitable habitat for

woodrats exists both upstream and downstream of the pond, and nests could become established in any of the riparian habitat in the project area prior to the initiation of project activities. However, based on our observations on the site, it appears that woodrat densities on the site are relatively low, and only a few nests are expected to occur on or near the project's impact areas.

Project activities could result in direct impacts to individuals through destruction of a small number of nests (possibly only one, based on existing conditions), possibly leading to mortality of woodrats, and the loss of a small amount of woodrat habitat. Because this species is relatively abundant within its range, only a very small fraction of the species' regional populations will be impacted. Thus, the project's impacts do not meet the CEQA standard of having a *substantial* adverse effect on this species' populations, and the project will have a less than significant impact on this species.

However, the CDFG typically requires the implementation of measures to protect woodrats in its streambed alteration agreements. Therefore, the following measures (or other measures required by the CDFG) will be implemented:

1. Completely avoid impacts by establishing a construction exclusion zone around woodrat nests that could be impacted by construction. Retain as much of the surrounding habitat as possible.
2. If avoidance is not possible, move sticks from the woodrat nest(s) into nearby suitable woodrat habitat (with authorization from the CDFG) or create new habitat (e.g., slash piles) which woodrats can colonize.
3. Conduct follow-up resource monitoring during the first 2 years following construction to determine if relocated woodrat structures become occupied by woodrats, and report these findings to the County and to the CDFG.

SIGNIFICANT IMPACTS THAT CAN BE MITIGATED TO A LESS-THAN-SIGNIFICANT LEVEL

Temporary Impacts to, and Conversion, of Wetland to Aquatic Habitat

A small surface area of low-quality wetland habitat (approximately 0.01 ac) growing along the pond perimeter will be removed during sediment removal/excavation. This wetland habitat is early successional, patchy, low-quality habitat which has colonized the recently deposited sediments along the pond perimeter. In addition, a small portion of these impacted wetlands may be converted to aquatic habitat. The applicant had previously controlled the formation of extensive, low-quality wetlands (via manual removal) in response to increasing sediment load within the pond, in an attempt to maintain open water surface. If this management practice were to persist after the project, the project would result in a permanent loss of low-quality wetland habitat. Additionally, the rate of natural wetland recolonization around the pond perimeter could be reduced, if construction equipment overly compacts the upper ~10% of the pond side slopes (approximately between elevations 375 ft and 377 ft) where the hydroperiod is suitable for wetland establishment. The implementation of the mitigation measures cited below (soil decompaction and cessation of wetland vegetation control) will ensure that wetland vegetation rapidly establishes around the pond perimeter (within 1-2 years). These measures should result

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in an increase in emergent wetland habitat around the pond compared to the existing condition. Therefore, implementation of the following mitigation measures will reduce wetland impacts to a less than significant level.

Mitigation Measure 1a. Re-establish Soil Conditions Around Pond Perimeter if Compacted. A restoration ecologist will inspect the upper ~10% of the pond side slopes (approximately between elevation 375 ft and 377 ft) for compaction, after sediment removal excavation is completed. This constitutes a band approximately 5-10 ft wide around the pond perimeter. Compaction will be reduced in the upper 1 ft of soil in this zone by ripping/tilling, if needed and as directed by the restoration ecologist. The interior dam slope will not be ripped to preserve the integrity of the dam.

Mitigation Measure 1b. Cease Wetland Vegetation Control. Following project construction, the applicant will alter vegetation management regimes on-site to allow wetland vegetation to establish in a narrow band (~5-10 ft wide) around the pond perimeter approximately between elevations 375 ft and 377 ft. No further spraying, topping, or pulling of wetland vegetation is to take place in this zone.

Mitigation Measure 1c. Monitor Wetland Vegetation Establishment for 3 Years. A restoration ecologist will qualitatively monitor wetland vegetation establishment around the pond perimeter, once annually, for 3 years following construction. The ecologist will characterize the species composition of establishing wetland vegetation, visually estimate percent cover, and take photographs from permanent photo-documentation points.

Temporary Impacts to Riparian Habitat

Temporary impacts will occur to approximately 0.06 ac of riparian habitat as a result of grading to access the headwall reconstruction area, to replace the existing headwall, install gabions or large rock protection in the channel bottom downstream of the headwall, and to grade into the pond dam to create an emergency overflow path. The impacts will involve trimming of understory riparian vegetation and removal of herbaceous vegetation on the downstream dam slope to reconstruct a stable fill slope, upslope of the new headwall. These impacts will, however, result in an improvement to existing conditions. This is because there is presently no existing emergency overflow, so that large flood events (>10 year event) currently overtop the dam when the culvert flow capacity is exceeded. In addition, the channel bottom is incised for approximately 10 ft downstream of the headwall/culvert outlet. These conditions if left untreated, could destabilize the dam and lead to a catastrophic blowout of the pond, which would have substantial undesirable biological impacts for downstream habitats.

Implementation of the following mitigation measures will reduce these impacts to a less-than-significant level.

Mitigation Measure 2a. Re-establish Soil Conditions if Compacted. A restoration ecologist will inspect the graded slopes within the riparian corridor around the headwall and dam for soil compaction. Compaction will be reduced in the upper 6 inches of soil in this zone by tilling and incorporation of composted organic matter, if warranted and as directed by the restoration

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ecologist. The tilled surface will be lightly track-walked with the tracks oriented on contour. This will facilitate seed germination and establishment.

Mitigation Measure 2b. Hand-broadcast Clean Straw and a Native Seed Mixture. Following project completion and light-ripping of any compacted areas if needed as per Measure 2a above, all areas impacted by ground disturbance will be seeded with a native seed mix (to be specified in the project's Riparian Habitat Mitigation and Monitoring Plan, see below). Following this, a layer of clean straw will be applied to these areas to prevent erosion and provide soil protection until germination occurs.

LOSS OF RIPARIAN HABITAT

Mixed riparian forest habitat occurs within and adjacent to the construction area both around the pond perimeter and immediately downstream of the pond levee and associated culvert outlets to Quail Hollow Brook (Figure 2). The project proposes to install a permanent access road into the pond, excavate recently deposited sediments from the pond side slopes, and install a new culvert through the south side of the pond dam. These construction activities will impact riparian habitat. The project has been carefully designed, in collaboration with H. T. Harvey & Associates restoration ecologists and arborist, to avoid and minimize riparian habitat impacts to the maximum extent practicable. Approximately 1928 ft^2 of high-quality, riparian habitat will be permanently impacted by these activities (Table 3). Sheet L3 of the Landscape Plans shows the approximate location of the trees to be impacted (H. T. Harvey & Associates 2008).

Table 3. Surface Area of Permanent Riparian Habitat Impacts and Mitigation

Species	Impact Type	Area Impacted (ft^2)	Mitigation Ratio (Mitigation Area:Impact Area)	Mitigation Area (ft^2)
Quercus agrifolia (Tree Tag # 29)	Removal	240 (Canopy)	3:1	720
Quercus lobata (Tree Tag # 50)	Substantial Root Pruning/Root Compaction	933 (Root Area)	1:1	933[1]
Salix laevigata (Tree Tag # 31)	Removal	755 (Canopy)	3:1	2265
Totals		**1928**		**3918**

[1]Mitigation is included for this tree because the substantial root pruning is likely to reduce the longevity of the tree.

Implementation of the following mitigation measures will reduce these impacts to a less-than-significant level.

Mitigation Measure 3a. Tree Protection Fencing. Tree protection fencing will be installed between existing riparian trees to be saved and the limit of construction work. The fencing will be installed with materials sufficient to visually demarcate the limit of construction access. The fencing plan is shown on Sheets L2 and L3 of the Landscape Plans (H. T. Harvey & Associates 2008).

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Mitigation Measure 3b. Construction Monitoring. A biologist will monitor construction to prescribe construction techniques that minimize impacts to riparian vegetation, including avoidance of large roots to the extent feasible and techniques for pruning.

Mitigation Measure 3c. Riparian Habitat Mitigation. As noted above, 1928 ft^2 of high-quality, riparian habitat will be permanently impacted. These impacts will be mitigated by the restoration of new riparian habitat at the ratios shown in Table 3. Therefore, at least 3918 ft^2 of riparian mitigation will be required (Table 3). Riparian habitat will be restored on-site at the following two locations:

1. Willow riparian habitat will be restored on an existing low-elevation, floodplain adjacent to the upstream end of pond excavation. The existing floodplain at this location is suitable for willow riparian habitat restoration. This area consists of recently deposited, sparsely vegetated alluvium and is currently degraded by the presence of a single, invasive silver wattle (*Acacia dealbata*). The riparian mitigation in this area will entail the removal of the silver wattle and revegetation of the site with red and arroyo willow.

2. Coast live oak riparian habitat will be restored to widen the existing riparian corridor along the south side of the corridor, just upstream of the pond.

Sheet L5 of the Landscape Plans show the planting plans for these two mitigation areas (H. T. Harvey & Associates 2008).

Riparian habitat mitigation will also include the removal of all non-native, invasive plant species (e.g., French broom) from the project site.

A Riparian Habitat Mitigation and Monitoring Plan will be prepared by a qualified restoration ecologist during the regulatory agency permitting phase of the project and will provide the following:

1) Brief summary of the proposed project
2) Summary of habitat impacts and proposed mitigation ratios, including-
a) brief description of functions and values of regulated habitats, wildlife and botanic resources in the impact area(s)
b) quantification of regulated habitat impacts
c) map showing the habitat impact locations
d) basis for proposed mitigation ratios
3) Description of the primary goal(s) of the mitigation
4) Location of mitigation site(s) and description of existing site conditions (both physical and biotic)
5) Mitigation design:
a) existing and proposed site hydrology
b) soil amendments and other site preparation elements as appropriate
c) conceptual planting plan
d) conceptual irrigation and maintenance plans
6) Monitoring plan (including final and performance criteria, monitoring methods, data

analysis, reporting requirements, monitoring schedule)

a) Remedial measures/adaptive management plan for mitigation elements that do not meet performance or final success criteria

Direct or Indirect Impacts to Special-Status Plants

We determined there was potential for 7 species of special-status plants to occur within or adjacent to the Project boundaries. The Project site has already been cleared for one late-summer blooming species, Santa Cruz tarplant, based on protocol level surveys conducted by H. T. Harvey & Associates in 2008. The remaining (spring blooming) species identified as being potentially present on-site include the state endangered species San Francisco popcorn-flower, the state rare species Dudley's lousewort, and the CNPS list 1B species bent fiddleneck, Ben Lomond buckwheat, marsh microseris, and San Francisco campion. Effects could occur directly by grading, placement/disposal of excavated sediment, vegetation removal or trampling, or other project-related disturbance. Impacts could also occur indirectly by increased siltation, erosion, or exposure. The following measures will reduce potential impacts to special-status plants to a less than significant level.

Mitigation Measure 4a: Conduct Protocol-level Surveys. Protocol-level surveys for the remaining six spring-blooming plants identified above will be conducted by a qualified plant ecologist during appropriate blooming periods to determine whether any populations of these species occur within or adjacent to impact areas and could be potentially affected. The protocol described in the Botanical Survey Methods Section will be followed, using a minimum of three surveys of impact areas in spring of 2009 (March, April, and June) to assess presence or absence of these remaining six species.

Mitigation Measure 4b (Recommended but Optional): Avoid Impacts to Special-status Plant Populations and Observe an Adequate Buffer Zone. If surveys determine that any populations of the species listed above occur within or adjacent to the impact areas, the applicant will redesign the project in consultation with a qualified plant ecologist to avoid and minimize impacts to the population. Simply avoiding direct impacts to the population may not be sufficient to prevent adverse effects to the population if an adequate buffer (minimum 15 ft) of non-impacted habitat is not also protected. Buffer zones will help protect these sensitive plants from the effects of erosion, root disturbance, loss of associate species, and new weed infestations. An appropriate buffer width will be determined by the qualified plant ecologist after consideration of species biology, population size, and regional importance of the population, but should be no less than 15 ft.

Mitigation Measure 4c: Enhance and Preserve Habitat for Affected Species. If Mitigation Measure 4b above is not feasible, the project applicant shall provide mitigation through preservation of off-site habitat or management of nearby, existing populations, should any exist. If no existing populations are available for the compensatory mitigation, the applicant shall mitigate for impacts to habitat capable of supporting the above-named species. In this case, similar, existing, offsite, riparian, sandhills, wetland, open woodland, or grassland habitat shall be preserved in perpetuity at a 3:1 mitigation ratio (3 acres preserved for each acre impacted). The preserved habitat shall be of similar habitat quality and provide similar edaphic conditions to the impacted areas in terms of soil texture, extent of

disturbance, vegetation structure, and dominant species composition, as determined by a qualified plant ecologist.

The applicant shall work with appropriate agencies such as CDFG to identify appropriate nearby mitigation lands and ensure their permanent protection through an appropriate mechanism, such as a conservation easement or fee title purchase. A conservation easement could be held by CDFG, USFWS, or an approved land management entity, and shall be recorded within a time frame agreed upon by CDFG or USFWS. Alternatively, if a sandhills-adapted rare plant species will be impacted, mitigation credits may be purchased at the Zayante Sandhills Conservation Bank.

Impacts to California Red-legged Frogs

As described previously, there is some potential for individual red-legged frogs to occur in the pond anytime of year, and they could potentially attempt to breed within the pond. In the long term, the project will likely have a beneficial effect on red-legged frogs by preventing the siltation of the pond (thus maintaining its value as aquatic habitat, at least for nonbreeding adults that are unlikely to be depredated by bullfrogs). Additionally, the wetland and willow riparian habitat mitigation will benefit red-legged frog in the long-term by increasing cover and substrate for attaching egg masses around the pond. However, during construction, frogs using the pond could be killed or injured by workers or equipment, and aquatic, wetland, and riparian habitat for this species will be temporarily impacted. Consultation with the USFWS regarding the potential take of red-legged frogs will be undertaken during Clean Water Act permitting for the project. In addition, the following measures will be implemented in order to reduce potential impacts to red-legged frogs to less than significant levels:

Mitigation Measure 5a. Project work will be conducted during the nonbreeding season (1 May to 15 October) to the extent practicable in order to avoid the peak breeding period and to minimize risks to breeding frogs, egg masses, and larvae due to dredging and related activities. If red-legged frog egg masses are present, work shall not begin until after June 1. No work will be conducted at night or during rain events.

Mitigation Measure 5b. Prior to the inception of project activities, a qualified biologist with expertise in the biology and ecology of California red-legged frogs will conduct training sessions for all project contractors and their employees. The biologist will describe the California red-legged frog and its habitat, display photographs, explain the legal status of the species and its protection under the Federal Endangered Species Act, and elucidate the measures being taken to avoid impacts to the species during improvement activities. A fact sheet conveying the above information in English (and Spanish if needed) shall be prepared and provided to all project workers.

Mitigation Measure 5c. Prior to any ground disturbance at the project site, a temporary barrier to red-legged frog movement (wildlife exclusion fence) will be constructed along the limits of project activities around the pond and Quail Hollow Brook. The barrier will consist of 3-ft tall silt fencing held in place by rigid stakes or other stable means. This barrier will be installed according to Sheet L2 of the Landscape Plans (H. T. Harvey & Associates 2008). A qualified biologist will inspect the work area prior to installation of barriers. These barriers will remain in place until all earthwork and culvert construction work has been completed.

These barriers will be inspected daily and maintained and repaired as necessary to ensure that they are functional and not a hazard to red-legged frogs on the outer side of the fence.

Mitigation Measure 5d. Red-legged frogs will not be handled or relocated without approval by the USFWS via a Biological Opinion issued specifically for this project. After the exclusion barrier has been installed, a qualified biologist will conduct a nighttime survey of the area within the barrier to find, capture, and relocate any observed California red-legged frogs. The pond will also be seined for red-legged frog larvae. Any red-legged frogs detected will be relocated by the biologist to suitable habitat, with larvae being relocated to suitable pools and adults and juveniles being located to suitable habitat. The on-site biologist shall move the animal(s) to a USFWS-approved location and monitor relocated frogs/larvae to determine that they not imperiled by predators or other dangers. Relocation sites should be devoid of invasive predators (e.g., fish, crayfish, bullfrogs). Any bullfrogs or non-native fish detected during project activities will be disposed of to help reduce predation pressure on the site.

Mitigation Measure 5e. A qualified biologist (i.e., one approved by the USFWS under the authority of a Biological Opinion issued specifically for this project) shall be on-site during all activities, including sediment excavation, pumping, and construction activities, that could result in the take of a California red-legged frog; the need for the biologist's presence shall be determined by the biologist. We anticipate that the biologist will need to be present during all activities within the exclusion barrier until the pond is drained, the barrier has proven to be functioning correctly (e.g., frogs relocated outside the fence are not moving back inside the fence), and in the opinion of the biologist there is no longer any potential for red-legged frogs to be present inside the fencing.

Mitigation Measure 5f. If a California red-legged frog, or any amphibian believed to be a California red-legged frog, is encountered by the on-site biologist or anyone else at any time during project activities, the following protocol shall be followed:

i. All work that could result in direct injury, disturbance, or harassment of the animal shall immediately cease.

ii. The foreman shall be immediately notified.

iii. The foreman shall contact a qualified biologist (if the biologist is not already on-site).

iv. The biologist shall immediately notify the USFWS via telephone or electronic mail.

v. The biologist shall move the California red-legged frog(s) to an appropriate habitat selected by the applicant in consultation with the USFWS prior to pre-construction surveys. The individual(s) will be monitored until it is determined that the animal(s) is(are) not imperiled by predators or other dangers.

Mitigation Measure 5g. California red-legged frogs are attracted to cavities such as pipes and may enter stored pipes and become trapped. Therefore, any construction pipes, culverts, or similar structures that are stored at the Project site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the construction foreman/manager before the pipe is subsequently buried, capped, or otherwise used or moved in any way. Additionally, the on-site biologist and/or construction foreman/manager will check for red-legged frogs under all construction equipment/vehicles before use.

If a California red-legged frog is discovered inside a pipe or under construction equipment/vehicles by the on-site biologist or anyone else, the on-site biologist shall move the animal to the USFWS-approved location, as described above, and monitor it until it is determined that it is not imperiled by predators or other dangers.

Mitigation Measure 5h. To avoid attracting predators of red-legged frogs, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site.

Mitigation Measure 5i. Plastic monofilament netting (erosion control matting) or similar material shall not be used at the Project site because California red-legged frogs may become entangled or trapped in it.

Mitigation Measure 5j. Pesticides and herbicides shall not be used during construction of the project.

Impacts to Western Pond Turtles

The pond and adjacent grassland within the project area provide suitable breeding and nonbreeding habitat for western pond turtles, and turtles have been observed in the pond, as noted above. In the long term, the project will help maintain high-quality aquatic habitat by providing a deep pond (with some basking habitat at the edges) for this species. However, short-term impacts may occur. Western pond turtles often nest communally, so the loss of one nesting area may have population-level impacts. A focused survey of the grassland in the project area yielded no evidence of nesting turtles, but there is some potential for eggs within existing nests to be destroyed, or for young to be killed, due to soil compaction during spreading of dredged sediments or burial of nests to depths too deep for successful hatching or emergence of young. Such impacts cannot be avoided given the virtual impossibility of detecting active nests of this species. Short-term loss of suitable nesting habitat will occur as sediment is spread over the adjacent fields, but vegetation will be re-established in the grasslands and these areas will once again provide suitable nesting habitat. Sediment excavation in the pond could result in injury or mortality of individual turtles. Temporary loss of aquatic habitat will also occur during construction.

The measures described above to avoid and minimize impacts to California red-legged frogs will serve to protect western pond turtles as well. Any western pond turtles detected by the biologist during site survey and monitoring activities will be relocated to a suitable location approved by the CDFG. Additionally, a qualified biologist will conduct a pre-construction survey for pond turtle nests and aestivating turtles during the nesting season in upland habitat within the project site. If active nests or aestivating turtles are found, the biologist will establish exclusion zone(s) with plastic-mesh construction fencing to exclude construction activity from these areas. The biologist will monitor these exclusion zones to determine when construction can resume without resulting in harm to western pond turtle individuals.

These measures will reduce potential impacts to western pond turtles to less than significant levels.

Potential Impacts to Roosting Bats

Several large oaks and other trees in the project area provide suitable roosting habitat for the pallid bat, a California species of special concern, as well as for other non-special-status bat species. All large oaks will be left intact, but one red willow which may provide roosting habitat will be removed as part of the construction process. Even if trees being used as roosts remain intact, bat colonies could be disturbed by the noise and vibrations associated with construction, potentially resulting in roost abandonment. Abandonment of a pallid bat roost, particularly a maternity roost, could result in the mortality of adult and/or young bats. Bats disturbed during the daytime could be subject to increased predation as they attempt to find new roosts. Removal of an active pallid bat maternity roost, disturbance of an active non-breeding pallid bat roost during the daytime, or loss of a large roost of non-special-status bats would result in a significant impact under CEQA. In order to reduce potential impacts to less than significant levels, the following mitigation measures will be undertaken:

Mitigation Measure 6a (recommended but optional). If feasible, a survey for roosting bats will be conducted prior to the beginning of the breeding season (i.e., prior to 1 March) in the year in which project activities are scheduled to occur so that adequate measures can be implemented to evict the bats during the nonbreeding season. This survey will include an assessment of all trees on and in the vicinity of the project for their potential use by roosting bats. Any such trees that are identified by a qualified bat biologist as being high-potential roost sites will be surveyed more intensively. The survey should be conducted by a qualified bat biologist (i.e., a biologist holding a CDFG collection permit and a Memorandum of Understanding with CDFG allowing the biologist to handle and collect bats). If suitable roost sites are found but a visual survey is not adequate to determine presence or absence of bats (which would be particularly likely in the case of potential roost trees), acoustical equipment will be used to determine occupancy.

This measure is not mandatory, as an additional pre-construction survey and other measures will be performed as described below. However, implementing this measure will allow for bat exclusion prior to the breeding season, thus minimizing the potential bat-related constraints to the timing of construction.

Mitigation Measure 6b. Because the aforementioned survey will be conducted prior to the breeding season, several months may pass between that survey and the initiation of construction or demolition in a given area. Therefore, another pre-construction/pre-demolition survey for roosting bats, following the methods described above, will be conducted within 15 days prior to the commencement of these activities in a given area to determine whether bats have occupied a roost in or near the project's impact areas. This survey, which would be conducted using the methods described for Measure 7a, would be facilitated considerably by information (e.g., on potential roost trees) gathered during the previous survey.

Mitigation Measure 6c. If a maternity roost of any bat species is present, the bat biologist will determine the extent of a construction-free buffer around the active roost

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that will be maintained. This buffer would be maintained from 1 April until the young are flying, typically after 31 August.

Mitigation Measure 6d. If a roost of any kind is found in a tree that will not be disturbed by construction, or that can be avoided, the roost structure will not be impacted if feasible.

Mitigation Measure 6e. If a day roost is found in a tree that is to be removed, individual bats will be safely evicted under the direction of a qualified bat biologist. Eviction of bats will occur at night, so that bats will have less potential for predation compared to daytime roost abandonment. Eviction will occur between 1 September and 15 October and/or between 15 February and 15 April but will not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey are not available or bats are in torpor. If feasible, one-way doors will be used to evict bats from tree roosts. If use of a one-way door is not feasible, or the exact location of the roost entrance in a tree is not known, the trees with roosts that need to be removed should first be disturbed by removal of some of the trees' limbs not containing the bats. Such disturbance will occur at dusk to allow bats to escape during the darker hours. These trees would then be removed the following day. All of these activities will be performed under the supervision of the bat biologist.

Mitigation Measure 6f. Although project activities that require removal of or work near a pallid bat maternity roost site would occur during the nonbreeding season, such activities may result in the removal or abandonment of such a roost site. If a roost site that is used as a maternity roost by pallid bats is removed or abandoned as a result of project activities, an alternative roost will be constructed. The design and placement of this structure will be determined by a qualified bat biologist based on the location of the original roost and the habitat conditions in the vicinity. This bat structure will be erected at least one month prior to removal of the original roost structure, or as soon as possible after a roost site is determined to have been abandoned as a result of project activities.

Mitigation Measure 6g. In some circumstances, it may be beneficial to allow roosting bats to continue using a roost while construction is occurring on or near the roost site. For example, if a tree found to contain a day roost is located near the construction area but will not be removed, a qualified bat biologist (in consultation with the CDFG) will determine whether the bats should be evicted or whether they should remain in place. If it is determined that the risks to bats from eviction (e.g., increased predation or exposure, or competition for roost sites) are greater than the risk of colony abandonment, then the bats will not be evicted.

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APPENDIX A.
Regulatory Overview

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SPECIAL-STATUS SPECIES PROTECTION

Federal and state endangered species legislation gives several plant and animal species known to occur in the vicinity of the site special status. In addition, state resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have identified as sensitive some species occurring in the vicinity of the site. Such species are referred to collectively as "species of special status" and include: plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA), animals listed as "fully protected" under the California Fish and Game Code, animals designated as "Species of Special Concern" by the CDFG, and plants listed as rare or endangered by the CNPS in the *Inventory of Rare and Endangered Plants of California* (2001).

Federal Endangered Species Act provisions protect federally listed threatened and endangered species and their habitats from unlawful take. "Take" under FESA includes activities such as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The U.S. Fish & Wildlife Service's (USFWS) regulations define harm to mean "an act which actually kills or injures wildlife." Such an act "may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR § 17.3). Activities that may result in "take" of individuals are regulated by the USFWS. The USFWS produced an updated list of candidate species September 19, 1997 (USFWS 1997; 50 CFR Part 17). Candidate species are not afforded any legal protection under FESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

Provisions of CESA protect state-listed threatened and endangered species. CDFG regulates activities that may result in "take" of individuals (*i.e.*, "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. The CDFG, however, has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification . . . " Additionally, the California Fish and Game Code contains lists of vertebrate species designated as "fully protected" (California Fish & Game Code §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed without a permit.

The CDFG has also produced 3 lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists." Species on these lists either are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review.

Plants listed as rare or endangered by the CNPS (2001), but which have no designated status under state endangered species legislation, are defined as follows:

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- List 1A. Plants considered by the CNPS to be extinct in California.
- List 1B. Plants rare, threatened, or endangered in California and elsewhere.
- List 2. Plants rare, threatened, or endangered in California, but more numerous elsewhere.
- List 3. Plants about which we need more information - A review list.
- List 4. Plants of limited distribution - A watch list.

U.S. ARMY CORPS OF ENGINEERS JURISDICTION

Areas meeting the regulatory definition of "Waters of the U.S." (jurisdictional waters) are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U.S.," tributaries of waters otherwise defined as "Waters of the U.S.," the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3). Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).). In addition, the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Regional Supplement; USACE 2006) was followed to document site conditions relative to hydrophytic vegetation, hydric soils and wetland hydrology. The Regional Supplement is designed to be used with the current version of the Corps Manual; where differences in the 2 documents occur; the Regional Supplement takes precedence over the Corps 1987 Manual.

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.

CALIFORNIA DEPARTMENT OF FISH AND GAME CODE

The California Fish and Game (CDFG) Code includes regulations governing the use of, or impacts to, many of the state's fish, wildlife, and sensitive habitats. The CDFG exerts jurisdiction over the bed and banks of rivers, lakes, and streams according to provisions of §§1601-1603 of the CDFG Code. The CDFG Code requires a Streambed Alteration Agreement for the fill or removal of material within the bed and banks of a watercourse or waterbody and for the removal of riparian vegetation.

Certain sections of the CDFG Code describe regulations pertaining to certain wildlife species. For example, CDFG Code §§3503, 2513, and 3800 (and other sections and subsections) protects native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFG. Raptors (*i.e.*, eagles, hawks, and owls) and their nests are specifically protected in California under CDFG

Code §3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." CDFG Code §4150 protects non-game mammals.

COUNTY OF SANTA CRUZ ORDINANCES

The Santa Cruz County Code includes provisions to protect sensitive biological resources including: Title 16 Environmental and Resource Protection, Chapter 16.30 Riparian Corridor and Wetlands Protection, Sections 16.30.010 to 16.30.080, Chapter 16.32 Sensitive Habitat Protection, Sections 16.32.010 to 16.32.140, and 16.34 Significant Tree Protection, Section 16.34.010 to 16.34.140.

REGULATORY OVERVIEW FOR BIRDS

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA; 16 U.S.C., §703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment, a violation of the MBTA.

California State Fish & Game Code

Migratory birds are also protected in and by the state of California. The State Fish and Game Code §3503 (and other sections and subsections) emulates the MBTA and protects birds' nests and eggs from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFG and would constitute a significant impact.

Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under Fish and Game Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Project Applicability

The vast majority of birds found on the project site are protected under the MBTA and State Fish and Game Code. Project construction has the potential to take nests, eggs, young or individuals of these protected species. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to the abandonment of nests. Although this type of impact was not determined to be significant under CEQA for the species occurring on the Lichen Oaks project site, due to their local and regional abundance and/or the low magnitude of the potential impact, we recommend that the following measures be

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implemented to reduce the risk of a violation of the MBTA and the California Fish and Game Code.

Compliance Measures

Measure 1. Pre-construction/Pre-disturbance Surveys. If it is not possible to schedule demolition and construction between 1 September and 31 January, then pre-construction surveys for nesting birds should be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation. This survey should be conducted no more than 14 days prior to the initiation of demolition/construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the ornithologist will inspect all trees and other potential nesting habitats in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist will determine the extent of a construction-free buffer zone to be established around the nest (typically 250 ft for raptors and 50-100 ft for other species), to ensure that no nests of species protected by the MBTA or State Code will be disturbed during Project implementation.

Measure 2. Inhibiting Nesting. If vegetation is to be removed by the Project and all necessary approvals have been obtained, potential nesting substrate (e.g., bushes, trees, grass, burrows) that will be removed by the Project should be removed before the start of the nesting season to help preclude the initiation of nests that would otherwise be disturbed by breeding-season construction.

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APPENDIX B.
Plant Species of the Lichen Oaks Ranch Pond Restoration Project Site

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Appendix B. Plant Species Identified on or near the Lichen Oaks Ranch Pond Restoration Project Site.		
FAMILY NAME	**SCIENTIFIC NAME**	**COMMON NAME**
Anacardiaceae	*Toxicodendron diversilobum*	poison oak
Apiaceae	*Daucus carota*	Queen Anne's lace
	Hydrocotyle verticillata	whorled marsh pennywort
Apocynaceae	*Cornus sericea*	creek dogwood
Araliaceae	*Hedera helix*	English ivy
Asteraceae	*Baccharis pilularis*	coyotebrush
	Conyza canadensis	horseweed
	Dittrichia graveolens	stinkwort
	Hemizonia increscens	grassland tarweed
	Holocarpha virgata	narrow tarplant
	Gnaphalium luteo-album	cudweed
	Lactuca serriola	prickly lettuce
	Picris echioides	bristly ox-tongue
	Sonchus oleraceus	sow thistle
	Picris echioides	bristly ox-tongue
	Silybum marianum	milk thistle
	Sonchus oleraceus	sow thistle
Betulaceae	*Alnus rubra*	red alder
Blechnaceae	*Woodwardia fimbriata*	giant chain fern
Brassicaceae	*Rorippa nasturtium-aquaticum*	watercress
Caprifoliaceae	*Sambucus mexicana*	blue elderberry
	Symphoricarpos mollis	snowberry
Cyperaceae	*Cyperus eragrostis*	tall flat-sedge
	Scirpus californicus	California tule
	Scirpus pungens	three-square
Euphorbiaceae	*Eremocarpus setigerus*	doveweed
Fabaceae	*Acacia dealbata*	silver wattle
	Lotus corniculatus	bird's foot trefoil
	Melilotus alba	white sweet-clover
Fagaceae	*Quercus agrifolia*	coast live oak
	Quercus lobata	Valley oak
Grossulariaceae	*Ribes divaricatum*	spreading gooseberry
Juncaceae	*Juncus bufonius*	toad rush
	Juncus mexicanus	Mexican rush
Lamiaceae	*Trichostema lanatum*	vinegarweed
Onagraceae	*Epilobium ciliatum*	northern willowherb
Pinaceae	*Pinus ponderosa*	Ponderosa pine
Plantaginaceae	*Plantago lanceolata*	English plantain

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Appendix B. Plant Species Identified on or near the Lichen Oaks Ranch Pond Restoration Project Site.		
FAMILY NAME	**SCIENTIFIC NAME**	**COMMON NAME**
Poaceae	*Avena* sp.	wild oats
	Bromus catharticus	rescuegrass
	Holcus lanatus	velvetgrass
	Hordeum marinum ssp. gussoneanum	Mediterranean barley
	Hordeum murinum	hare barley
	Lolium multiflorum	annual rye-grass
	Poa annua	annual bluegrass
	Poa trivialis	rough bluegrass
	Polypogon monspeliensis	rabbitsfoot grass
Polygonaceae	*Polygonum arenastrum*	dooryard knotweed
	Polygonum hydropiperoides	water pepper
	Polygonum persicaria	lady's thumb
	Polygonum punctatum	common water smartweed
Primulaceae	*Anagallis arvensis*	scarlet pimpernel
Rosaceae	*Rubus leucodermis*	whitebark raspberry
	Rubus ursinus	Pacific blackberry
Salicaceae	*Salix laevigata*	red willow
	Salix lasiolepis	arroyo willow
Typhaceae	*Sparganium eurycarpum*	bur-reed
	Typha occidentalis	western cattail
Urticaceae	*Urtica dioica*	stinging nettles
Woodsiaceae	*Athyrium filix-femina*	common ladyfern
The species are arranged alphabetically by family name for all vascular plants encountered during the plant survey. Plants are also listed alphabetically within each family. Species nomenclature is from Hickman (1993) except where different nomenclature has been adopted by Reed (1988).		

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APPENDIX C.
SPECIAL-STATUS PLANTS CONSIDERED BUT REJECTED FOR OCCURRENCE

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Appendix C. Special-Status Plant Species Considered but Rejected for Occurrence.

SCIENTIFIC NAME	COMMON NAME	Lack of Serpentine (S) or Alkaline (A) Soils	Perennial Shrub or Tree Not Observed	Other Edaphic Requirements	Outside the Elevation or Endemic Range, or Outside Known Extant Range	Specific Habitat Type Not Present on Site	Highly Degraded Site Conditions
Anomobryum julaceum	slender silver moss			X			
Arctostaphylos andersonii	Anderson's manzanita		X				
Arctostaphylos glutinosa	Schreiber's manzanita		X	X			
Arctostaphylos pajaroensis	Pajaro manzanita		X				
Arctostaphylos regismontana	Kings Mountain manzanita		X		X		
Arctostaphylos silvicola	Bonny Doon manzanita		X				
Arenaria paludicola	marsh sandwort				X		
Callitropsis abramsiana	Santa Cruz cypress		X		X		
Calyptridium parryi var. *hesseae*	Santa Cruz Mountains pussypaws				X		
Campanula californica	swamp harebell				X		X
Carex comosa	bristly sedge				X		X
Carex saliniformis	deceiving sedge					X	X
Chorizanthe pungens var. *hartwegiana*	Ben Lomond spineflower					X	
Chorizanthe robusta var. *hartwegii*	Scotts Valley spineflower				X		
Chorizanthe robusta var. *robusta*	robust spineflower			X			
Cirsium fontinale var. *campylon*	Mt. Hamilton fountain thistle			X	X		
Collinsia multicolor	San Francisco collinsia	S				X	
Dacryophyllum falcifolium	tear drop moss			X			
Didymodon norrisii	Norris' beard moss			X	X		
Dudleya setchellii	Santa Clara Valley dudleya	S		X			
Erysimum teretifolium	Santa Cruz wallflower					X	
Fissidens pauperculus	minute pocket moss					X	
Fritillaria liliacea	fragrant fritillary	S					X
Grindelia hirsutula var. *maritima*	San Francisco gumplant	S					X
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax					X	
Hoita strobilina	Loma Prieta hoita	S					
Horkelia cuneata ssp. *sericea*	Kellogg's horkelia					X	X
Horkelia marinensis	Point Reyes horkelia					X	X
Lessingia hololeuca	woolly-headed lessingia	S		X			
Lessingia micradenia var. *glabrata*	smooth lessingia	S			X		
Malacothamnus arcuatus	arcuate bush-mallow		X			X	

Appendix C. Special-Status Plant Species Considered but Rejected for Occurrence.

SCIENTIFIC NAME	COMMON NAME	Lack of Serpentine (S) or Alkaline (A) Soils	Perennial Shrub or Tree Not Observed	Other Edaphic Requirements	Outside the Elevation or Endemic Range, or Outside Known Extant Range	Specific Habitat Type Not Present on Site	Highly Degraded Site Conditions
Micropus amphibolus	Mt. Diablo cottonweed			X			
Mielichhoferia elongata	elongate copper moss			X	X		
Monardella villosa ssp. *globosa*	robust monardella						X
Orthotrichum kellmanii	Kellman's bristle moss			X	X	X	
Penstemon rattanii var. *kleei*	Santa Cruz Mountains beardtongue				X	X	
Pentachaeta bellidiflora	white-rayed pentachaeta	S					X
Pinus radiata	Monterey pine		X		X		
Piperia candida	white-flowered rein orchid	S				X	
Plagiobothrys chorisianus var. *chorisianus*	Choris' popcorn-flower					X	X
Plagiobothrys glaber	hairless popcorn-flower	A					X
Polygala subspinosa	spiny milkwort			X	X	X	
Polygonum hickmanii	Scotts Valley polygonum			X	X		
Rosa pinetorum	pine rose		X			X	
Stebbinsoseris decipiens	Santa Cruz microseris	S					X
Streptanthus albidus ssp. *albidus*	Metcalf Canyon jewel-flower	S					
Streptanthus albidus ssp. *peramoenus*	most beautiful jewel-flower	S					
Trifolium buckwestiorum	Santa Cruz clover			X		X	

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APPENDIX D.
HABITAT ASSESSMENT REPORT FOR ENDANGERED INSECTS

Richard A. Arnold, Ph.D.
President

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1 November 2008

Mr. Max Busnardo
H.T. Harvey & Associates
983 University Avenue, Bldg. D
Los Gatos, CA 95032

RE: APN 074-181-01, Lichen Oaks Ranch at 110 Quail Hollow Road in Felton, CA
Habitat Assessment Report for Endangered Insects at

Dear Max:

This letter reports on the findings of my recent habitat assessment survey at the above-noted property for the federally endangered Mount Hermon June beetle (MHJB) and Zayante Band Wing grasshopper (ZBWG). Specifically, I examined the portion of this property where the proposed Quail Hollow Brook Pond restoration will occur. I can briefly summarize the findings of my habitat assessment by stating that the ZBWG insects is unlikely to occur within the project area, but the MHJB is likely to occur there, especially portions characterized by Zayante sandy soils. The remainder of this letter provides pertinent background information on these species, describes my survey methods and findings in greater detail, and offers recommendations for project planning.

Background Information.

The MHJB is known scientifically as *Polyphylla barbata* (Coleoptera: Scarabaeidae) and was described in 1938 from specimens collected on Mount Hermon in Santa Cruz County. Of the 28 species of *Polyphylla* that occur in North America, the MHJB has one of the most restricted geographic ranges. It is found in association with Zayante sandy soils in the Felton-Scotts Valley-Mt. Hermon-Ben Lomond area of Santa Cruz County, CA, and is known only from these Zayante sandhills. In 2008 it was also confirmed to occur in the Bonny Doon area. Due to the beetle's limited geographic range, plus the historical and anticipated loss of habitat within its limited range, the U.S. Fish & Wildlife Service (USFWS) recognized the MHJB as an endangered species in 1997, pursuant to provisions of the federal Endangered Species Act of 1973 (FESA).

The Zayante sandhills support several indigenous plants communities that are preferred by the MHJB, including Silverleaf Manzanita Chaparral with Ponderosa pine, Sand Chaparral, mixed Silverleaf Manzanita Chaparral, Ponderosa Pine Forest, dense sand parkland, and open sand parkland. These plant communities often intergrade to become a mosaic mixture of Ponderosa pine, chaparral, and sparsely-vegetated areas of grasses, forbs and subshrubs.

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Within the Zayante sandhills MHJB has been found at about 70 locations. A common feature of all known MHJB locations is the presence of Ponderosa pine and for this reason it has been considered a potential food plant of the MHJB larvae, which are subterranean and feed on roots. However, recent studies of MHJB larvae by Kirsten Hill, a master's student at San Jose State, did not find any evidence of Ponderosa pine in larval fecal pellets, so the pine may merely be an indicator of suitable habitat. Additional information on the MHJB can be found in the final ruling to recognize it as an endangered species (USFWS 1997) and its recovery plan (USFWS 1998).

The ZBWG is known scientifically as *Trimerotropis infantilis* (Orthoptera: Acrididae: Oedopodinae) and was described in 1984 from specimens collected near Mount Hermon in Santa Cruz County. It is found in association with Zayante sandy soils in the Mount Hermon-Felton-Scotts Valley-Ben Lomond area of Santa Cruz County, CA. Historically it has been found at about 20 locations in the Zayante sandhills. Due to the grasshopper's limited geographic range, plus the historical and anticipated loss of habitat within its limited range, the USFWS recognized the ZBWG as an endangered species in 1997, pursuant to provisions of FESA.

Within the sand parkland plant community that is indigenous to the Zayante sandhills, the ZBWG is restricted to areas of barren or sparsely-vegetated loose sands that are sunlit, i.e., open sand parkland. Adults are usually active from about late-July through late October. There is a single generation per year. Additional information on the ZBWG can be found in the final ruling to recognize it as an endangered species (USFWS 1997) and its recovery plan (USFWS 1998).

Project Site Description.

According to information in Santa Cruz County's online geographic information system, your client's property measures approximately 91 acres in size. It is located on the northeast side of Quail Hollow Road, between the Quail Hollow County Park and East Zayante Road. The current land use is a horse ranch.

The proposed project is restoration of a sediment filled pond, located within Quail Hollow Brook, a perennial stream that drains into Zayante Creek. An existing culvert that drains the overflow of the pond also needs to be replaced. Figure 1 is an aerial photo map of the project site prepared by H.T. Harvey & Associates.

Topography throughout the property generally slopes from north to south and west to east towards Zayante Creek. Bowman and Estrada (1980) indicate that the primary soils at this property include Zayante sands, Nisene-Aptos complex, and Soquel loam. Zayante sands occur north of the pond and Soquel loam occurs south of the pond (Figure 1).

Survey Methods and Results.

I visited the property on October 28th and met you there. I walked throughout the entire project area and drove throughout the neighborhood to view existing site and habitat conditions on surrounding properties. Vegetation alongside of the pond, drainage,

EXHIBIT F

and existing driveway access to the project site is riparian. Scattered Ponderosa pines grow within the riparian corridor and at the pond project site. On both sides of the riparian corridor are grasslands that are used as horse pastures.

Although no indigenous native plant communities of the Zayante sandhills were observed at the project site, the presence of Zayante sands and scattered Ponderosa pine trees suggest that those portions of the project site on the north side of the pond and Quail Hollow Brook are potentially suitable habitat for the MHJB. At other locations in the Zayante sandhills, I have found the MHJB in similar habitat conditions, so if I conducted a presence-absence survey for the beetle at the project site, I would not be surprised to find it there. In contrast, the absence of sand parkland vegetation at the project site means that the ZBWG would not occur there.

Recommendations for Project Planning.

Because the MHJB is not known to live in Soquel loam soils, I recommend that all access to the project site and work be conducted from the south side of the pond and Quail Hollow Brook to avoid impacts to this endangered beetle and its habitat. If any dredging equipment or other vehicles need to work near the solitary Ponderosa pine tree growing on the southwestern shoreline of the pond (Figure 1), I recommend that geotextile fabric or another suitable material be laid on the soil around that tree to avoid any ground disturbance or damage to that tree and the area immediately surrounding it. If a temporary access road to the pond is cut through the trees in the riparian corridor south of this pine, I suggest placing the geotextile fabric between the western border of the access road and the aforementioned Ponderosa pine tree.

Excavation of sediments within the pond should not cause any impacts to the MHJB or its habitat, since it is a terrestrial rather than an aquatic insect. I recommend that all excavation work stay below the high water line of the pond to avoid potential impacts to the beetle. Any work above the high water line of the pond and located on the north side of the pond (except for the aforementioned Ponderosa pine tree on the south side) should be treated as impacts to MHJB habitat.

If it is necessary to perform any work or equipment access from the north side of the drainage and pond (i.e., above the high water line of these aquatic habitats), I recommend that an access route and work area be defined and fenced with construction fencing during all phases of the project, including habitat restoration. All workers should be advised about the sensitivity of the habitat and the need to stay within designated areas. Access routes and work areas (exclusive of the pond itself) should be treated as impacts to MHJB and its habitat. Replacement of the existing culvert that is located on the north side of the pond will also be an impact to MHJB habitat. Figures 2 and 3 are ground level photographs that illustrate existing site conditions at the northeastern margin of the pond and along an existing ranch road that would probably be used for access.

If possible, I recommend that the project observe the following additional avoidance and minimization measures. Since the MHJB adult flight season generally occurs between mid-May and mid-August, ideally work should be performed outside of

that period. If any work must be performed within that time of year, all activities should occur within the daytime. Tarps should be laid on any Zayante sands at the project site (i.e., the north side of the project site and access routes) as male MHJBs are attracted to recently disturbed Zayante sands. Tarps will need to be placed on all disturbed sandy areas at the end of each work day and remain on the ground between 7pm and 7 am. Also, night lighting in the work area should be avoided, or if necessary for security or other reasons, bulbs that are designed to not attract nocturnal insects such as the MHJB should be used.

Although it is possible to mitigate on-site, a mitigation ratio of 3:1 (mitigation area:impacted area) will likely be necessary to get the approval of USFWS. Also, the mitigation area will need to be protected via a conservation easement or other mechanism, habitat management and species monitoring will need to occur in perpetuity, and an endowment will be needed to fund all activities. Alternatively, your client can purchase conservation credits for the MHJB from the USFWS-approved Zayante Sandhills Conservation Bank. Using this mitigation solution, the mitigation ratio is generally 1:1 and your client will not need to deal with the other requirements of on-site mitigation. The area of impact is calculated and the credit fee is currently $7.50 per sq. ft. of impact area. Contact Paul Burrowes at 408-497-3989 for more information. If you visit the conservation bank's website, you will see my name listed. However, I merely worked as a consultant to the bank to help it get established and have no financial interest in it.

References Cited.

Bowman, R.H. and D.C. Estrada. 1980. Soil survey of Santa Cruz County, California. U.S. Dept. of Agriculture and Soil Conservation Service in cooperation with the University of California, Agricultural Experiment Station Publications. 148 pp. & maps.

U.S. Fish & Wildlife Service. 1997. Endangered and threatened wildlife and plants: determination of endangered status for two insects from the Santa Cruz Mountains of California. Federal Register 62:3616-3628.

U.S. Fish & Wildlife Service. 1998. Recovery plant for two insects and four plants from the Santa Cruz Mountains. Portland, OR. 63 pp.

Please feel free to contact me if you have questions about my survey findings or need further assistance with this project.

Sincerely,

Richard A. Arnold

Richard A. Arnold, Ph.D.
President

Attachments

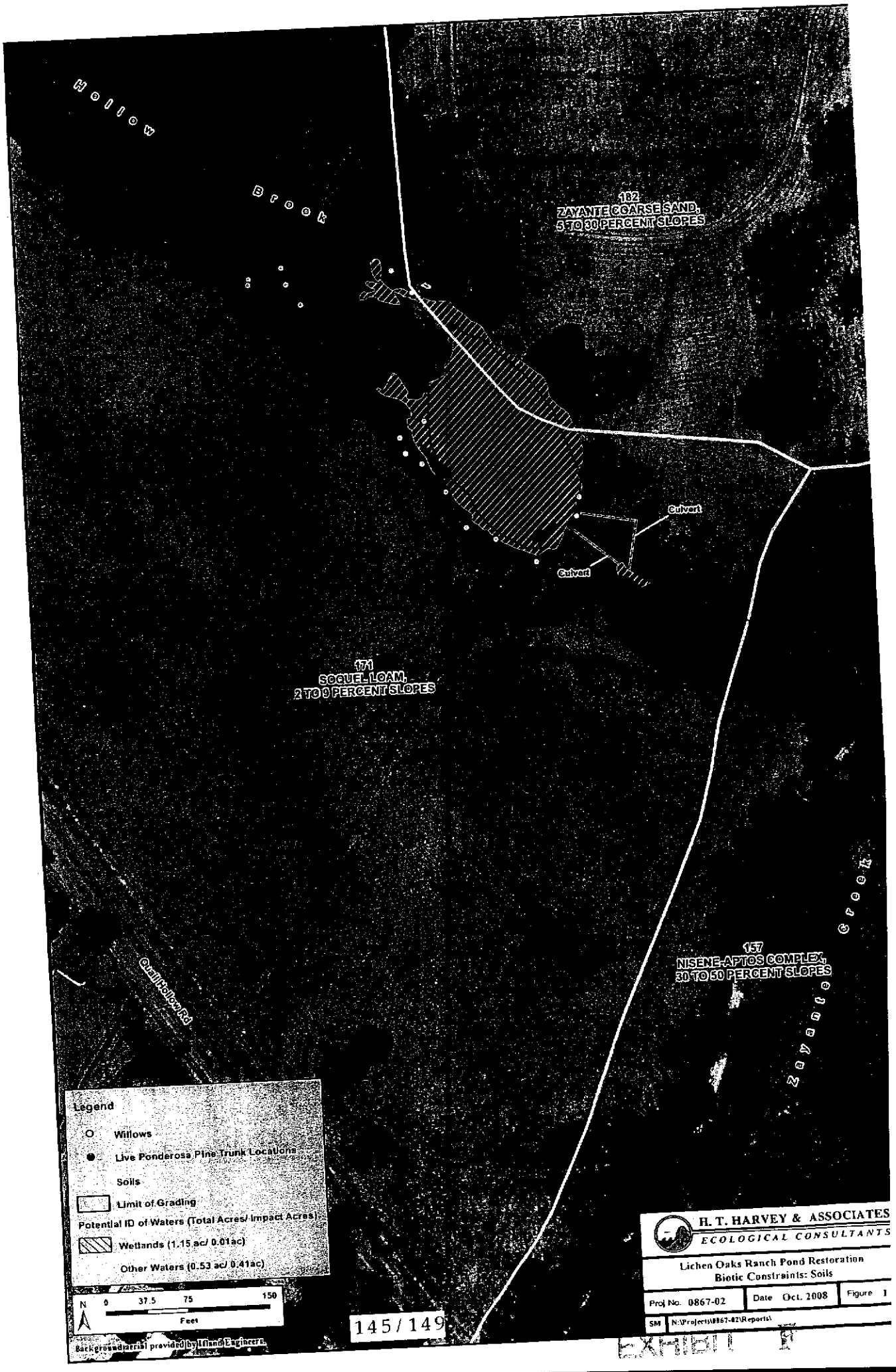
Hollow Brook
182
ZAYANTE COARSE SAND,
5 TO 30 PERCENT SLOPES
Culvert
Culvert
171
SOQUEL LOAM,
2 TO 9 PERCENT SLOPES
157
NISENE-APTOS COMPLEX,
30 TO 50 PERCENT SLOPES
Quail Hollow Rd
Zayante Creek
Legend
Willows
Live Ponderosa Pine Trunk Locations
Soils
Limit of Grading
Potential ID of Waters (Total Acres/ Impact Acres)
Wetlands (1.15 ac/ 0.01ac)
Other Waters (0.53 ac/ 0.41ac)
N
0
37.5
75
150
Feet
Background aerial provided by Ifland Engineers.
H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS
Lichen Oaks Ranch Pond Restoration
Biotic Constraints: Soils
Proj No. 0867-02
Date Oct. 2008
Figure 1
SM
N:\Projects\0867-02\Reports\

Figure 2 (above). Proposed access road along north side of riparian corridor of Quail Hollow Brook.

Figure 3 (below). Northeastern shoreline area of pond.

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SUPPLEMENTARY ARCHAEOLOGICAL RECONNAISSANCE FOR THE LICHEN OAKS RANCH POND RESTORATION ON APN 074-181-01 FELTON, SANTA CRUZ COUNTY, CALIFORNIA

by

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

April 30, 2009

Prepared for

Floyd and Jean Kvamme

SUMMARY: PROJECT 3514B
RESULTS: SEE TEXT
ACRES: ±3 OF THE 86.2 ACRE PARCEL
SITES: CA-SCR-134
UTMG: 5.8405/41.0360
MAP: USGS 7.5 MINUTE FELTON QUADRANGLE

EXHIBIT G

Note: *SOPA*, the Society of Professional Archaeologists, has been superseded by the new Registry of Professional Archaeologists. Registered Professional Archaeologists are designated by RPA.

The previous search at the Northwest Regional Information Center found a prehistoric archaeological site recorded within the project area in 1973 by Buckman and Farley. CA-SCR-134 was sited in the pond area based on a verbal account of the discovery of several groundstone artifacts during pond construction in the 1920's. A brief survey around the pond in 1973 failed to locate *in situ* evidence of the archaeological deposit. Because of limitations on the survey area, Buckman and Farley could not determine whether the site was located further from the pond or whether it had been "destroyed by pond construction."

Field Research

None of the materials frequently associated with prehistoric cultural resources in this area (dark midden soil, marine shell fragments, broken or fire-altered rocks, bones or bone fragments, flaked or ground stone, etc.) were noted during the current survey around the pond and on the road over the dam. The soil in the project area was a light to medium gray-brown sandy silt.

No evidence of potentially significant historic resources was seen in the project area.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the background research and the surface reconnaissance, we have concluded that the project area probably contained evidence of potentially significant archaeological resources before the original pond construction. There is no apparent surface evidence of cultural resources remaining at this time. However, dredging of the pond may reveal remnants of the original site location when the silt overburden is removed. In addition, because the dam was constructed of earth from the archaeological site, materials with a potential to provide information about the archaeological deposit may still be recovered from proposed excavations into the dam for the new drainage culvert. Because of this we make the following recommendations:

EXHIBIT G

- A qualified archaeological monitor should observe the excavations for the new drainage culvert as well as other earthwork and construction activities which may impact native soil. If, at any time, potentially significant archaeological resources or human remains are found, work shall be halted within 50 meters (150 feet) of the find until it can be evaluated by the monitor and/or principal archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated, with the concurrence of the lead agency, and implemented.

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

- If potentially significant archaeological resources or human remains 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 concurrence of the lead agency, and implemented.