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**

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.

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
Special Designation: No

Urban Services Line:	___ Inside	x Outside
Coastal Zone:	___ Inside	x Outside

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

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	

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The geotechnical report cited above did not identify a significant potential for damage caused by any of these hazards.

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.

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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

	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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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.

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

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).

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

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,*

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

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.*

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

- ***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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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).*

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- ***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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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*

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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	____

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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:

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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:

	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

	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	____

	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.

	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

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

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

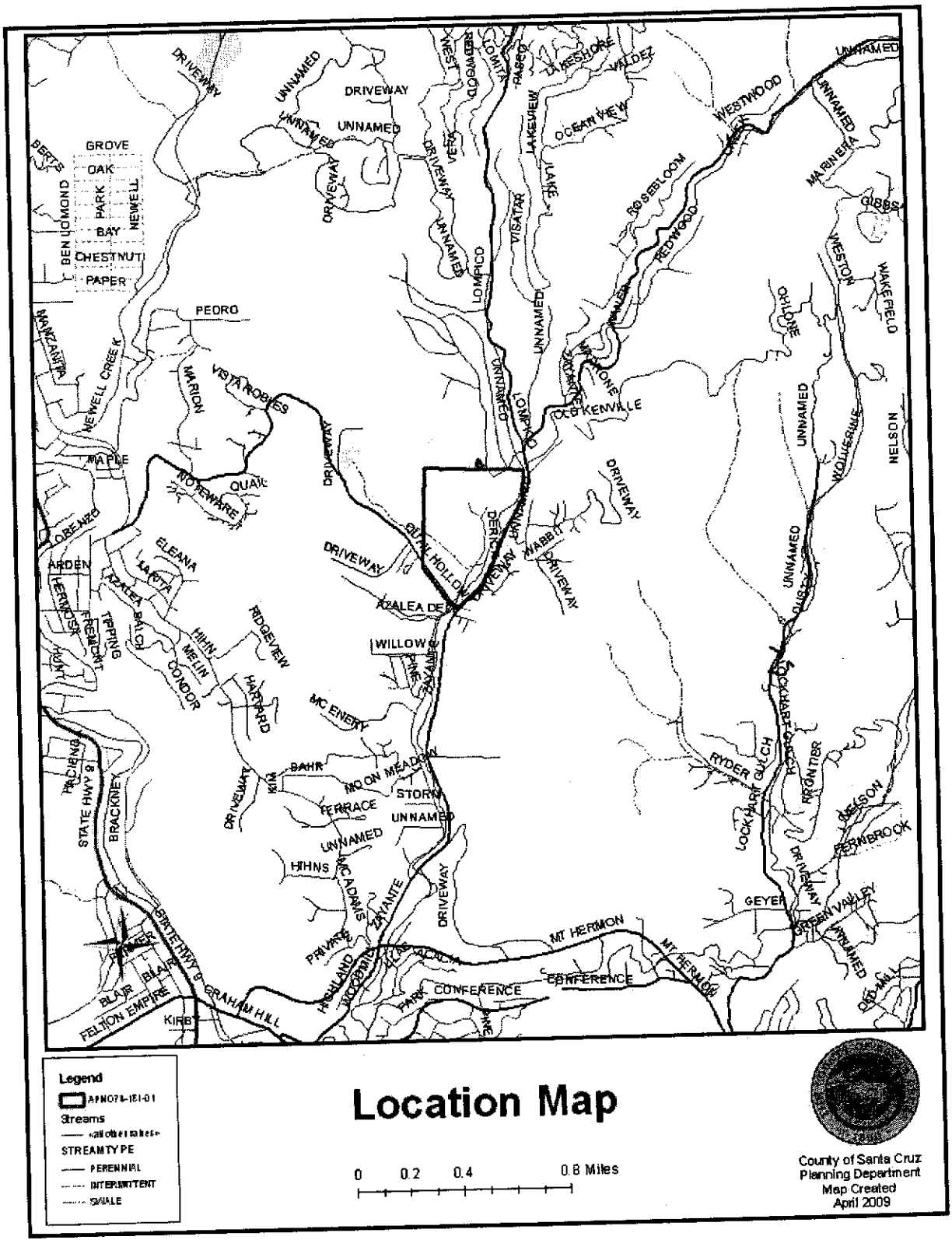
Other:

Attachments:

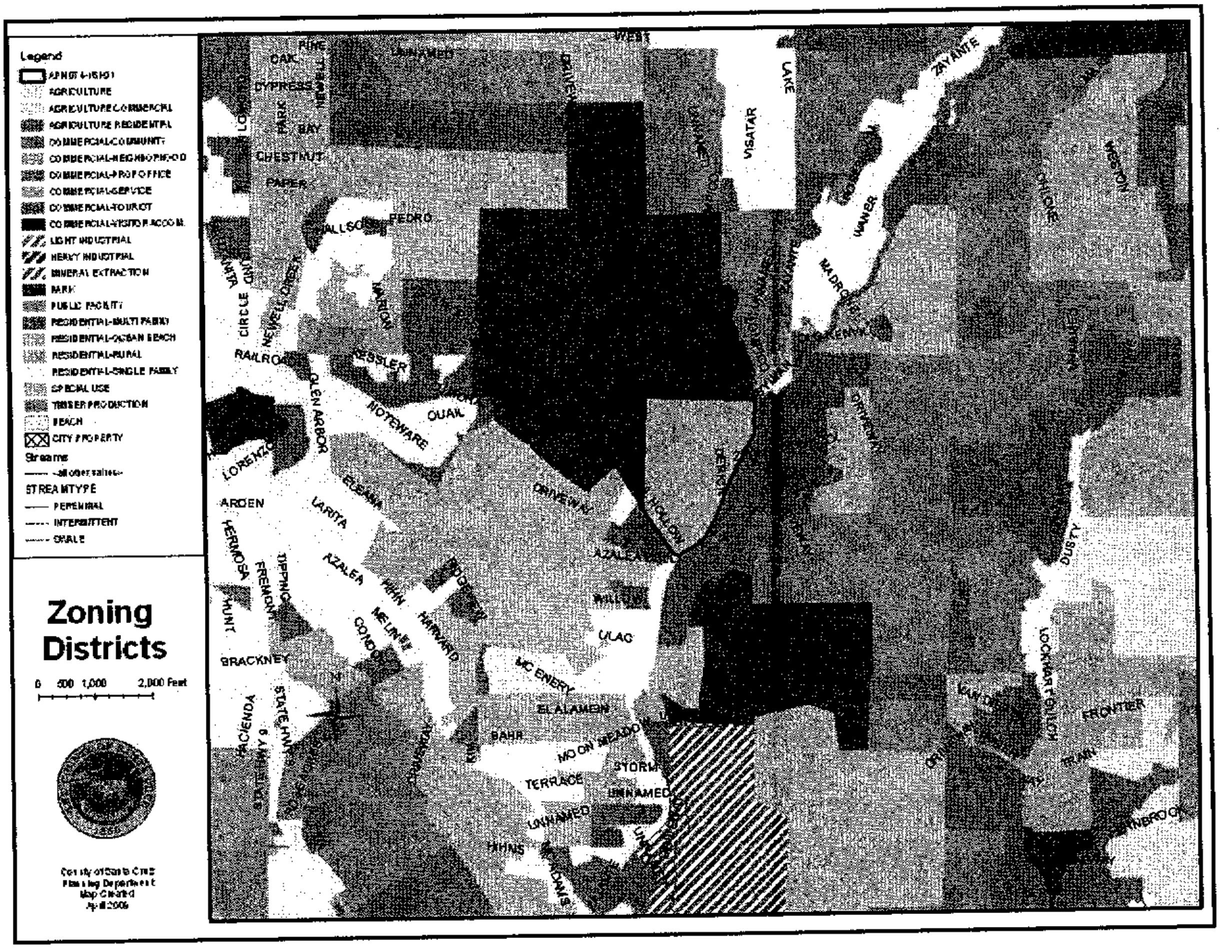
1. Project Maps
2. Civil plan sheets C1-C3, EC1, S1-S2 prepared by Ifland Engineers dated 1/26/09
3. Landscape Plans prepared by HT Harvey dated 12/16/2008, 6 sheets
4. Geotechnical Review Letter prepared by Carolyn Banti, dated March 19, 2009
5. Geotechnical Investigation (Conclusions and Recommendations) 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 Consutling, 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

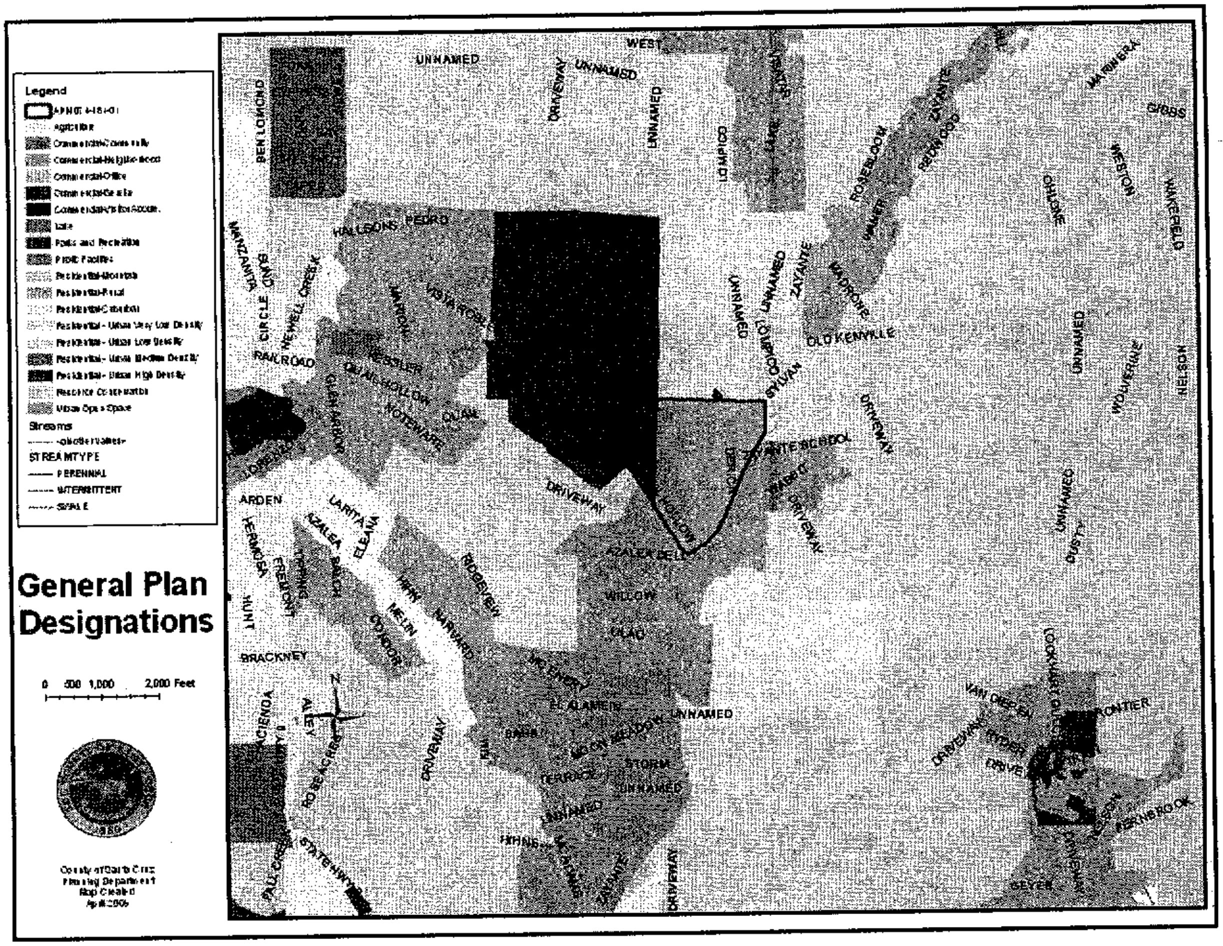
References on file with the County of Santa Cruz:

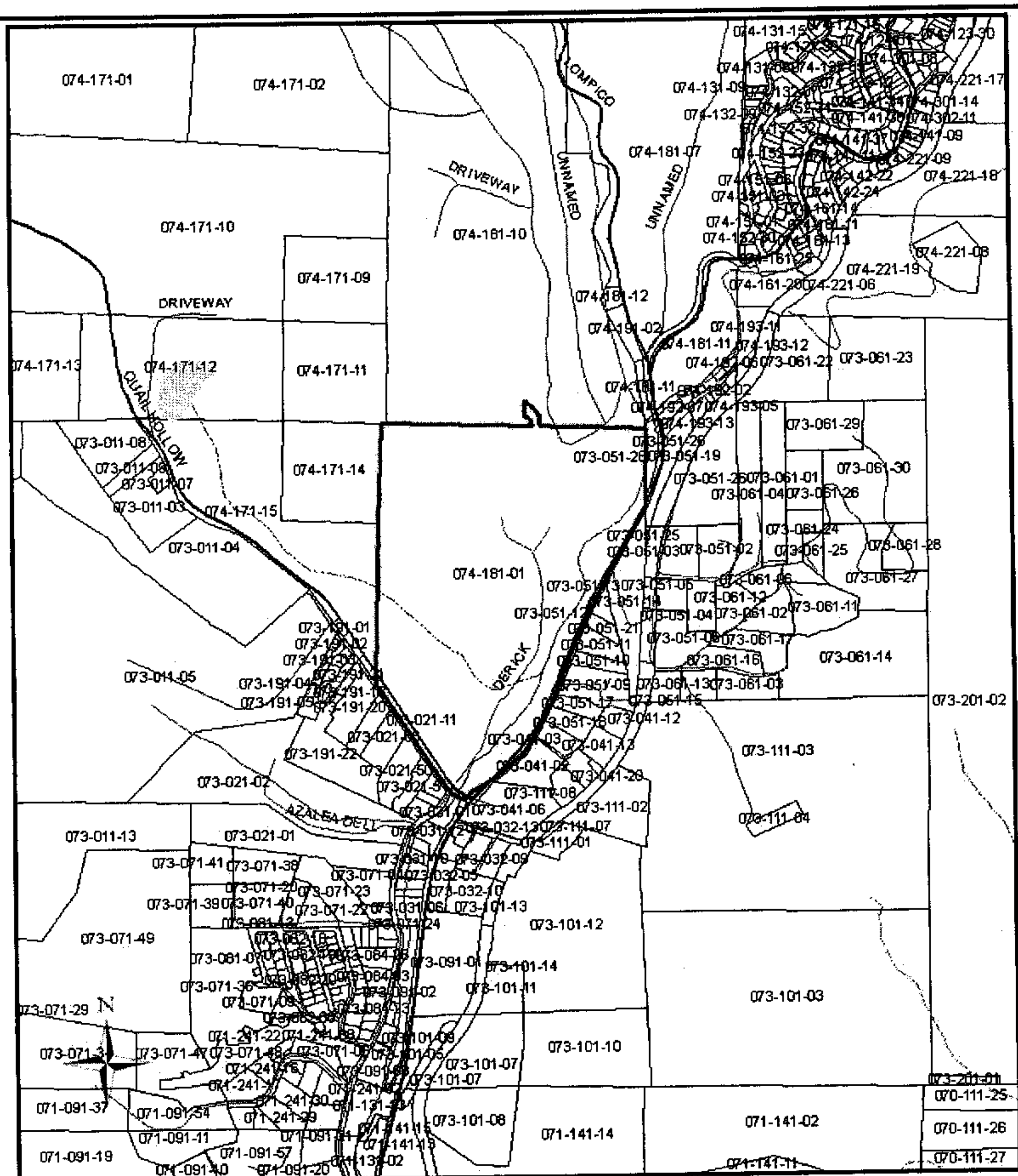
- Lichen Oaks Ranch Pond Restoration Project Final Biotic Study, prepared by H.T. Harvey and Associates dated December 15, 2008, updated April 20, 2009



Attachment 1


Zoning
Districts
0 500 1,000 2,000 Feet
Legend
AGRICULTURE
STREAMTYPE
PERENNIAL
INTERMITTENT
SWALE
ARDEN
BRACKNEY
HERMOSA
HUNT
LORENZO
GLEN ARBOR
NEWELL CREEK
CIRCLE
NOTEWARE
QUAIL
ELEANA
LARITA
AZALEA
HARVARD
MC ENERY
EL ALAMEIN
MOON MEADOW
TERRACE
STORM
UNNAMED
BAHR
ULAC
VISATAR
LAKE
ZAYANTE
MADRONE
DUSTY
LOCKWART GULCH
FRONTIER
WESTON
CHESTNUT
CYPRESS
OAK
PINE
BAY
PARK
PAPER
PEDRO
STATE HWY 9
HACIENDA
FREMONT


Legend
General Plan Designations
0 500 1,000 2,000 Feet
UNNAMED
WEST
DRIVEWAY
BEN LOMOND
MANZANITA
CIRCLE
NEWELL CREEK
RAILROAD
PEDRO
OLD KENVILLE
ZAYANTE
ROSEBLOOM
WESTON
WAKEFIELD
NELSON
ARDEN
HERMOSA
FREMONT
HUNT
BRACKNEY
AZALEA
LARITA
ELEANA
RIDGEVIEW
WILLOW
AZALEA BELL
STORM
FRONTIER
VAN DIEGEN
FERNBROOK
SEYER
STATE HWY



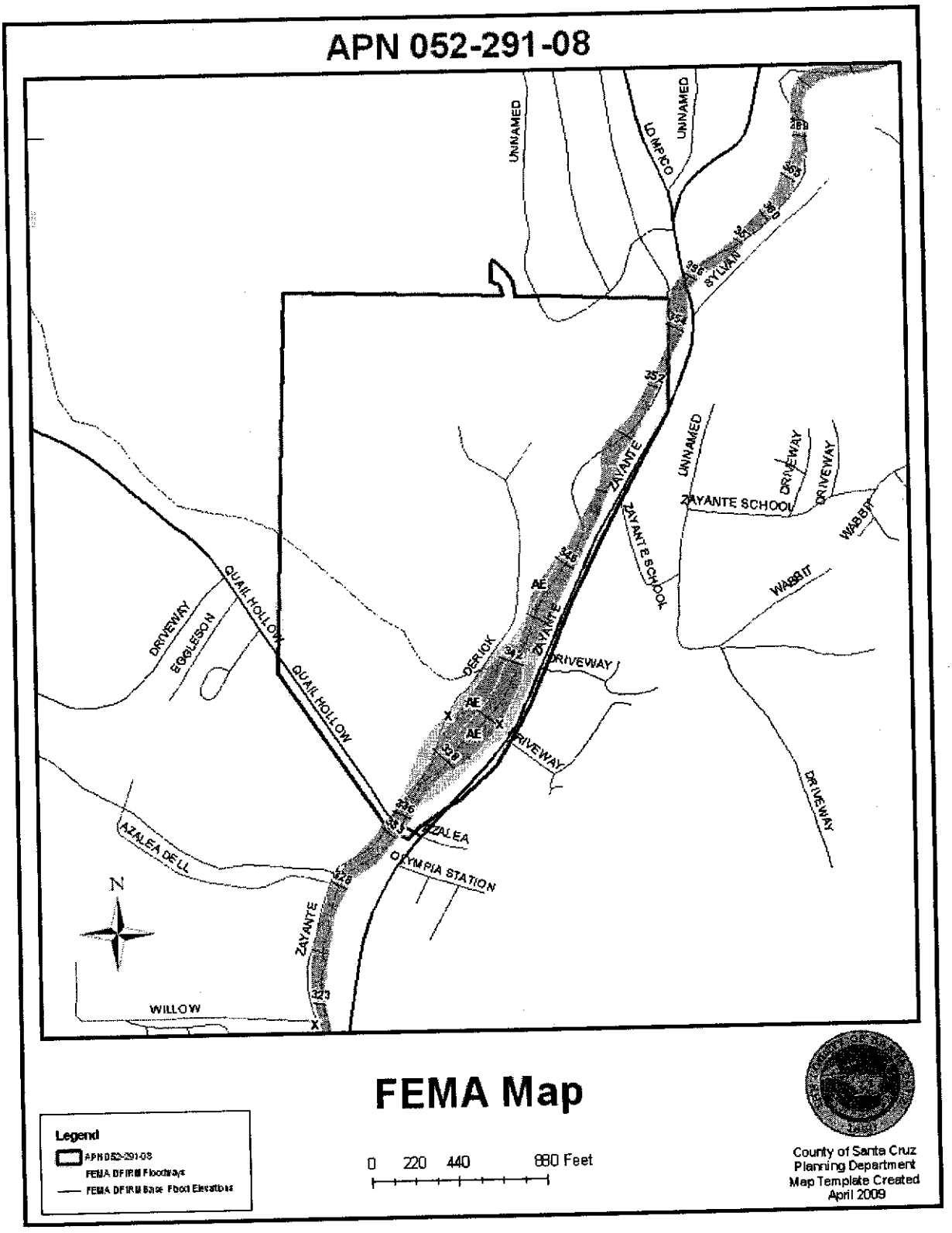
Assessors Parcel Map

Legend
APN074-181-01
Streams
STREAMTYPE
PERENNIAL
INTERMITTENT
SWALE

0 0.05 0.1 0.2 Miles

County of Santa Cruz
Planning Department
Map Created
April 2009

APN 052-291-08

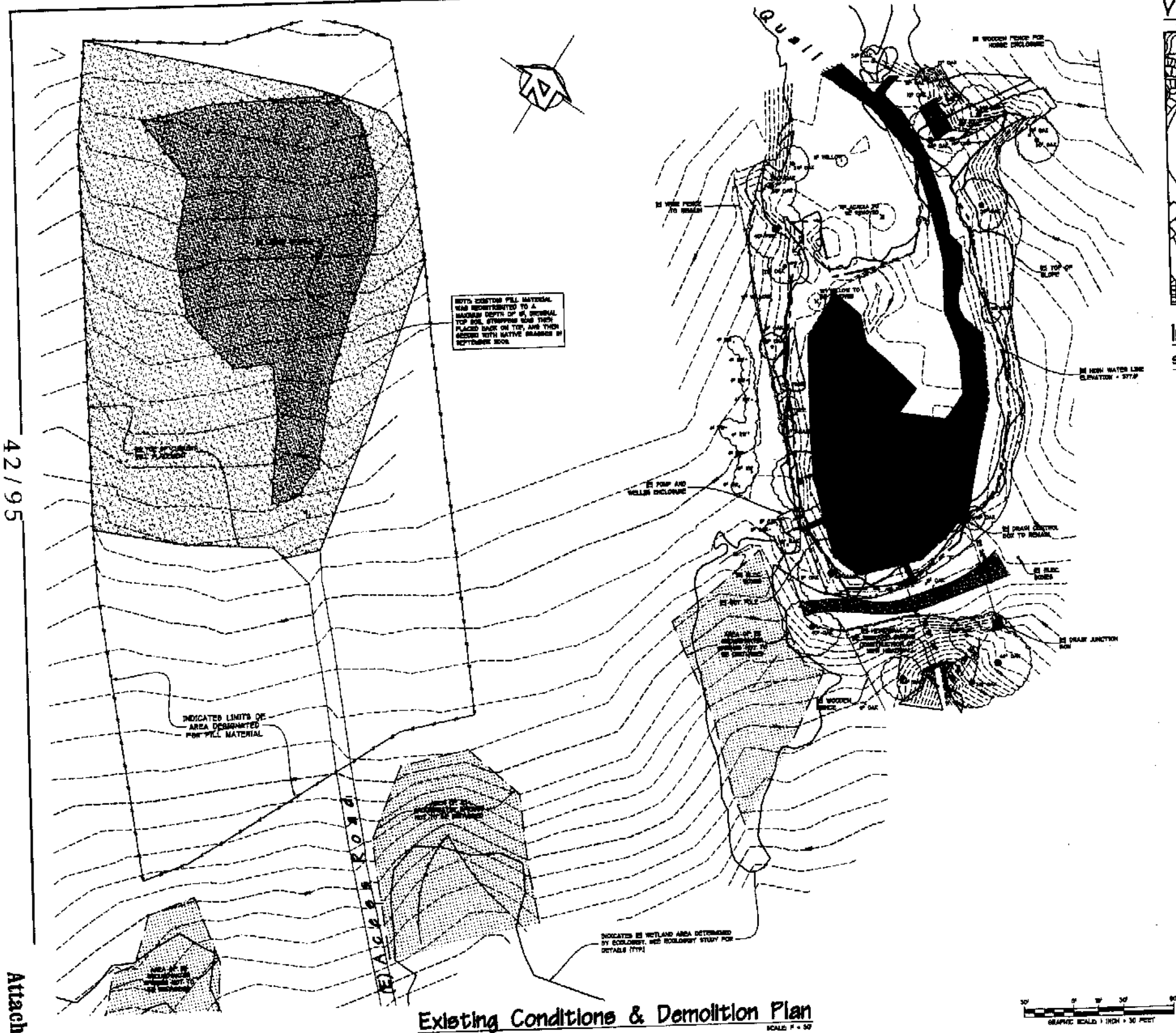


FEMA Map

Legend
- APN 052-291-08
- FEMA DFIRM Floodways
- FEMA DFIRM Base Flood Elevations

0 220 440 880 Feet

County of Santa Cruz
Planning Department
Map Template Created
April 2009

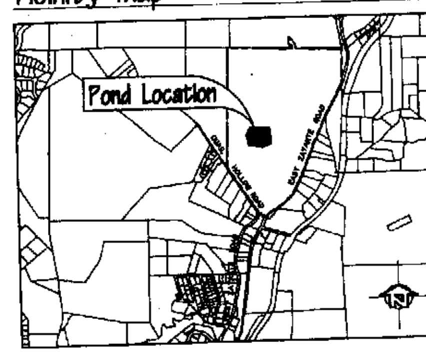


Existing Conditions & Demolition Plan

SCALE: 1" = 30'

GRAPHIC SCALE: 1 INCH = 30 FEET

Vicinity Map



Index of Sheets

SHEET NO.	DESCRIPTION
C1	EXISTING CONDITIONS & DEMOLITION PLAN
C2	PHASE 1 - GRADING & DRAINAGE PLAN
C3	PHASE 2 - GRADING & DRAINAGE PLAN
C4	CROSS-SECTION & DETAILS
C5	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 ______ DATE

APPROVED ______ DATE

ENVIRONMENTAL PLANNING
COUNTY OF SANTA CRUZ
STATE OF CALIFORNIA

REVIEWED BY: ______ DATE

APPROVED BY: ______ DATE

IFLAND ENGINEERS

Existing Conditions

Lichen Oaks Pond

110 Quail Hollow Road, Felton, California

APN: 074-181-01

SHEET C1

JOB NO. 03009.01

Attachment 2

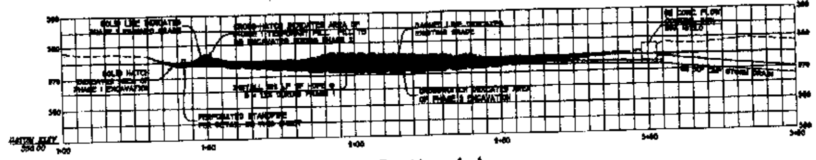
General Grading Notes

1. NO CHANGES IN THE APPROVED IMPROVEMENT PLANS SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE DEPARTMENT OF PUBLIC WORKS.
2. NO LAND CLEARING, GRADING, OR EXCAVATING SHALL TAKE PLACE BETWEEN OCTOBER 15 AND APRIL 15 UNLESS A SEPARATE WINTER EROSION CONTROL PLAN IS APPROVED BY THE PLANNING DIRECTOR.
3. THE CONTRACTOR SHALL APPLY WATER TO ALL EXPOSED EARTH SURFACES AT INTERVALS SUFFICIENT TO PREVENT AIRBORNE DUST FROM LEAVING THE PROJECT SITE. ALL EXPOSED EARTH SHALL BE WATERED DOWN AT THE END OF THE WORK DAY.
4. WHILE IN TRANSIT TO AND FROM THE PROJECT SITE, ALL TRUCKS TRANSPORTING FILL SHALL BE EQUIPPED WITH TARPS.
5. ALL GRADING WORK AND CONSTRUCTION OF IMPROVEMENTS SHALL BE DONE IN ACCORDANCE WITH RECOMMENDATIONS SPECIFIED IN THE GEOTECHNICAL REPORT PREPARED BY [illegible] ENGINEERING, [illegible]. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE COMPLETED PROJECT AND CERTIFY IN WRITING THAT THE IMPROVEMENTS HAVE BEEN CONSTRUCTED IN CONFORMANCE WITH THE GEOTECHNICAL REPORT.
6. 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 ARCHEOLOGICAL 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.
7. THE DIRECTOR OF PUBLIC WORKS, OR HIS AUTHORIZED REPRESENTATIVE, SHALL HAVE THE AUTHORITY TO "STOP WORK" IF THE WORK IS NOT BEING DONE IN ACCORDANCE WITH THE APPROVED IMPROVEMENT PLANS.
8. THE CONTRACTOR SHALL NOTIFY THE COUNTY CONSTRUCTION ENGINEER (408-454-2160) 24 HOURS PRIOR TO START OF CONSTRUCTION.
9. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO, OR USES OF, THESE PLANS. ALL CHANGES MUST BE IN WRITING AND MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

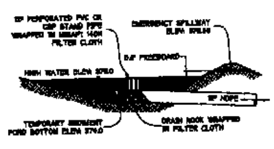
NOTE:
IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONSTRUCTION CONTRACTOR AGREES THAT HE WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE APPLIED CONTINUOUSLY AND NOT LIMITED TO NORMAL WORKING HOURS. THE CONSTRUCTION CONTRACTOR ALSO AGREES TO DEFEND, INDEMNIFY AND HOLD THE DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

Phase 1 Grading Notes

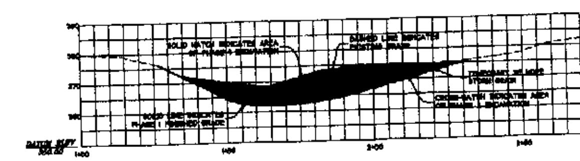
1. POND SHALL BE COMPLETELY DRAINED BEFORE ANY EXCAVATION OCCURS



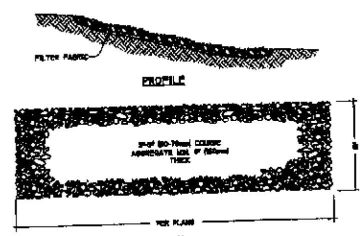
Section A-A
SCALE: 1" = 20' H, 1" = 10' V



Perforated Standpipe Detail
SCALE: 1" = 5'



Section B-B
SCALE: 1" = 20' H, 1" = 10' V



Permanent Gravel Access Road
NO SCALE

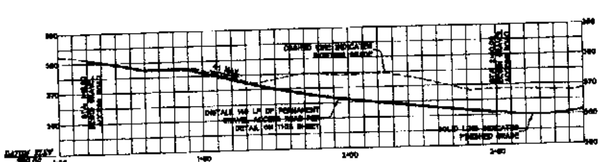
CONSTRUCTION SPECIFICATIONS:
THE AGGREGATE SIZE FOR CONSTRUCTION OF THE ACCESS ROAD SHALL BE 2-3 INCH (50-75 MM) STONE. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS.

THE THICKNESS OF THE ACCESS ROAD SHALL NOT BE LESS THAN 6 INCHES (150 MM). USE GEOTEXTILE FABRICS, IF NECESSARY, TO IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

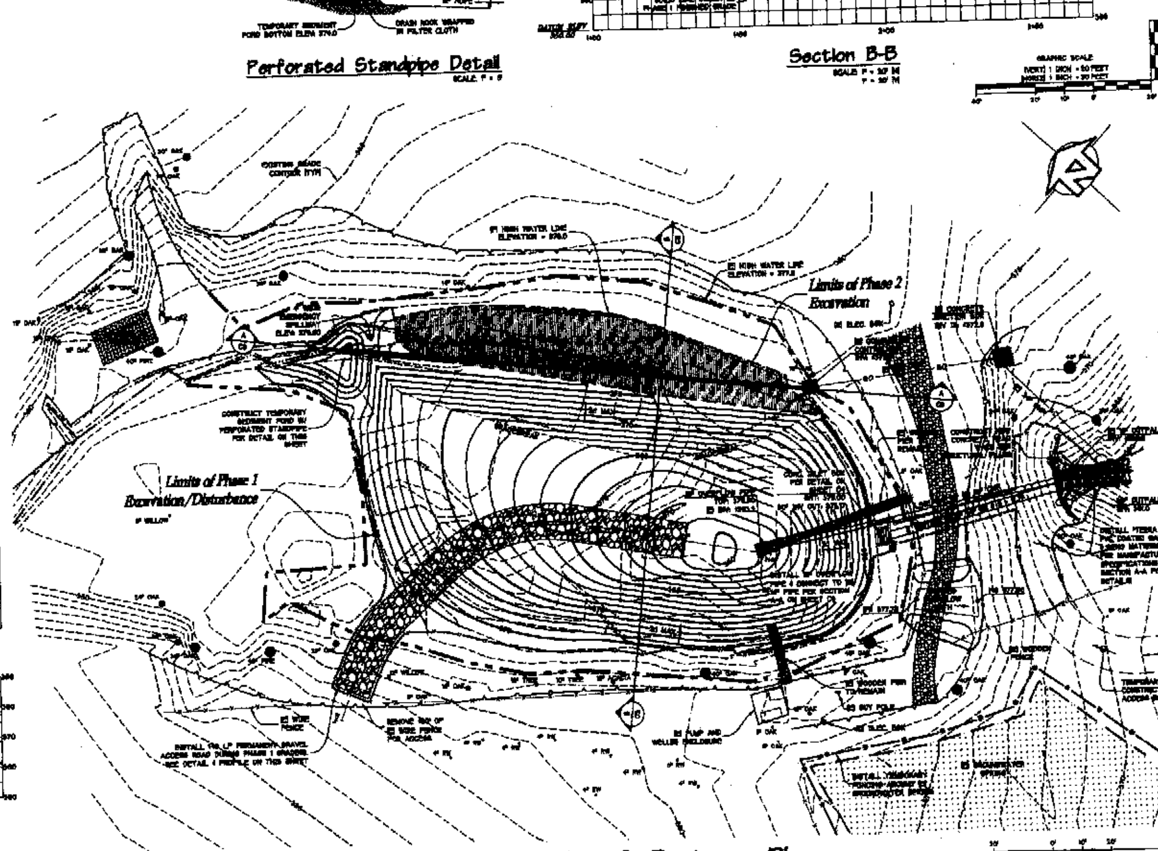
THE WIDTH OF THE ACCESS ROAD SHALL BE 12 FEET WIDE.

THE LENGTH OF THE ACCESS ROAD SHALL BE AS REQUIRED PER THE PLANS.

MAINTENANCE OF THE ACCESS ROAD MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND.



Permanent Gravel Access Road Profile
SCALE: 1" = 20' H, 1" = 10' V



Phase 1 - Grading & Drainage Plan
SCALE: 1" = 20'

IFLAND ENGINEERS
CIVIL ENGINEERING • LAND PLANNING • STRUCTURAL DESIGN

Phase 1 - Grading & Drainage Plan
Lichen Oaks Pond
110 Quail Hollow Road, Felton, California

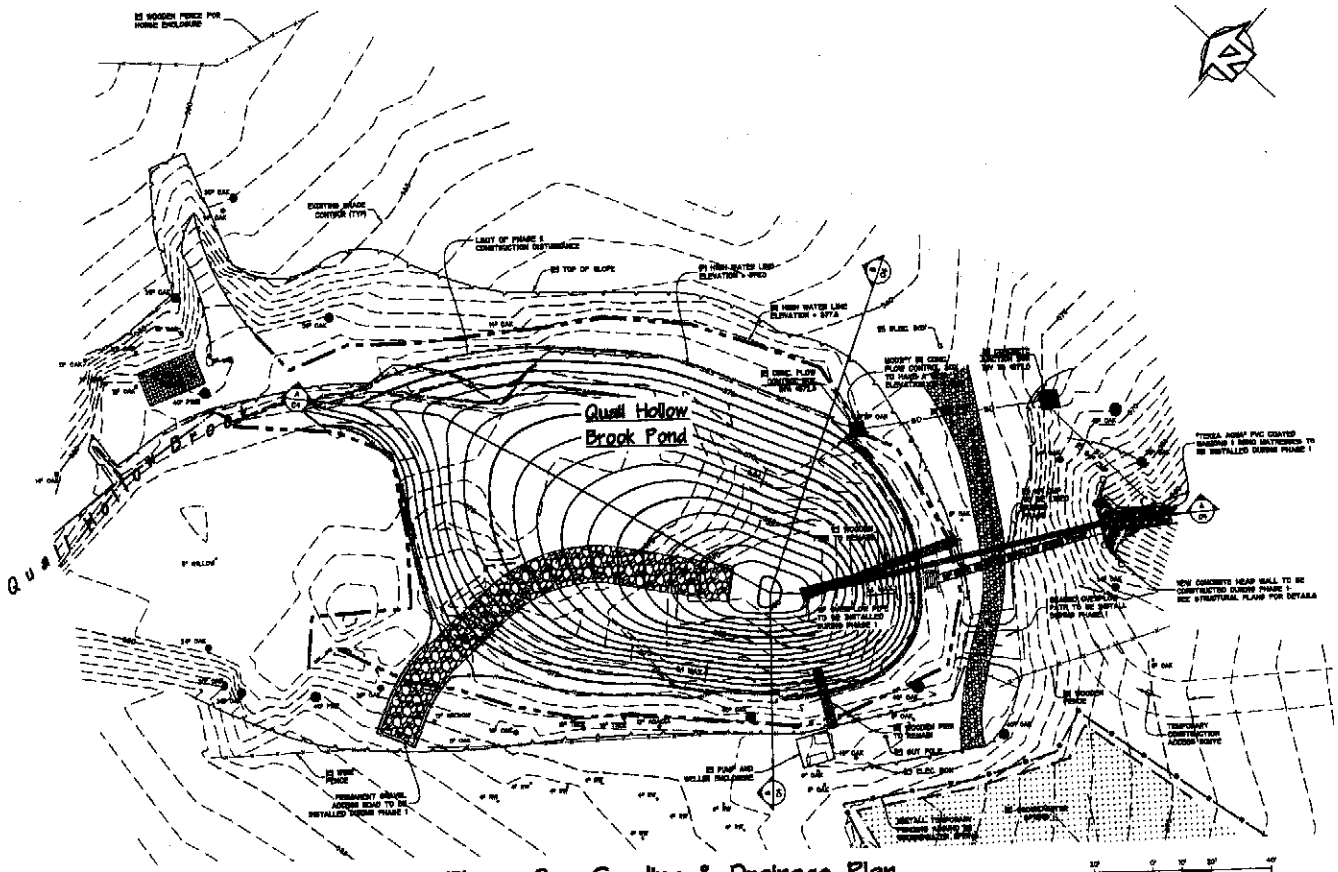
APN: 074-181-01

SHEET C2

JOB NO. 03009.01

Phase 2 Grading Notes

1. GENERAL GRADING NOTES ON SHEET C2 APPLY TO PHASE 2 GRADING.



Phase 2 - Grading & Drainage Plan

SCALE: 1" = 30'

Estimated Earthwork Quantities

3,750 CUBIC YARDS EXCAVATION
10 CUBIC YARDS EMBANKMENT
3,740 CUBIC YARDS EXPORT BALANCE ON SITE

NOTES:

1. ESTIMATE DOES NOT INCLUDE STRIPPING, UTILITY TRENCH VOLUMES OR ANY OVEREXCAVATION, IF REQUIRED BY SITE CONDITIONS.
2. ESTIMATE ASSUMES A 0% COMPACTION FACTOR ON ALL FILL MATERIAL AND A 0% EXPANSION FACTOR ON ALL CUT MATERIAL.
3. EARTHWORK QUANTITIES ARE ESTIMATES ONLY. DURING FINAL PROJECT DESIGN ESTIMATES MAY BE ADJUSTED TO ACCOUNT FOR UNSUITABLE SOILS AND SITE STRIPPING SHOULD SUCH INFORMATION BE AVAILABLE.

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CIVIL ENGINEERING • LAND PLANNING • SURVEYING

Phase 2 - Grading & Drainage Plan
Lichen Oaks Pond
110 Quail Hollow Road, Felton, California

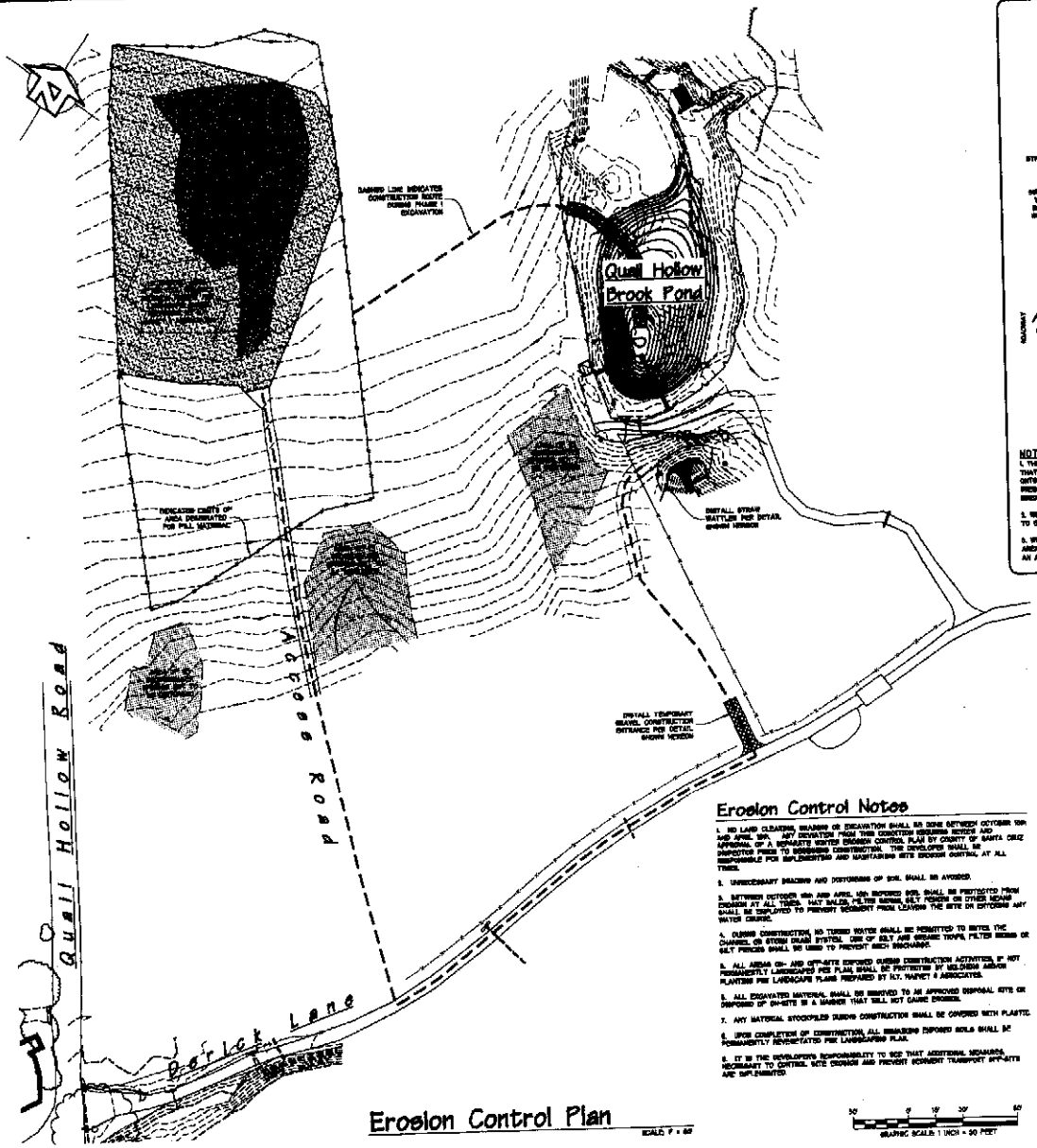
APN: 074-161-01

DESIGN: DAM
DRAWN: RYAN
DATE: 8/14/06

SHEET C3

JOB No. 03008.01

Lichen Oaka Pond
Cross-Sections & Details
110 Quail Hollow Road, Felton, California
APN: 074-181-01
C4
ENGINEERS
IFLAND
Section A-A
Section B-B
Storm Drain Profile
Concrete Inlet Box Detail



Erosion Control Plan

SCALE: 1" = 60'

GRAPHIC SCALE: 1 INCH = 30 FEET

Erosion Control Notes

1. NO LAND CLEARING, GRADING OR EXCAVATION SHALL BE DONE BETWEEN OCTOBER 15th AND APRIL 30th. ANY DEVIATION FROM THIS CONDITION REQUIRES NOTICE AND APPROVAL OF A SEPARATE WINTER EROSION CONTROL PLAN BY COUNTY OF SANTA CRUZ EMERGENCY FIRES 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 30th DISTURBED SOIL SHALL BE PROTECTED FROM EROSION AT ALL TIMES. HAY BALES, FILTER BARRIER, 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 GREASE TRAPS, FILTER BERMS OR SILT FENCES SHALL BE USED TO PREVENT SUCH DISCHARGE.

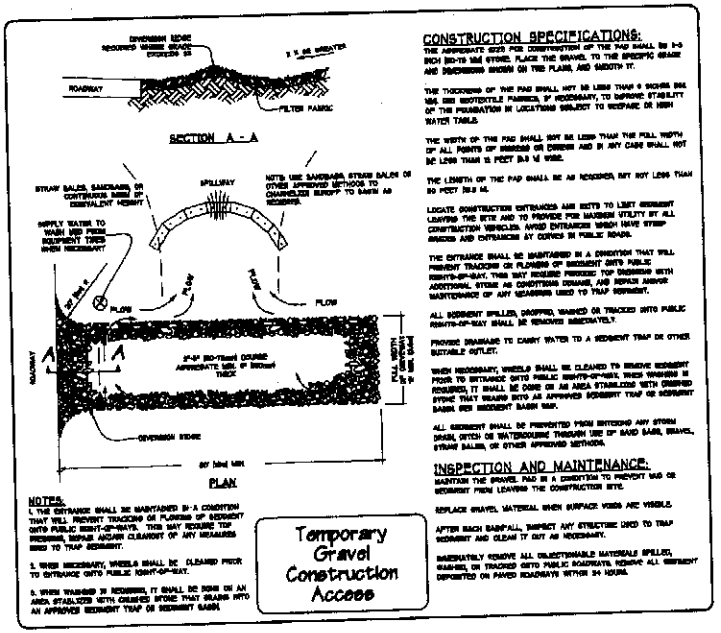
5. ALL AREAS ON- AND OFF-SITE DISTURBED DURING CONSTRUCTION ACTIVITIES, IF NOT PERMANENTLY LANDSCAPED PER PLAN, SHALL BE PROTECTED BY HOLDING AGAINST PLANTING PER LANDSCAPE PLANS PREPARED BY H.T. HARVEY & ASSOCIATES.

6. ALL EXCAVATED MATERIAL SHALL BE RESERVED 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 DEVELOPER'S RESPONSIBILITY TO SEE THAT ADDITIONAL MEASURES, NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.



Temporary Gravel Construction Access

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.

CONSTRUCTION SPECIFICATIONS:

THE AGGREGATE SIZE FOR CONSTRUCTION OF THE PAD SHALL BE 3-6 INCH (80-75 MM) STONE. PLACE THE GRAVEL TO THE SPECIFIED GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.

THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 6 INCHES (150 MM). USE GEOTEXTILE FABRICS IF NECESSARY, TO IMPROVE STABILITY OF THE FOUNDATION IN 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 (3.0 M) WIDE.

THE LENGTH OF THE PAD SHALL BE AS NECESSARY, BUT NOT LESS THAN 50 FEET (15.0 M).

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 1000.

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.

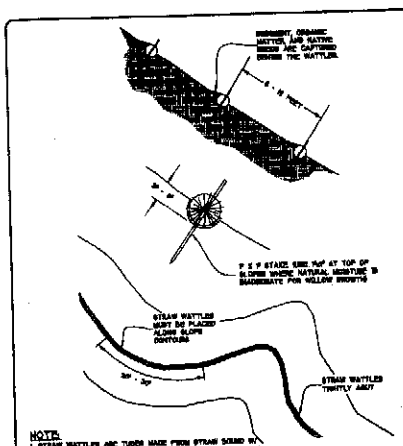
INSPECTION AND MAINTENANCE:

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.



Straw Wattles

NOTE:
1. STRAW WATTLES ARE TUBES MADE FROM STRAW BOUND W/ PLASTIC NETTING. THEY ARE APPROX. 8" DIA. AND 20 - 30 FT. LONG.
2. STRAW WATTLES TRAP SEDIMENT AND REDUCE SHEET & RILL EROSION BY REDUCING SLOPE GRADIENT, INCREASING INFILTRATION 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" - 5" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND WATTLE.

CONSTRUCTION SPECIFICATIONS

PREPARE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK 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 SEAT THE WATTLE 3/4 OF ITS THICKNESS BECAUSE THE DISTURBED SOIL SETTLES 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 WORK UP.

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

LAY THE WATTLE ALONG THE TRENCHES FITTING 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 WOODY STAKES.

DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL, LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE. 3/4 OF GREEN WILLOW STAKES BEFORE TO BASA SOIL CONSERVATION SERVICE TECHNICAL GUIDE, RECOMMENDATIONS, FOR SUBSTITUTES TO PREPARING LIVE WILLOW MATERIAL.

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

INSTALLATION AND MAINTENANCE

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

REPAIR ANY RILLS OR GULLIES PROMPTLY.

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

IFLAND ENGINEERS
CIVIL ENGINEERING • LAND PLANNING • SURVEYING
1000 BRIDGE GATE, SUITE 102, SANTA CRUZ, CA 95065
PH: (831) 426-3560 FAX: (831) 426-3562
www.ifland.com

1		
2		
3		
APPROVED		DATE

JOB NO. 05008.01

Erosion Control Plan

Lichen Oaks Pond

110 Quail Hollow Road, Felton, California

APN: 074-181-01

DESIGN	DRAWN
DMK	RYAN

DATE: 5/30/08

SHEET: C5

JOB NO. 05008.01

LICHEN OAKS RANCH POND RESTORATION LANDSCAPE/MITIGATION DRAWINGS

MAINTENANCE NOTES

1. THESE MAINTENANCE NOTES PERTAIN TO THE 2 RIPARIAN MITIGATION PLANTING AREAS.
2. THE VEGETATION MAINTENANCE PERIOD SHALL BEGIN UPON WRITTEN NOTICE OF ACCEPTANCE OF PLANT INSTALLATION FROM PROJECT BIOLOGIST AND SHALL CONTINUE FOR A MINIMUM OF 3 YEARS.
3. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, LABOR, AND MATERIALS REQUIRED TO IRRIGATE, REPLACE DEAD PLANTS, CONTROL WEEDS, MAINTAIN THE FOLIAGE PROTECTION CAGES, AND MAINTAIN THE WATERING BASINS DURING THE 3-YEAR PLANT ESTABLISHMENT PERIOD.
4. THE INSTALLATION OF REPLACEMENT PLANTS MAY TRIGGER A NEW 3-YEAR PLANT ESTABLISHMENT PERIOD FOR THOSE PLANTS. IN SUCH CASES, CONTRACTOR SHALL IRRIGATE THOSE PLANTS, MAINTAIN THEIR WATERING BASINS, AND MAINTAIN THEIR FOLIAGE PROTECTION CAGES FOR 3 YEARS AFTER THEIR INSTALLATION.
5. COMPLETION OF THE 3-YEAR MAINTENANCE PERIOD SHALL BE CONFIRMED IN WRITING BY THE PROJECT BIOLOGIST.

MAINTENANCE LOGBOOK

6. THE CONTRACTOR SHALL RECORD ALL MAINTENANCE ACTIVITIES AND OBSERVATIONS IN A MAINTENANCE LOGBOOK, INCLUDING DATE, AREA, MATERIALS, AND HOURS. THE LOGBOOK SHALL DOCUMENT SITE CONDITIONS, ADJUSTMENTS TO THE IRRIGATION SCHEDULE AND REPAIRS TO THE SITE. THE LOGBOOK SHALL ALSO INCLUDE AN ESTIMATE OF THE TOTAL QUANTITY OF WATER APPLIED PER MONTH TO EACH PLANTING AREA. THE CONTRACTOR SHALL SUBMIT THE MAINTENANCE LOGS TO THE PROJECT BIOLOGIST BY THE FIRST WEEK OF THE START OF EACH CALENDAR QUARTER.

PLANTINGS

7. THE CONTRACTOR SHALL ANNUALLY REPLACE ALL DEAD PLANTS DURING THE FIRST 2 YEARS OF THE MAINTENANCE PERIOD. PLANTS SHALL BE REPLANTED BETWEEN OCTOBER AND MARCH, STARTING THE FIRST YEAR FOLLOWING THE INITIAL PLANTING. REPLACEMENT PLANTS SHALL BE THE SAME SPECIES AND MEET THE SAME SPECIFICATIONS AS THE ORIGINALLY INSTALLED PLANTS, UNLESS OTHERWISE DIRECTED OR APPROVED BY THE PROJECT BIOLOGIST.

IRRIGATION

8. THE CONTRACTOR SHALL PROVIDE WATER TO PLANTS AT SUFFICIENT APPLICATIONS AND QUANTITY TO MAINTAIN ALL PLANTINGS IN A HEALTHY AND VIGOROUS STATE. CONTRACTOR SHALL, AT A MINIMUM, PROVIDE WATER ACCORDING TO THE FOLLOWING SCHEDULE (SEE BELOW). OVER WATERING OF THE CONTAINER PLANTS CAN BE DETRIMENTAL TO THEIR HEALTH. THE INTENTION OF THE MITIGATION IS TO SYSTEMATICALLY WEAN THE PLANTS OFF OF IRRIGATION TO ACCLIMATE THE PLANTS FOR SURVIVAL WITHOUT ONGOING MAINTENANCE.
9. THE CONTRACTOR SHALL IRRIGATE THE CONTAINER PLANTS DURING THE DRY SEASON FROM MARCH THROUGH OCTOBER DURING THE 3-YEAR MAINTENANCE PERIOD. EACH WATERING EVENT SHALL SUPPLY APPROXIMATELY 10 GALLONS OF WATER DIRECTLY TO EACH PLANT BASIN. IT IS ANTICIPATED THAT IRRIGATION SHALL BE NEEDED APPROXIMATELY 2–3 TIMES PER MONTH IN YEAR 1, 1–2 TIMES PER MONTH IN YEAR 2, AND 0–1 TIME PER MONTH IN YEAR 3.
10. THE WILLOW STAKE PLANTINGS ARE NOT INTENDED TO RECEIVE IRRIGATION, BUT IN THE CASE OF DROUGHT CONDITIONS DURING THE FIRST YEAR OF ESTABLISHMENT, SUPPLEMENTAL WATERING BY HAND MAY BE NECESSARY TO KEEP THE WILLOW STAKES ALIVE. A HOSE BIB HAS BEEN SPECIFIED TO HELP FACILITATE HAND WATERING OF THE WILLOW AREA IF NEEDED.

WATERING BASIN MAINTENANCE

11. THE 3-FOOT DIAMETER WATERING BASINS AND THE SURROUNDING 4-INCH EARTHEN BERMS AROUND THE CONTAINER PLANTINGS SHALL BE REFORMED AND MAINTAINED AS NECESSARY TO RETAIN WATER.

WEED CONTROL

12. THE CONTRACTOR SHALL CONTROL NON-NATIVE HERBACEOUS VEGETATION WITHIN THE WATERING BASINS AND THROUGHOUT THE RIPARIAN MITIGATION AREAS.
13. WEEDING SHALL OCCUR ON AN AS-NEEDED BASIS DURING THE 3-YEAR MAINTENANCE PERIOD, WITH A MINIMUM FREQUENCY OF 4 TIMES PER YEAR. WEED REMOVAL SHALL OCCUR WHENEVER WEEDS BECOME ESTABLISHED WITHIN WATERING BASINS. MANUAL WEED CONTROL SHALL BE EMPLOYED FROM APRIL UNTIL OCTOBER OF EACH MAINTENANCE YEAR. WEEDS SHALL BE CONTROLLED THROUGH MULCHING, AS WELL AS MANUAL CONTROL (WEED WHACKING OR HAND PULLING).
14. WOOD CHIP MULCH SHALL BE ADDED TO EACH WATERING BASIN AS NECESSARY TO MAINTAIN A 3-INCH THICK LAYER.
15. CONTRACTOR SHALL NOT DAMAGE OR REMOVE NATURALLY RECRUITING NATIVE VEGETATION IN THE PLANTING AREAS.
16. WEEDS WITHIN THE WATERING BASINS SHALL BE HAND-PULLED.

FOLIAGE PROTECTION CAGES

17. FOLIAGE PROTECTION CAGES SHALL BE MAINTAINED FOR THE 3-YEAR MAINTENANCE PERIOD IN GOOD WORKING ORDER AS FOLLOWS:
    A. CAGES SHALL BE MAINTAINED IN A VERTICAL ORIENTATION WITH THE BOTTOM END FLUSH WITH SURROUNDING GRADE.
    B. CONTRACTOR SHALL REPAIR/REPLACE DAMAGED FOLIAGE PROTECTION CAGES. REPAIRS MAY INCLUDE RE-STAKING T-POSTS, RE-BURYING WIRE CAGE TO THE REQUIRED DEPTH, REPAIRING THE BAILING WIRE CLOSURE MECHANISM, AND REFASTENING THE CAGE TO THE POST.
    C. CONTRACTOR SHALL REMOVE FOLIAGE PROTECTION CAGES WHEN THE CAGES BEGIN TO RESTRICT THE TREE'S GROWTH. CARE SHALL BE TAKEN TO MINIMIZE DAMAGE TO THE TREES WHEN REMOVING CAGES. IF NECESSARY, CAGES SHALL BE CUT SO THE PLANTS ARE NOT DAMAGED WHEN THE SHELTERS ARE REMOVED.
18. AT THE CONCLUSION OF THE MAINTENANCE PERIOD AND WITH THE APPROVAL OF THE PROJECT BIOLOGIST, THE CONTRACTOR SHALL REMOVE ALL FOLIAGE PROTECTION CAGES.

GENERAL NOTES

1. THESE LANDSCAPE PLANS WERE PREPARED WITH THE UNDERSTANDING THAT THE PROPERTY OWNER WILL BE RESPONSIBLE FOR INSTALLATION OF THIS WORK. THESE PLANS WERE NOT DESIGNED TO BE PUT OUT TO BID.
2. THE PROJECT BIOLOGIST IS DEFINED AS THE CLIENT'S REPRESENTATIVE DESIGNATED TO MAKE BIOLOGICALLY ORIENTED PROJECT DECISIONS AND MONITOR THE WORK COMPLIANCE TO THESE PLANS. PROJECT BIOLOGIST MAINTAINS AUTHORITY TO DELEGATE THESE TASKS AND/OR DECISION MAKING TO AN ONSITE REPRESENTATIVE INCLUDING, BUT NOT LIMITED TO: WILDLIFE BIOLOGIST, RESTORATION ECOLOGIST, LANDSCAPE ARCHITECT, OR ARBORIST.
3. PRIOR TO COMMENCING WORK, THE CONTRACTOR AND ALL CONSTRUCTION CREW MEMBERS WILL PARTICIPATE IN A WORKER-AWARENESS PROGRAM PRESENTED BY THE PROJECT BIOLOGIST. THIS PROGRAM WILL BE USED TO DESCRIBE THE CALIFORNIA RED-LEGGED FROG, WESTERN POND TURTLE, MT. HERMAN JUNE BEETLE, STEELHEAD, AND COHO SALMON, THEIR HABITS AND HABITATS, THEIR LEGAL STATUS AND REQUIRED PROTECTION, AND ALL APPLICABLE MITIGATION MEASURES.
4. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT BIOLOGIST TO SCHEDULE INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING STAGES IN THE CONSTRUCTION PROCESS. NOTIFICATION SHALL BE A MINIMUM OF 72 HOURS PRIOR TO SCHEDULED INSPECTIONS FOR:
    A. APPROVAL OF THE LAYOUT AND DURING THE ENTIRE INSTALLATION OF THE WILDLIFE EXCLUSION/TREE PROTECTION FENCING.
    B. INSPECTION DURING ALL ROOT AND TREE PRUNING AND REMOVAL OF TREES.
    C. INSPECTION OF FENCED WORK AREA PRIOR TO WORK EACH DAY WHEN WORK IS PLANNED WITHIN THE WILDLIFE EXCLUSION/TREE PROTECTION FENCED AREA.
    D. APPROVAL OF THE LAYOUT OF THE PLANTING AND SEEDING AREAS AND THE IRRIGATION SYSTEM PRIOR TO INSTALLATION.
    E. A FINAL INSPECTION OF THE PLANTING AND SEEDING AREAS WHEN PLANT INSTALLATION IS COMPLETE.
    F. APPROVAL TO REMOVE WILDLIFE EXCLUSION/TREE PROTECTION FENCING
5. ALL MATERIALS SUPPLIED SHALL BE FREE OF SUBSTANCES HARMFUL TO PLANT GROWTH.
6. WATER SHALL BE SUITABLE FOR AGRICULTURAL USE AND FREE OF HARMFUL SUBSTANCES THAT WOULD ADVERSELY AFFECT PLANT GROWTH OR VIGOR.

DRAWING INDEX

H. T. HARVEY & ASSOCIATES
ecological consultants

REVISIONS: DATE:

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

LICHEN OAKS RANCH
POND RESTORATION
Felton, California

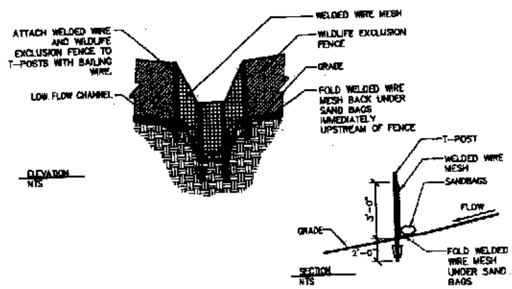
LANDSCAPE DRAWING INDEX AND NOTES

Submitted: 95% COUNTY REVIEW
Scale: NTS
Date: 12/16/2008
Checked by: SI
Drawn by: JMH
File No.: 897-03

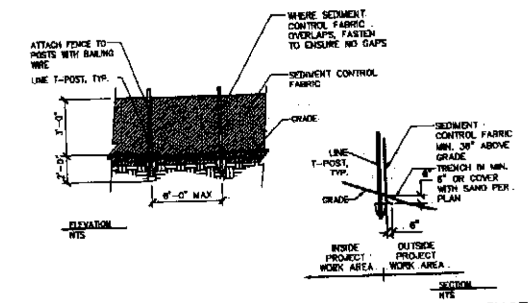
SHEET L1
1 OF 6 SHEETS

WILDLIFE EXCLUSION/TREE PROTECTION FENCE NOTES

1. THE PROJECT ENVIRONMENTAL PERMITS REQUIRE THAT THE WILDLIFE EXCLUSION/TREE PROTECTION FENCE BE INSTALLED WITH THE PROJECT BIOLOGIST PRESENT. A SINGLE FENCE WILL SERVE THE PURPOSE OF BOTH WILDLIFE EXCLUSION FENCE AND TREE PROTECTION, AND IS REFERRED TO AS "FENCE" BELOW. PRIOR TO ANY WORK ON SITE, THE FENCE MUST BE INSTALLED UNDER THE DIRECT SUPERVISION OF THE PROJECT BIOLOGIST. CONTRACTOR SHALL COORDINATE WITH PROJECT BIOLOGIST TO ENSURE THAT THE BIOLOGIST IS PRESENT AT THE TIME OF FENCE INSTALLATION.
2. THE CONTRACTOR SHALL CORRECT ANY DEFICIENCIES TO THE PROJECT BIOLOGIST'S SATISFACTION PRIOR TO THE PROJECT BIOLOGIST ISSUING A LETTER OF ACCEPTANCE FOR EXCLUSION FENCE INSTALLATION.
3. CONTRACTOR SHALL NOT PROCEED WITH ANY WORK UNTIL RECEIPT OF PROJECT BIOLOGIST APPROVAL OF FENCE INSTALLATION.
4. CONTRACTOR SHALL NOT COMMENCE WORK EACH DAY UNTIL PROJECT BIOLOGIST INSPECTS THE FENCE AND WORK AREA AND GIVES CONTRACTOR APPROVAL TO ENTER THE WORK AREA.
5. CONTRACTOR SHALL REMOVE FENCE AT COMPLETION OF ALL EARTHWORK AND IN-STREAM STRUCTURES UPON APPROVAL BY THE PROJECT BIOLOGIST.
6. FENCING MATERIALS: FABRIC SHALL CONSIST OF SEDIMENT CONTROL FABRIC WHICH EXTENDS A MINIMUM OF 36-INCHES ABOVE GRADE AND A MINIMUM OF 6-INCHES BELOW GRADE. SUPPORT POSTS SHALL BE T-POSTS, MINIMUM 6 FEET IN LENGTH. STEEL COUPLERS SHALL BE USED TO FASTEN THE POSTS WHERE SEDIMENT CONTROL SHEETS OVERLAP. WELDED WIRE MESH FOR CHANNEL CROSSING SECTION SHALL BE GALVANIZED, ¼" MESH. BAILING WIRE SHALL BE USED TO FASTEN THE WELDED WIRE MESH AND SEDIMENT CONTROL FABRIC TO THE T-POSTS.
7. CONTRACTOR SHALL STAKE THE ALIGNMENT OF THE FENCE AND WALK THE SITE WITH THE PROJECT BIOLOGIST TO REVIEW THE LOCATION OF FENCING. CONTRACTOR SHALL INSTALL FENCE AT THE LOCATIONS SHOWN ON THE DRAWINGS AND AS DIRECTED IN THE FIELD BY THE PROJECT BIOLOGIST.
8. THE FENCE SHALL BE INSTALLED SO THE BOTTOM 6 INCHES OF THE FABRIC IS BURIED TO PROHIBIT WILDLIFE MOVEMENT UNDER FENCE EXCEPT ACROSS STREAM CHANNEL, IN JUNE BEETLE HABITAT, AND AT ACCESS GATES. IN JUNE BEETLE HABITAT AND AT ACCESS GATES, 6 INCHES OF FABRIC WILL BE LAID ON GRADE AND COVERED BY A MINIMUM OF 3 INCHES OF CLEAN SAND, OR SANDBAGS, OR GRAVEL TO SEAL THE BOTTOM OF THE FENCE.
9. WELDED WIRE MESH SHALL BE INSTALLED ACROSS THE STREAM CHANNEL AND CONNECTED TO T-POSTS WITH BAILING WIRE. THE BOTTOM 6 INCHES OF THE WELDED WIRE MESH SHALL BE BURIED WHERE MESH CROSSES EARTHEN SURFACES. SANDBAGS SHALL BE PLACED ALONG THE BASE OF THE WELDED WIRE MESH TO HELP SEAL THE BOTTOM WHERE MESH CROSSES THE CHANNEL.
10. REMOVE ALL GROUND COVER VEGETATION WITHIN WILDLIFE EXCLUSION AREA, BY HAND, UNDER THE DIRECTION OF THE PROJECT BIOLOGIST.
11. UPON SUCCESSFUL COMPLETION OF ALL EARTHWORK AND CULVERT IMPROVEMENTS, THE CONTRACTOR SHALL REMOVE THE FENCE UPON APPROVAL BY THE PROJECT BIOLOGIST.



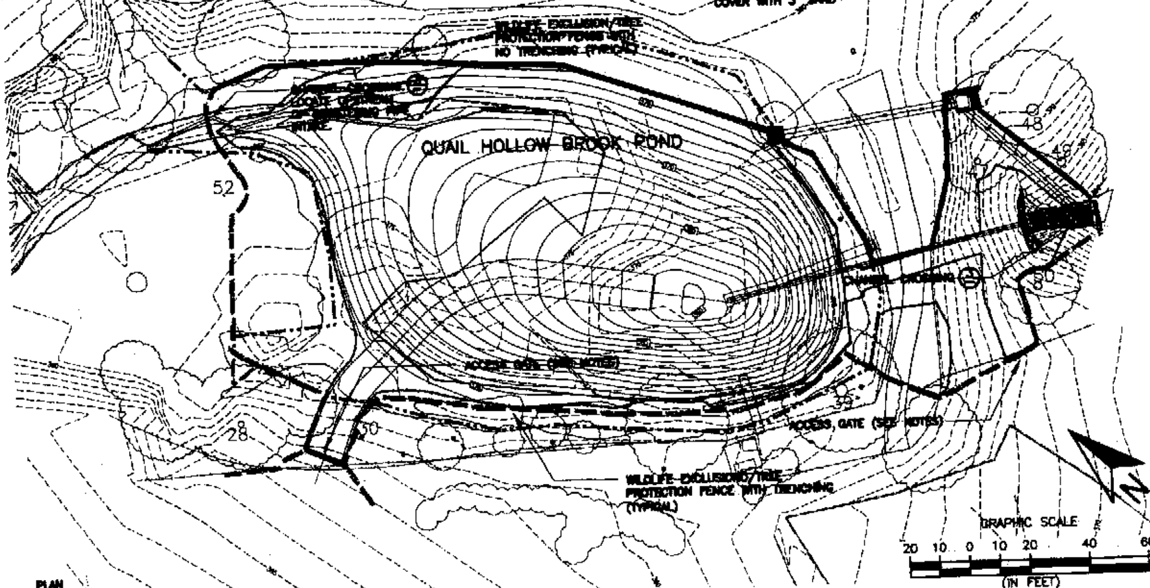
(3) CHANNEL CROSSING



(2) WILDLIFE EXCLUSION / TREE PROTECTION FENCE

LEGEND

- WILDLIFE EXCLUSION / TREE PROTECTION FENCING- TRENCHED IN 6"
- WILDLIFE EXCLUSION / TREE PROTECTION FENCE- NO TRENCHING- COVER WITH 3" SAND



(1) WILDLIFE EXCLUSION / TREE PROTECTION FENCING PLAN

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

REVISIONS:	DATE:

PREPARED FOR:
Robert B. Martin
Bogard Construction, Inc.
360-A Coral Street
Santa Cruz, CA 95060

LICHEN OAKS RANCH POND RESTORATION
Felton, California

WILDLIFE EXCLUSION / TREE PROTECTION FENCING PLAN

Submittal: 95% COUNTY REVIEW
Scale: AS SHOWN
Date: 12/16/2008
Drawn By: 91
Checked By: JMH
File No.: 867-03

SHEET L2
2 OF 6 SHEETS

TREE PROTECTION AND REMOVAL NOTES

1. TREE LOCATIONS ON PLAN ARE APPROXIMATE. TRUNK LOCATIONS NOT SHOWN FOR GROUPINGS OF SMALL TREES. WILDLIFE EXCLUSION FENCING WILL FUNCTION AS TREE PROTECTION FENCING.
2. PRIOR TO ANY WORK ON SITE, WILDLIFE EXCLUSION/TREE PROTECTION FENCE MUST BE INSTALLED UNDER THE DIRECT SUPERVISION OF THE PROJECT BIOLOGIST.
3. SEE SHEET L2 FOR FENCE ALIGNMENT, INSTALLATION PROCEDURE AND CONSTRUCTION DETAILS.
4. THE CONTRACTOR SHALL TAKE EXTREME CARE NOT TO DAMAGE NATIVE VEGETATION LOCATED OUTSIDE OF THE FENCE. NO TREE OR GROWTH SHALL BE TRIMMED BACK WITHOUT APPROVAL OF THE PROJECT BIOLOGIST, INCLUDING PLANTS, TREES, AND SHRUBS OVERHANGING ONTO THE PROJECT SITE. SUCH OVERHANGING FOLIAGE SHALL BE PROTECTED AND TIED BACK IF NECESSARY. CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ANY DAMAGED NATIVE PLANT MATERIALS IN-KIND WITH PLANTS OF APPROXIMATELY THE SAME SIZE. ALL REPLACEMENT MATERIALS FOR DAMAGED EXISTING NATIVE PLANTS SHALL MEET THE APPROVAL OF THE PROJECT BIOLOGIST.
5. ALL CANOPY PRUNING AND TREE REMOVAL WORK SHALL BE DIRECTED OR MONITORED BY THE PROJECT BIOLOGIST. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE PROJECT BIOLOGIST TO EITHER FIELD MARK TREES FOR REMOVAL AND LOCATIONS OF PRUNING CUTS, OR TO HAVE THE PROJECT BIOLOGIST ON SITE DURING THE WORK.
6. THE EXOTIC TREE (TREE 51) SHALL BE REMOVED COMPLETELY, INCLUDING MECHANICAL REMOVAL OF THE ROOT BALL.
7. NATIVE VEGETATION TO BE REMOVED (TREES 29 AND 31) SHALL BE SALVAGED AND UTILIZED ONSITE AS MULCH ON THE MITIGATION PLANTING AREAS (REFER TO SHEET L5).

ROOT PRUNING

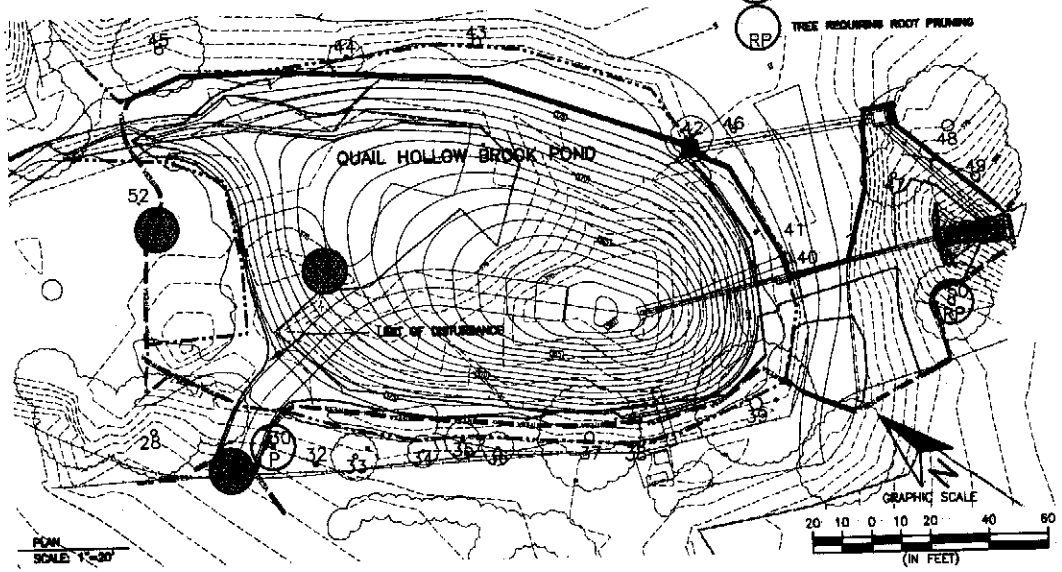
8. THE TRENCHING FOR THE NEW SPILLWAY PIPE WITHIN THE DRIPLINE OF TREE 50 SHALL BE MONITORED BY THE PROJECT BIOLOGIST.
9. CONTRACTOR SHALL EXCAVATE TRENCH AREA WITHIN THE DRIPLINE USING A SMALL BACKHOE. WHEN RESISTANCE IS FELT FROM A ROOT, THE BUCKET WILL BE RELEASED AND THE SOIL WILL BE REMOVED BY HAND TOOLS TO EXPOSE THE ROOT.
10. ROOTS 1 INCH DIAMETER AND LARGER WILL BE CUT AT THE EDGE OF THE TRENCH WITH CLEAN, SHARP, SANITIZED TOOLS. CARE WILL BE TAKEN TO LEAVE THE ROOT-SOIL INTERFACE ON THE TRUNK SIDE OF THE TRENCH UNDISTURBED.
11. CONTRACTOR SHALL KEEP THE CUT ROOTS COVERED WITH WETTED BURLAP UNTIL THE TRENCH IS BACKFILLED.
12. WHERE FEASIBLE GIVEN THE PROJECT PURPOSE, THE CONTRACTOR SHALL AVOID CUTTING LARGE STRUCTURAL ROOTS (AS DETERMINED BY THE PROJECT BIOLOGIST) IF ENCOUNTERED. WHERE POSSIBLE, THE CULVERT SHOULD BE INSTALLED AROUND/UNDER LARGE ROOTS.

TREE IMPACTS

TREE NUMBER	COMMON NAME	SCIENTIFIC NAME	POTENTIAL IMPACT
28	PONDEROSA PINE	PINUS PONDEROSA	SAVE
29	COAST LIVE OAK	QUERCUS AGRIFOLIA	REMOVE
30	RED WILLOW	SALIX LAEVIGATA	SAVE- MINOR CLEARANCE PRUNING
31	RED WILLOW	SALIX LAEVIGATA	REMOVE
32	COAST LIVE OAK	QUERCUS AGRIFOLIA	SAVE
33	WHITE ALDER	ALNUS RHOMBIFOLIA	SAVE
34	WHITE ALDER	ALNUS RHOMBIFOLIA	SAVE
35	WHITE ALDER	ALNUS RHOMBIFOLIA	SAVE
36	RED WILLOW	SALIX LAEVIGATA	SAVE
37	VALLEY OAK	QUERCUS LOBATA	SAVE- MONITOR DURING GRADING. AVOID ROOT IMPACTS AND MAINTAIN SOIL COVER OVER ROOTS.
38	RED WILLOW	SALIX LAEVIGATA	SAVE
39	RED WILLOW	SALIX LAEVIGATA	SAVE
40	GROUP OF OAKS	Q. AGRIFOLIA AND LOBATA	SAVE
41	ARROYO WILLOW	SALIX LASIOLEPIS	SAVE
42	VALLEY OAK	QUERCUS LOBATA	SAVE
43	COAST LIVE OAK	QUERCUS AGRIFOLIA	SAVE
44	VALLEY OAK	QUERCUS LOBATA	SAVE
45	COAST LIVE OAK	QUERCUS AGRIFOLIA	SAVE
46	VALLEY OAK	QUERCUS LOBATA	SAVE
47	COAST LIVE OAK	QUERCUS AGRIFOLIA	SAVE
48	VALLEY OAK	QUERCUS LOBATA	SAVE
49	VALLEY OAK	QUERCUS LOBATA	SAVE
50	VALLEY OAK	QUERCUS LOBATA	SAVE- ROOT PRUNING
51	WHITE (NON-NATIVE)	ACACIA SP.	REMOVE
52	ARROYO WILLOW	SALIX LASIOLEPIS	SAVE

LEGEND

- 51 — TREE NUMBER AND APPROXIMATE TRUNK LOCATION
- TREE OR GROUP OF TREES TO BE REMOVED
- P — TREE REQUIRING CLEARANCE PRUNING
- RP — TREE REQUIRING ROOT PRUNING



PLAN
SCALE: 1"=20'

1 TREE LOCATIONS AND IMPACTS

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS
983 University Avenue, Building D
Los Gatos, CA 95032
T. 408-458-3200
F. 408-458-3210

REVISIONS:	DATE:

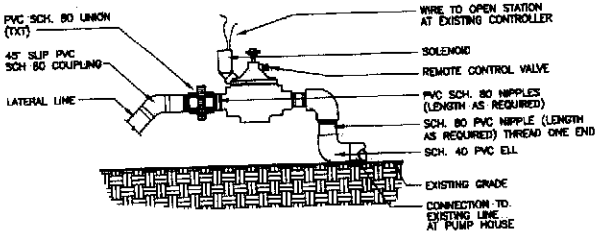
PREPARED FOR:
Robert B. Martin
Bogard Construction, Inc.
350-A Coral Street
Santa Cruz, CA 95060

LICHEN OAKS RANCH
POND RESTORATION
Felton, California

TREE LOCATIONS AND IMPACT PLAN

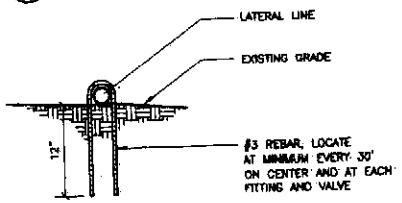
Submittals	
95% COUNTY REVIEW	
Scale: 1"=20'	
12/18/2008	Designed By:
Drawn By: BI	JMH
File No.: 687-03	

SHEET L3
3 OF 8 SHEETS



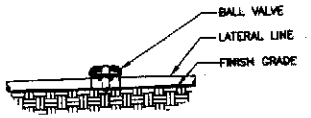
SECTION
NTS

4 REMOTE CONTROL VALVE



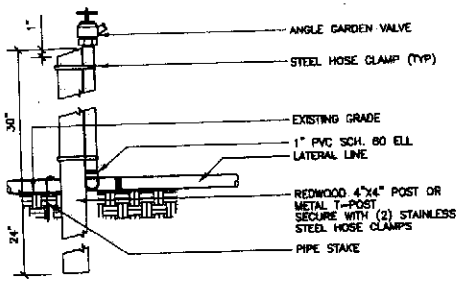
SECTION
NTS

5 PIPE STAKING



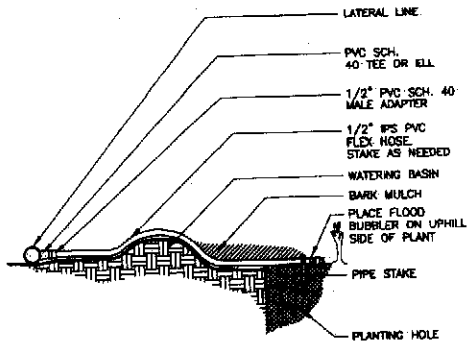
SECTION
NTS

6 PLASTIC BALL VALVE



SECTION
NTS

3 HOSE BIB

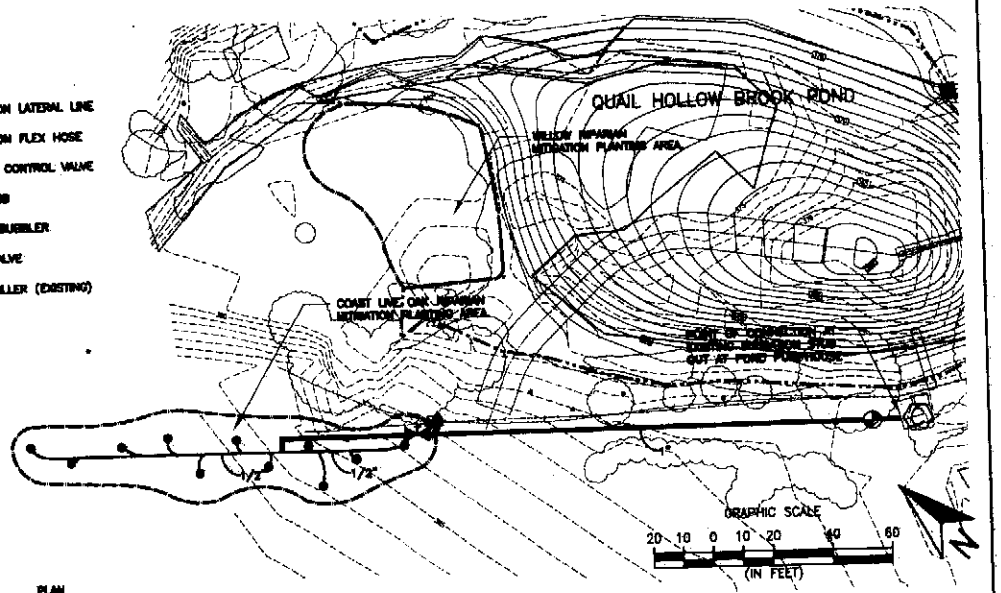


SECTION
NTS

2 BUBBLER ON FLEX HOSE

LEGEND

- IRRIGATION LATERAL LINE
- IRRIGATION FLEX HOSE
- REMOTE CONTROL VALVE
- HOSE BIB
- FLOOD BUBBLER
- BALL VALVE
- CONTROLLER (EXISTING)



PLAN
SCALE: 1"=20'

1 IRRIGATION LAYOUT

IRRIGATION NOTES

1. IRRIGATION PLAN IS DIAGRAMMATIC. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, ETC., WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF THE WORK AND PLAN ACCORDINGLY, AND SHALL FURNISH MATERIALS AS REQUIRED TO MEET SUCH CONDITIONS.
2. THE REMOTE CONTROL VALVE SHALL MATCH THE EXISTING REMOTE CONTROL VALVES ON SITE AND BE COMPATIBLE WITH THE EXISTING AUTOMATIC CONTROLLER.
3. LATERAL LINE SHALL BE 1-INCH DIAMETER UV RESISTANT SCHEDULE 40 PVC, SECURED ON GRADE BY U-SHAPED REBAR.
4. A HOSE BIB SHALL BE INSTALLED WHERE MAINTENANCE PERSONNEL CAN CONVENIENTLY CONNECT A HOSE IN THE CASE THAT WILLOW PLANTINGS REQUIRE SUPPLEMENTAL IRRIGATION BY HAND WATERING DURING THE FIRST YEAR OF ESTABLISHMENT.
5. A PLASTIC 1" BALL VALVE SHALL BE INSTALLED IMMEDIATELY DOWNSTREAM OF THE HOSE BIB.
6. THE COAST LIVE OAK RIPARIAN MITIGATION SITE SHALL BE IRRIGATED BY A FLOOD BUBBLER SYSTEM. BUBBLERS SHALL BE PLASTIC, PRESSURE COMPENSATING, 0.25 GPM, MODEL NO. 1401 FULL CIRCLE BUBBLER, RAINBIRD INC., CLERDORA, CA. OR EQUIVALENT. THOROUGHLY FLUSH LINES BEFORE INSTALLING BUBBLERS. INSTALL 1 BUBBLER PER TREE. PLACE BUBBLER 3 INCHES FROM EDGE OF ROOTBALL. ON SLOPES, PLACE ON UPHILL SIDE OF PLANT. FASTEN BUBBLERS WITHIN THE WATERING BASIN WITH PIPE STAKE.

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS
983 University Avenue, Building D
Los Gatos, CA 95032
T. 408-458-3200
F. 408-458-3210

REVISIONS: DATE:

PREPARED FOR:
Robert B. Martin
Bogard Construction, Inc.
3504 Coral Street
Santa Cruz, CA 95060

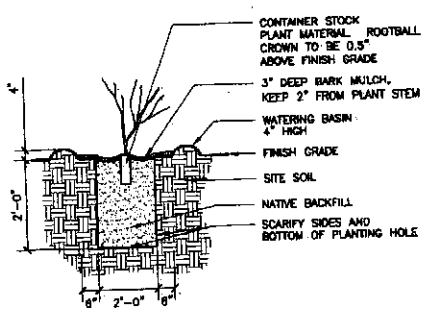
LICHEN OAKS RANCH
POND RESTORATION
Felton, California

IRRIGATION PLAN AND DETAILS

Submittals	95% COUNTY REVIEW
Scale	AS SHOWN
Date	12/16/2006
Drawn By	Checked By: JMH
Job No.	807-03

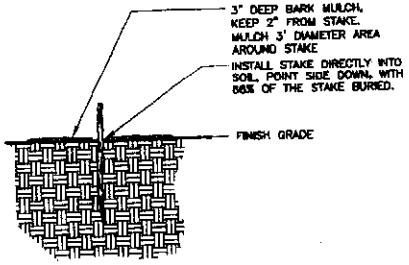
SHEET L4
4 OF 5 SHEETS

50/95



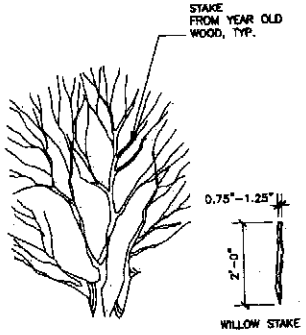
SECTION
NTS

4 CONTAINER PLANTING



SECTION
NTS

3 WILLOW STAKE INSTALLATION

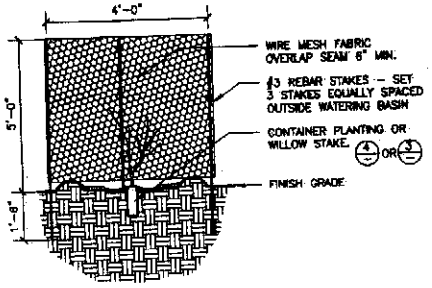


ELEVATION
NTS

2 WILLOW STAKE HARVESTING METHODS

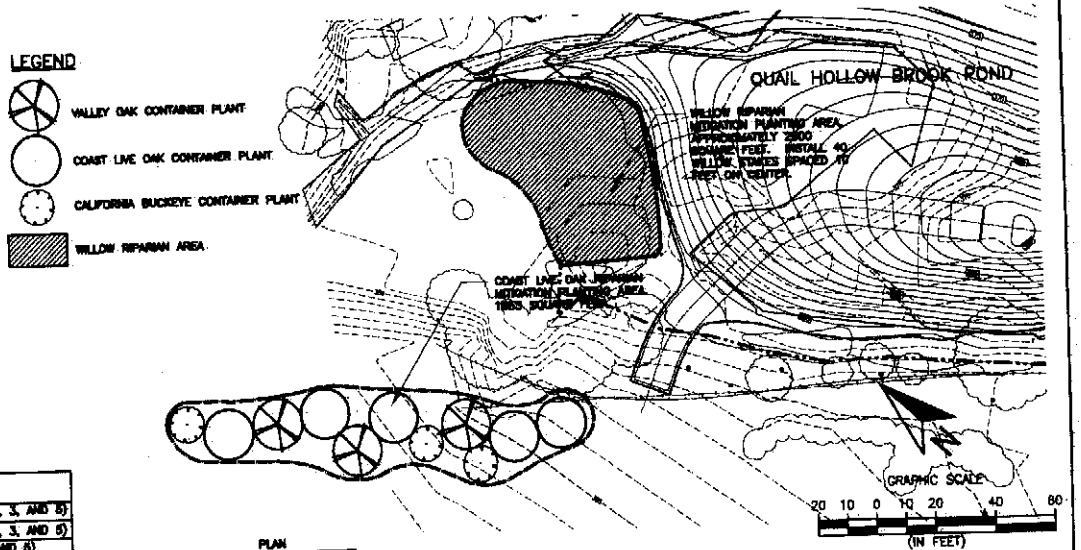
WILLOW STAKE HARVESTING & INSTALLATION NOTES:

1. HARVEST MATERIAL FROM SELECT, HEALTHY LIVING WOOD ONSITE WITHIN QUAIL HOLLOW BROOK AND ZAYANTE CREEK.
2. NO MORE THAN 10% OF ANY SINGLE TREE SHALL BE HARVESTED.
3. TRIM OFF ALL SIDE TWIGS AND BRANCHES FLUSH TO STAKE.
4. CUT BOTTOMS AT BASAL END TO A POINT TO FACILITATE INSTALLATION.
5. CUT TOPS OFF FLAT FOR TAMPING.
6. IMMEDIATELY AFTER CUTTING SUBMERGE STAKES IN WATER TO PREVENT DESICCATION.
7. STAKES SHALL BE PLANTED THE SAME DAY THEY ARE CUT.
8. ALL HARVESTING AND PLANTING OF CUTTINGS SHALL BE DONE UNDER THE DIRECTION OF THE BIOLOGIST PRESENT.



SECTION
NTS

5 FOLIAGE PROTECTION CAGES



PLAN
SCALE: 1"=20'

1 PLANTING LAYOUT

MITIGATION SITE PLANTING SCHEDULE

COMMON NAME	SCIENTIFIC NAME	QUANTITY	PROPAGULE TYPE
ARROYO WILLOW	SALIX LASIOLEPIS	20	LIVE CUTTING (SEE DETAILS 2, 3, AND 5)
RED WILLOW	SALIX LAEVIGATA	20	LIVE CUTTING (SEE DETAILS 2, 3, AND 5)
COAST LIVE OAK	QUERCUS AGRIFOLIA	5	TREEPOT 4 (SEE DETAILS 4 AND 5)
VALLEY OAK	QUERCUS LOBATA	3	TREEPOT 4 (SEE DETAILS 4 AND 5)
CALIFORNIA BUCKEYE	AESCULUS CALIFORNICA	3	TREEPOT 4 (SEE DETAILS 4 AND 5)

NOTE: ALL CUTTINGS AND CONTAINER STOCK TO BE DERIVED FROM POPULATIONS WITHIN THE SAN LORENZO RIVER WATERSHED

51/95

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS
983 University Avenue, Building B
Los Gatos, CA 95032
T 408-458-3200
F 408-458-3210

REVISIONS:	DATE:

PREPARED FOR:
Robert B. Martin
Bogard Construction, Inc.
340-A Coral Street
Santa Cruz, CA 95060

LICHEN OAKS RANCH POND RESTORATION
Felton, California

PLANTING

Submittal	95% COUNTY REVIEW
Scale	AS SHOWN
Date	12/18/2008
Drawn By	SI
Checked By	JMH
File No.	087-03

SHEET L5
5 OF 8 SHEETS

PLANTING NOTES

1. CONTAINER PLANTS SHALL BE INSTALLED BETWEEN 15 OCTOBER AND 28 FEBRUARY. WILLOW STAKES SHALL BE INSTALLED BETWEEN 1 JANUARY AND 28 FEBRUARY. PLANTING SHALL OCCUR AFTER THE ONSET OF WINTER RAIN WHEN THE SOIL BECOMES MOIST. CONTRACTOR SHALL BROADCAST SEED BETWEEN 15 SEPTEMBER AND 30 OCTOBER. MODIFICATION OF THIS PLANTING/SEEDING SCHEDULE MUST BE APPROVED BY THE PROJECT BIOLOGIST.

CONTAINER PLANTS AND LIVE CUTTINGS

2. HANDLE ALL PLANT MATERIALS CAREFULLY TO ENSURE THAT THEY ARE NOT DAMAGED OR SUBJECTED TO EXCESSIVE HEAT, WIND, OR DESICCATION DURING HANDLING, TRANSPORTATION, AND STORAGE. PLACE THE BOTTOM OF THE WILLOW STAKES IN BUCKETS OF WATER IMMEDIATELY AFTER THEY ARE HARVESTED UNTIL THEY ARE INSTALLED. STAKES SHALL BE PLANTED THE SAME DAY OF HARVEST. STAKES THAT ARE ALLOWED TO DRY OUT SHALL BE DISCARDED.
3. CONTRACTOR SHALL COORDINATE WITH THE PROJECT BIOLOGIST TO CONFIRM THE LOCATIONS OF PLANTING ZONES.
4. CONTAINER PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES AND BE OF SAN LORENZO RIVER WATERSHED ORIGIN. IF PLANTS FROM SAN LORENZO RIVER WATERSHED ARE NOT READILY AVAILABLE, CONTAINER STOCK FROM GREATER SANTA CRUZ COUNTY MAY BE ACCEPTABLE WITH APPROVAL OF THE PROJECT BIOLOGIST.
5. PLANTS SHALL BE COMPACT AND SYMMETRICAL; SOUND, HEALTHY AND VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF; FREE OF DISEASE, INSECT PESTS, EGGS OR LARVAE, AND FREE FROM PHYSICAL DAMAGE OR ADVERSE CONDITIONS THAT WOULD PREVENT THRIVING GROWTH. PLANTS SHALL BE LABELED AT THE SUPPLYING NURSERY WITH GENUS, SPECIES, VARIETY, AND ORIGIN.
6. ROOT SYSTEMS SHALL BE HEALTHY AND FREE FROM TWISTING OR GIRDLING. ALL PLANT MATERIAL SHALL HAVE BEEN GROWN IN THE CONTAINERS IN WHICH DELIVERED FOR AT LEAST SIX MONTHS, BUT NOT OVER TWO YEARS. PLANTS SHALL NOT BE PRUNED BEFORE DELIVERY.
7. PLANTING HOLES SHALL BE OF SIZE SHOWN ON THE DRAWINGS. PLANT HOLES MAY BE EXCAVATED BY HAND DIGGING, OR BY AUGERING. WATER SHALL NOT BE USED FOR THE EXCAVATION OF PLANTING HOLES. DO NOT PLANT UNDER UNFAVORABLE WEATHER CONDITIONS.
8. AFTER CONSTRUCTION OF WATERING BASINS, CONTRACTOR SHALL SPREAD A 3-INCH THICK LAYER OF COARSE WOOD-CHIP MULCH WITHIN THE BOTTOM OF EACH WATERING BASIN. MULCH SHALL BE PULLED AWAY FROM DIRECT CONTACT WITH THE STEM OF THE PLANT TO A DIAMETER OF APPROXIMATELY 4 INCHES.
9. IRRIGATE EACH CONTAINER PLANT WITHIN 1 HOUR OF INSTALLATION WITH SUFFICIENT WATER TO SATURATE THE SOIL.
10. WILLOW STAKES SHALL BE 0.75 INCH TO 1.25 INCHES IN DIAMETER AT THE BASE OF THE STAKE AND 2 FEET LONG. STAKES SHALL BE PREPARED FROM REASONABLY STRAIGHT, 1-YEAR OLD WOOD FROM THE TREE SPECIES INDICATED ON THE DRAWINGS AND IN THE QUANTITIES LISTED ON THE DRAWINGS. STAKES SHALL BE TAKEN FROM TREES SPECIFIED BY THE PROJECT BIOLOGIST. ROOTONE ROOTING POWDER, OR EQUIVALENT ROOTING STIMULANT POWDER, AS APPROVED BY PROJECT BIOLOGIST, SHALL BE APPLIED TO THE LOWER HALF OF EACH STAKE PRIOR TO PLANTING.
11. PRIOR TO PLANTING LIVE STAKES, AN AREA 4 FEET IN DIAMETER SHALL BE CLEARED OF WEED GROWTH AT EACH PROPOSED LIVE STAKE LOCATION. PESTICIDES SHALL NOT BE USED FOR WEED CONTROL. HOLES SHALL BE FORMED WITH A STEEL DIGGING BAR OR EXCAVATED BY USE OF AN AUGER, POST HOLE DIGGER, OR SIMILAR TOOLS. HOLES SHALL BE LARGE ENOUGH TO RECEIVE THE STAKES AND SO THAT STAKES MAY BE PLANTED TO THE PROPER DEPTHS WITHOUT DAMAGE TO THE BARK AND BACKFILLED WITH NATIVE SOIL IF NECESSARY. IF DAMAGED DURING INSTALLATION, THE TOP 1 TO 2 INCHES OF EACH DAMAGED STAKE SHALL BE CUT OFF USING SHARP LOPPERS OR PRUNING SHEARS. ALL STAKES SHALL BE WATERED WITHIN 1 HOUR OF INSTALLATION WITH SUFFICIENT WATER TO SATURATE THE SOIL.
12. FOLIAGE PROTECTION CAGES WILL BE INSTALLED AT EACH CONTAINER PLANT OR WILLOW STAKE. CAGES ARE TO BE INSTALLED IMMEDIATELY FOLLOWING PLANTING, AND SHALL BE INSTALLED AS SHOWN ON THESE DRAWINGS.

BROADCAST SEEDING

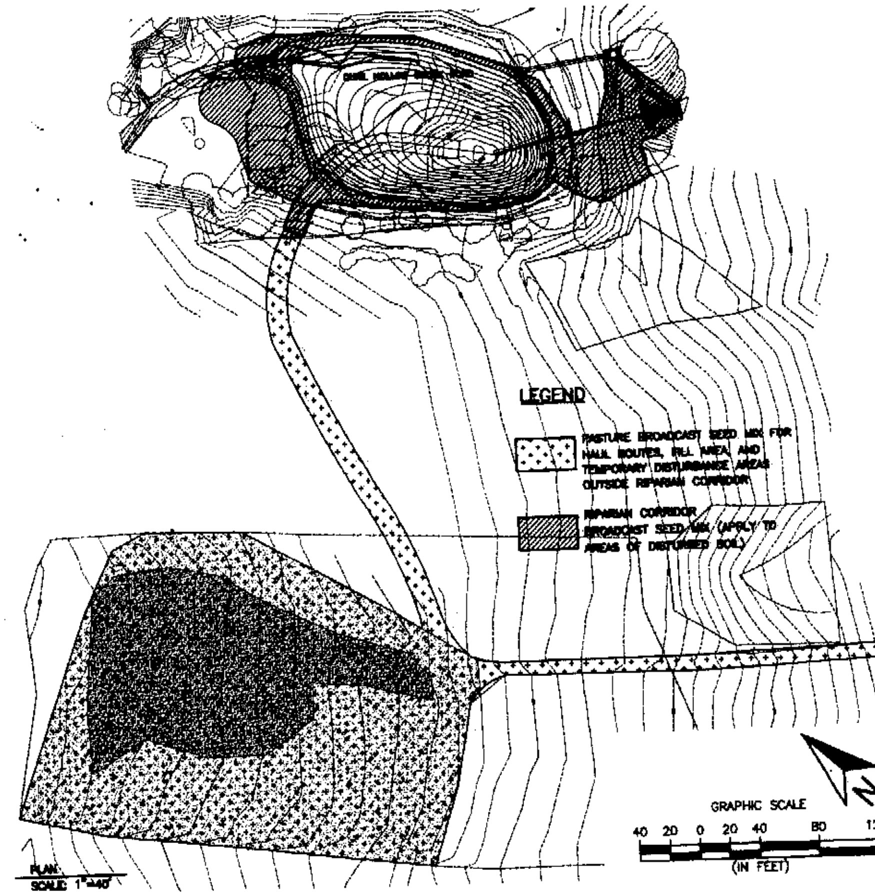
13. ALL SEED FOR BROADCAST SEEDING APPLICATION SHALL BE A FRESH, CLEAN, NEW CROP. MIXED BY DEALER. PACKAGED IN DEALER'S UNOPENED CONTAINER WITH ORIGINAL LABEL. CONTAINERS WITHOUT A LABEL OR TAG WILL NOT BE ACCEPTED. SEED SHALL HAVE BEEN TESTED FOR PURITY AND GERMINATION NOT MORE THAN 15 MONTHS PRIOR TO THE APPLICATION OF THE SEED. SEED LABELS FURNISHED BY THE SEED VENDORS SUPPLYING THE SEED SHALL INDICATE THE PURITY, GERMINATION, WEED SEED, AND INERT MATERIAL AS DETERMINED BY TESTING AND SHALL BE PROVIDED TO THE PROJECT BIOLOGIST PRIOR TO APPLYING THE SEED. IN ACCORDANCE WITH CALIFORNIA STATE LAW THE PERCENT OF WEED SEED SHALL NOT EXCEED 1.5 PERCENT BY WEIGHT OF THE TOTAL SEED MIXTURE. SEED TREATED WITH MERCURY COMPOUNDS SHALL NOT BE USED.
14. BROADCAST SEED MIX FOR HAUL ROUTES, ACCESS ROADS, FILL AREAS, SPOIL PILES, AND OTHER DISTURBED BARE SOIL AREAS LOCATED OUTSIDE THE RIPARIAN CORRIDOR SHALL BE "DRY LAND ALL GRASS PASTURE" MIX OR EQUIVALENT AS AVAILABLE AT BEN LOMOND FEED STORE. SEED SHALL BE APPLIED AT A RATE OF 2 LBS PER 1000 SQUARE FEET.
15. BROADCAST SEED MIX FOR DISTURBED SOIL AREAS WITHIN THE RIPARIAN CORRIDOR SHALL BE AS SPECIFIED IN TABLE 1 ON THIS SHEET. RIPARIAN CORRIDOR AREA SEED SHALL BE THE ECOTYPES SPECIFIED IN TABLE 1 AND IS AVAILABLE AT PACIFIC COAST SEED. THE SALES MANAGER, DAVID GILPIN, MAY BE CONTACTED AT (925) 373-4417. IF SEED IS NOT AVAILABLE FROM THE SPECIFIED ECOTYPES, SEED FROM ADJACENT AREAS MAY BE ACCEPTABLE WITH APPROVAL OF THE PROJECT BIOLOGIST.
16. BROADCAST SEED AREAS SHALL BE CLEAR OF SUBSTANTIAL DEBRIS AND ANY OTHER IMPEDIMENTS TO SEED-SOIL CONTACT. PRIOR TO APPLICATION PREPARE SOIL BY RAKING WITH A METAL RAKE IN TWO DIRECTIONS ALL SURFACES TO RECEIVE SEED.
17. BROADCAST SEED AREAS WILL BE COVERED WITH STRAW AFTER SEED APPLICATION. STRAW SHALL BE EITHER WHEAT, BARLEY, OR RICE DERIVED FROM IRRIGATED CROPLAND AND FREE OF NOXIOUS WEEDS AND ANY INORGANIC MATERIAL. STRAW SHALL BE APPLIED AT A RATE OF 1000 LBS/AC. STRAW SHALL BE APPLIED UNIFORMLY AND SHALL NOT COMPLETELY EXCLUDE SUNLIGHT FROM PENETRATING TO THE SOIL SURFACE (~70-80% COVERAGE OF THE SOIL SURFACE).

MULCH

18. NATIVE TREES AND SHRUBS REMOVED FOR THE PROJECT SHALL BE CHIPPED ON SITE AND UTILIZED AS MULCH IN THE MITIGATION AREAS. THE PARTICLE SIZE OF WOOD CHIPS SHALL BE BETWEEN ½ AND 3 INCHES LONG AND NOT LESS THAN 3/8 INCH WIDE AND 1/16 INCH THICK. AT LEAST 85 PERCENT, BY VOLUME, OF WOOD CHIPS SHALL CONFORM TO THE SIZES SPECIFIED. A 3 INCH LAYER OF MULCH WILL BE APPLIED TO EACH PLANTING BASIN AND AROUND EACH STAKE. MULCH SHALL NOT BE PLACED WITHIN 2 INCHES OF THE STEM OF THE PLANT.

TABLE 1: RIPARIAN CORRIDOR BROADCAST SEED MIX

COMMON NAME	SCIENTIFIC NAME	APPLICATION RATE (PLS/AC) LBS	SOURCE LOCATION
BLUE WILDRYE	ELYMUS GLAUCUS	6	SANTA CLARA COUNTY, COYOTE CREEK
CALIFORNIA MEADOW BARLEY	HORDEUM BRACHYANTHERUM SSP CALIFORNICUM	14	MONTEREY, CARMEL VALLEY
CALIFORNIA BROME	BROMUS CARINATUS	6	SONOMA COAST
COAST RANGE MELIC	MELICA IMPERFECTA	2	MONTEREY COAST
THREE WEEK FESCUE	VULPIA MICROSTACHYS	6	SANTA CLARA COUNTY, CALERO
MUGWORT	ARTEMISIA DOUGLASIANA	1	SANTA CLARA COUNTY, GUADALUPE
BLUE-EYED GRASS	SISYRINCHIUM BELLUM	1	SANTA CLARA, CALERO
YELLOW-EYED GRASS	SISYRINCHIUM CALIFORNICUM	1	NORTHERN CALIFORNIA



PLAN
SCALE: 1"=40'

1 SEEDING PLAN

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

REVISIONS: | DATE:

PREPARED FOR:
Robert B. Marlin
Bogard Construction, Inc.
350-A Coral Street
Santa Cruz, CA 95060

LICHEN OAKS RANCH
POND RESTORATION
Felton, California

PLANTING AND SEEDING NOTES

Submittal: 96% COUNTY REVIEW
Scale: 1"=40'
Date: 12/16/2008
Drawn By: SI
Checked By: JMH
File No.: 867-03

SHEET L6
6 OF 6 SHEETS

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
TOM BURNS, PLANNING DIRECTOR

March 16, 2009

Lichen Oaks LLC
Attn: Floyd & Jeanne Kvamme
19490 Glen Una Dr.
Saratoga, CA 95070

Subject: Review of Geotechnical Investigation by Bauldry Engineering, Inc. Dated February 5, 2009; Project #: 0323-SZ932-A71 APN 074-181-01, Application #: 08-0532

Dear Applicant:

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

1. All construction shall comply with the recommendations of the report.

2. Final plans shall reference the report and include a statement that the project shall conform to the report's recommendations. Plans shall also provide a thorough and realistic representation of all grading necessary to complete this project

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

4. Please provide an electronic copy of the soils report in .pdf format. This document may be submitted on compact disk or emailed to carolyn.banti@co.santa-cruz.ca.us.

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

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

Please submit two copies of the report at the time of building permit application.

Please call the undersigned at (831) 454-5121 if we can be of any further assistance.

Sincerely,

Carolyn Banti
Associate Civil Engineer

Cc: Jessica DeGrassi, Environmental Planning
Bauldry Engineering, Inc.

Attachement 4

(over)

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

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

1. **When a project has engineered fills and / or grading**, a letter from your soils engineer must be submitted to the Environmental Planning section of the Planning Department prior to foundations being excavated. This letter must state that the grading has been completed in conformance with the recommendations of the soils report and per the requirements of the 2007 California Building Code. Compaction reports or a summary thereof must be submitted.

2. **Prior to placing concrete for foundations**, a letter from the soils engineer must be submitted to the building inspector and to Environmental Planning stating that the soils engineer has observed the foundation excavation and that it meets the recommendations of the soils report.

3. **At the completion of construction,** a *final letter* from your soils engineer is required to be submitted to Environmental Planning that summarizes the observations and the tests the soils engineer has made during construction. The final letter must also state the following: "Based upon our observations and tests, the project has been completed in conformance with our geotechnical recommendations."

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

GEOTECHNICAL INVESTIGATION
FOR
POND RESTORATION PROJECT
LICHEN OAKS RANCH
110 QUAIL HOLLOW ROAD
APN 074-181-01
FELTON, CALIFORNIA

FOR
FLOYD AND JEAN KVAMME
SARATOGA, CALIFORNIA

BY
BAULDRY ENGINEERING
CONSULTING GEOTECHNICAL ENGINEERS
0323-SZ932-A71
FEBRUARY 2009

Attachment 5

GEOTECHNICAL INVESTIGATION

PURPOSE OF INVESTIGATION

The purpose of our investigation is to provide geotechnical engineering recommendations for the design and construction for the proposed pond restoration, including a new headwall and associated site improvements.

SCOPE OF SERVICES

This report describes the geotechnical investigation and presents results, including recommendations, for the proposed pond restoration project. Our scope of services for this project has consisted of:

1. Discussions with you and other members of the design team.
2. Review of the following maps and reports:
   a. The Grading and Drainage Plans (dated 1/26/08) and Headwall Plans (dated 12/28/09) prepared by Ifland Engineers, Inc.
   b. Geologic Map of Santa Cruz County, California, Brabb, 1989.
   c. Preliminary Landslide Deposits in Santa Cruz County, California, Cooper-Clark, 1975.
   d. Map Showing Quaternary Geology and Liquefaction Potential of Santa Cruz County, California, Dupré, 1975.
3. The drilling and logging of 3 test borings.
4. Laboratory analysis of retrieved soil samples.
5. Engineering analysis of the field and laboratory results.
6. Preparation of this report documenting our investigation and presenting recommendations for the design of the project.

SITE DESCRIPTION

Location

The project site is located adjacent to and north of Quail Hollow Road, west of East Zayante Road in the Zayante area of Santa Cruz County. The address of the property is 110 Quail Hollow Road. The Assessors Parcel Number is 074-181-01. The subject pond is located in the south-central section of the property.

Site Setting

The subject pond is located on a gently sloping terrace in line with an easterly flowing tributary of Zayante Creek. The pond was formed by constructing a small earth dam across the tributary. The dam is roughly 18 to 20 foot high where it crosses the old creek bed. The dam contains an existing culvert with a gate valve that discharges into the creek bed at the eastern toe of the dam and a drain control inlet box and drainage culvert on the east side of the pond. These devices are used to control the pond elevation. An old deteriorated headwall is located at the discharge end of the culvert.

Slope Stability

Pond Site: The pond site and surrounding areas are relatively flat to gently sloping. There are no significant slopes in the vicinity of the pond. It is our opinion that the potential for landsliding to occur in the area surrounding the pond is low.

Earth Dam: The exact age of the dam is not known. Aerial photographs indicate that the dam was constructed between 1914 and 1943. During our field investigation we did not observe evidence of previous or impending slope failure. The proposed new headwall will be between 9 and 11 feet in height and founded on piers embedded 9 to 14 feet into bedrock. The proposed new headwall and the new fill slope, which will extend up from the top of the headwall, will fortify and strengthen the existing dam.

Liquefaction

Liquefaction tends to occur typically in soils composed of loose sands and non-cohesive silts of restricted permeability. In order for liquefaction to occur there must be the proper soil type, soil saturation, and cyclic accelerations of sufficient magnitude to progressively increase the water pressures within the soil mass. Non-cohesive soil shear strength is developed by the point to point contact of the soil grains. As the water pressures increase in the void spaces surrounding the soil grains, the soil particles become supported more by the water than the point to point contact. When the water pressures increase sufficiently, the soil grains begin to lose contact with each other, resulting in the loss of shear strength and continuous deformation of the soil where the soil appears to liquefy.

The following was noted in our evaluation of liquefaction potential:

- The dam is a short and thick structure with a width to height ratio on the order of 5½:1.
- The dam was created by excavating ground out from the pond area and placing it as fill above the native soil along the downstream end of the pond. Thus, the top half of the dam consists of fill while the lower half consists of undisturbed native soil.
- The base of the dam rests on bedrock.
- The native soils that comprise the lower portion of the dam are discontinuous and non-homogeneous varying in consistency and density.
- The fill varies in density from loose to dense.

The following conclusions and opinions are based on the above as well as the estimated ground accelerations;

1. There is a potential that the lenses and pockets of saturated loose sands contained within the dam could liquefy during a large magnitude earthquake. Our borings indicate that the soils susceptible to liquefaction are on the order of 4 to 6 feet thick.
2. We anticipate that the dam may settle and deform during a large magnitude earthquake. Given the non-homogenous nature of the earth material that comprises the dam it would be difficult to accurately assess the effects of liquefaction. Based on our field and laboratory analysis, we anticipate that settlement and deformation following a large earthquake would be on the order of inches rather than feet.
3. It is our opinion that the proposed improvements to the down slope face of the dam will strengthen the existing dam and help mitigate the adverse effects of liquefaction, should liquefaction occur.

CONCLUSIONS AND RECOMMENDATIONS

PROJECT VIABILITY

The results of our investigation indicate that from a Geotechnical Engineering standpoint the pond restoration project may be implemented as proposed, provided our recommendations are followed.

EARTHWORK AND GRADING

Demolition and Initial Site Preparation

The initial preparation of the site will consist of the removal of the existing structures, foundations, abandoned underground utilities, all subsurface obstructions, trees and root balls, as necessary. All debris must be completely removed. The extent of this soil removal will be designated by the Geotechnical Engineer in the field.

All voids, including those created by the demolition of the structures, foundations, subsurface obstructions, utilities, trees and root balls must be backfilled with properly compacted non-expansive native soils that are free of organic and other deleterious materials or with approved import fill.

Stripping

Following the initial site preparation and demolition, surface vegetation and organically contaminated topsoil should be stripped from the area to be graded or receive fill. The organic rich soil may be stockpiled for future landscaping. The required depth of stripping will vary with the time of year and must be based upon visual observations of the Geotechnical Engineer. It is anticipated that the depth of stripping may be 2 to 4 inches.

Fill Slopes

Fill slopes shall not exceed a 2:1 (horizontal to vertical) gradient and a 5 foot vertical height unless specifically reviewed by the Geotechnical Engineer. All fill slopes should be constructed with engineered fill meeting the minimum density requirements of this report.

Compaction of Backfill

With the exception of the upper 8 inches of subgrade in paved areas and driveways, the soil on the project should be compacted to a minimum of 90% of its maximum dry density. The upper 8 inches of subgrade in the pavement areas and all aggregate subbase and aggregate base should be compacted to a minimum of 95% of its maximum dry density.

The maximum dry density will be obtained from a laboratory compaction curve run in accordance with ASTM #D1557. This test will also establish the optimum moisture content of the material. Field density testing will be in accordance with ASTM Test #D2922.

Engineered Fill Material

Native and imported soil may be used as engineered fill for the project as indicated below.

Re-use of the native soil will require the following:

a. Segregation of all expansive soil encountered during the excavation. All excavated expansive soil should be removed from the construction area.
b. Removal of organics, deleterious material, and cobbles larger than 2 inches.
c. Thorough mixing and moisture conditioning of approved native soil.

DRAINAGE CALCULATIONS

FOR

Quail Hollow Brook Pond

110 Quail Hollow Road
Felton, California

February, 2009

Job 03009.01

Prepared by: Ryan Chapatte

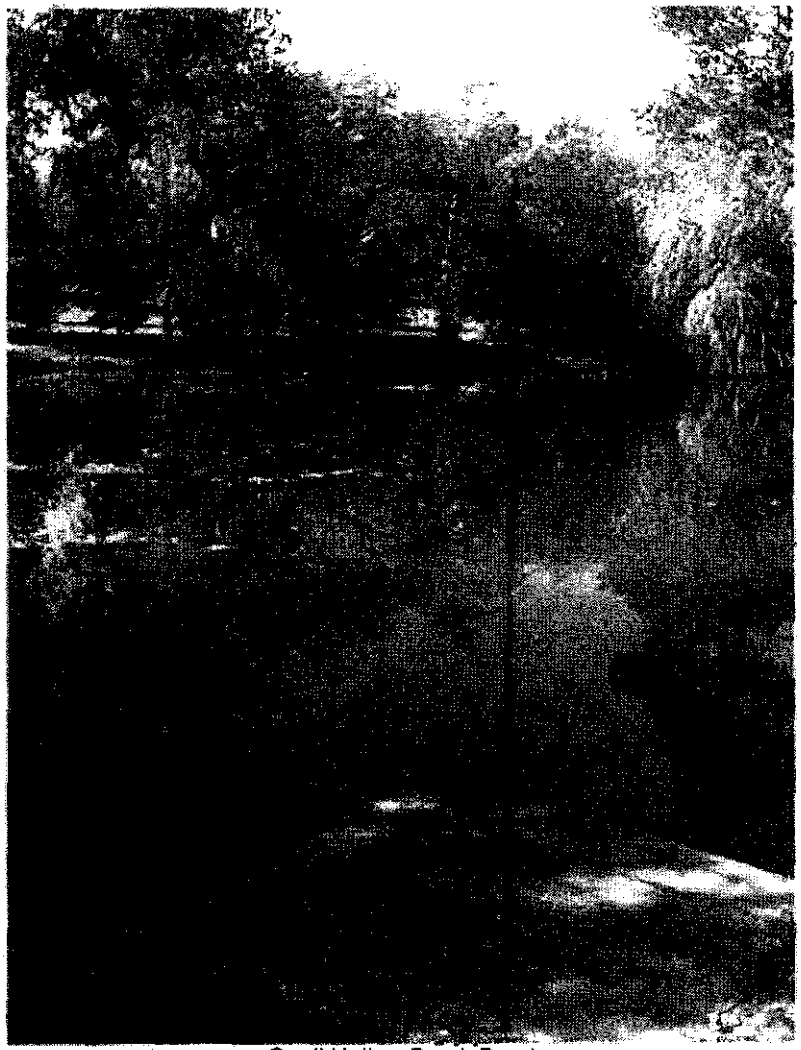
IFLAND ENGINEERS
Civil Engineering ▪ Structural Design ▪ Land Development

5200 Soquel Avenue Suite 102
Santa Cruz, CA 95062
(831) 426-5313 FAX (831) 426-1763
www.iflandengineers.com

Attachment 6

Introduction:

Quail Hollow Brook Pond is located approximately 850 feet north of the intersection of Quail Hollow Road and Derick Lane on the Lichen Oaks Ranch property in Felton, California. From a hydrological standpoint, the pond mainly servers a storage point for Quail Hollow Brook, a creek originating northwest of the pond at the outlet of the Quail Hollow Ranch lake.



Quail Hollow Brook Pond

The following *Watershed Calculations* show the estimated flow rates into the Quail Hollow Brook Pond for storms ranging from 10 years to 100 years.

Watershed Calculations

Watershed Area =	203.2	Acres	
Runoff Coefficient, C =	0.3		
P_{60} =	2.0		- From Fig. SWM-2
Change in Elevation, H =	736	Feet	
Distance, L =	1.22	Miles	
Time of Concentration, T_C =	16		- From Fig. SWM-4

10 year Storm

Return Period Factor =	1	years	- From Fig. SWM-3
Antecedent Moisture Factor, Ca =	1		- From Fig. SWM-1
Rainfall Intensity, I_{10} =	2.16	in/hr	- From Fig. SWM-3

Q_{10} = 131.9 cfs

25 year Storm

Return Period Factor =	1.2	years	- From Fig. SWM-3
Antecedent Moisture Factor, Ca =	1.1		- From Fig. SWM-1
Rainfall Intensity, I_{10} =	2.60	in/hr	- From Fig. SWM-3

Q_{10} = 174.1 cfs

50 year Storm

Return Period Factor =	1.35	years	- From Fig. SWM-3
Antecedent Moisture Factor, Ca =	1.2		- From Fig. SWM-1
Rainfall Intensity, I_{10} =	2.92	in/hr	- From Fig. SWM-3

Q_{10} = 213.6 cfs

100 year Storm

Return Period Factor =	1.5	years	- From Fig. SWM-3
Antecedent Moisture Factor, Ca =	1.25		- From Fig. SWM-1
Rainfall Intensity, I_{10} =	3.25	in/hr	- From Fig. SWM-3

Q_{10} = 247.3 cfs

Existing Conditions

There are two structural outlets by which water can be released from the Quail Hollow Brook Pond. The first is a concrete flow control box that lies on the eastern bank of the pond. Water from the pond enters this box by flowing over a wooden weir. It then travels through a 32" corrugated metal pipe (CMP) to another concrete box structure. Water exits this second box structure though a 24" CMP and discharges into the streambed below the pond.

The second release structure is a 12" vertical stand pipe that is anchored to the existing wood pier. The 12" CMP extends down to the bottom of the pond where it "T's" into an 18" CMP. The 18" CMP runs through the earth dam through a concrete headwall and outlets into the streambed.

Based on the *Watershed Calculations* and the following pipe capacity calculations, it is clear that the existing outflow system is not capable of handling medium to large storms. This fact is reinforced by the erosion that is taking place at the base of the earth dam behind the headwall. This erosion is proof that the pond has recently breached the earth dam.

Existing Pipe Capacities:

The following results show the capacity of the existing 32" CMP in its current state.

Given Input Data:

Shape	Circular
Solving for	Flowrate
Diameter	32.0000 in
Depth	32.0000 in
Slope	0.0167 ft/ft
Manning's n	0.0200

Computed Results:

Flowrate	**40.9242 cfs**
Area	5.5851 ft2
Wetted Area	5.5851 ft2
Wetted Perimeter	100.5310 in
Perimeter	100.5310 in
Velocity	7.3275 fps
Hydraulic Radius	8.0000 in
Percent Full	100.0000 %
Full flow Flowrate	40.9242 cfs
Full flow velocity	7.3275 fps

The following results show the capacity of the existing 24" CMP in its current state.

Given Input Data:
- Shape ..... Circular
- Solving for ..... Flowrate
- Diameter ..... 24.0000 in
- Depth ..... 24.0000 in
- Slope ..... 0.2717 ft/ft
- Manning's n 0.0200

Computed Results:
- **Flowrate ..... 76.6473 cfs**
- Area 3.1416 ft2
- Wetted Area 3.1416 ft2
- Wetted Perimeter ..... 75.3982 in
- Perimeter ..... 75.3982 in
- Velocity ..... 24.3976 fps
- Hydraulic Radius ..... 6.0000 in
- Percent Full ..... 100.0000 %
- Full flow Flowrate ..... 76.6473 cfs
- Full flow velocity ..... 24.3976 fps

The following results show the capacity of the existing 18" CMP in its current state.

Given Input Data:
- Shape ..... Circular
- Solving for ..... Flowrate
- Diameter ..... 18.0000 in
- Depth ..... 18.0000 in
- Slope ..... 0.0400 ft/ft
- Manning's n 0.0200

Computed Results:
- **Flowrate ..... 13.6556 cfs**
- Area 1.7671 ft2
- Wetted Area 1.7671 ft2
- Wetted Perimeter ..... 56.5487 in
- Perimeter ..... 56.5487 in
- Velocity ..... 7.7275 fps
- Hydraulic Radius ..... 4.5000 in
- Percent Full ..... 100.0000 %
- Full flow Flowrate ..... 13.6556 cfs
- Full flow velocity ..... 7.7275 fps

Proposed Conditions

The existing overflow structures are insufficient to handle medium to large storms. Therefore, a new 30" overflow structure is proposed. This structure will have the capacity to handle over a 100 year storm.

In addition to the new 30" overflow pipe, the existing 12" vertical stand pipe will be replaced with a new 18" overflow pipe. The existing 18" pipe running through the earth dam will also be lined to improve performance.

Proposed Pipe Capacities

The following results show the capacity of the new 30" HDPE pipe overflow pipe.

Given Input Data:

Shape	Circular
Solving for	Flowrate
Diameter	30.0000 in
Depth	28.0000 in
Slope	0.2630 ft/ft
Manning's n	0.0100

Computed Results:

Flowrate	**294.1076 cfs**
Area	4.9087 ft2
Wetted Area	4.7682 ft2
Wetted Perimeter	78.5783 in
Perimeter	94.2478 in
Velocity	**61.6811 fps**
Hydraulic Radius	8.7380 in
Percent Full	93.3333 %
Full flow Flowrate	273.4555 cfs
Full flow velocity	55.7079 fps

The following results show the capacity of the existing 18" CMP after it is lined.

Given Input Data:

Shape	Circular
Solving for	Flowrate
Diameter	16.0000 in
Depth	16.0000 in
Slope	0.0400 ft/ft
Manning's n	0.0120

Computed Results:

Flowrate	**16.6247 cfs**
Area	1.3963 ft2
Wetted Area	1.3963 ft2
Wetted Perimeter	50.2655 in
Perimeter	50.2655 in
Velocity	11.9066 fps
Hydraulic Radius	4.0000 in
Percent Full	100.0000 %
Full flow Flowrate	16.6247 cfs
Full flow velocity	11.9066 fps

The proposed pipe capacity calculations show that overflow pipe system has the capacity to carry just over 294 cfs of runoff. The runoff rate for a 100 year storm is 247 cfs, as shown in the *Watershed Calculations*. Therefore, the new overflow pipe system has the capacity to handle a 100 year storm.

TYPE OF AREA	10- YEAR RUNOFF COEFFICIENTS
Rural, park, forested, agricultural	0.10 - 0.30
Low residential (Single family dwellings)	0.45 - 0.60
High residential (Multiple family dwellings)	0.65 - 0.75
Business and commercial	0.80
Industrial	0.70
Impervious	0.90

REQUIRED ANTECEDENT MOISTURE FACTORS (Ca) FOR THE RATIONAL METHOD*

Recurrence Interval (Years)	Ca
2 to 10	1.0
25	1.1
50	1.2
100	1.25

Note: Application of antecedent moisture factors (Ca) should not result in an adjusted runoff coefficient (C) exceeding a value of 1.00

*APWA Publication "Practices in Detention of Stormwater Runoff"

Rev. 11-05

FIG. SWM-1

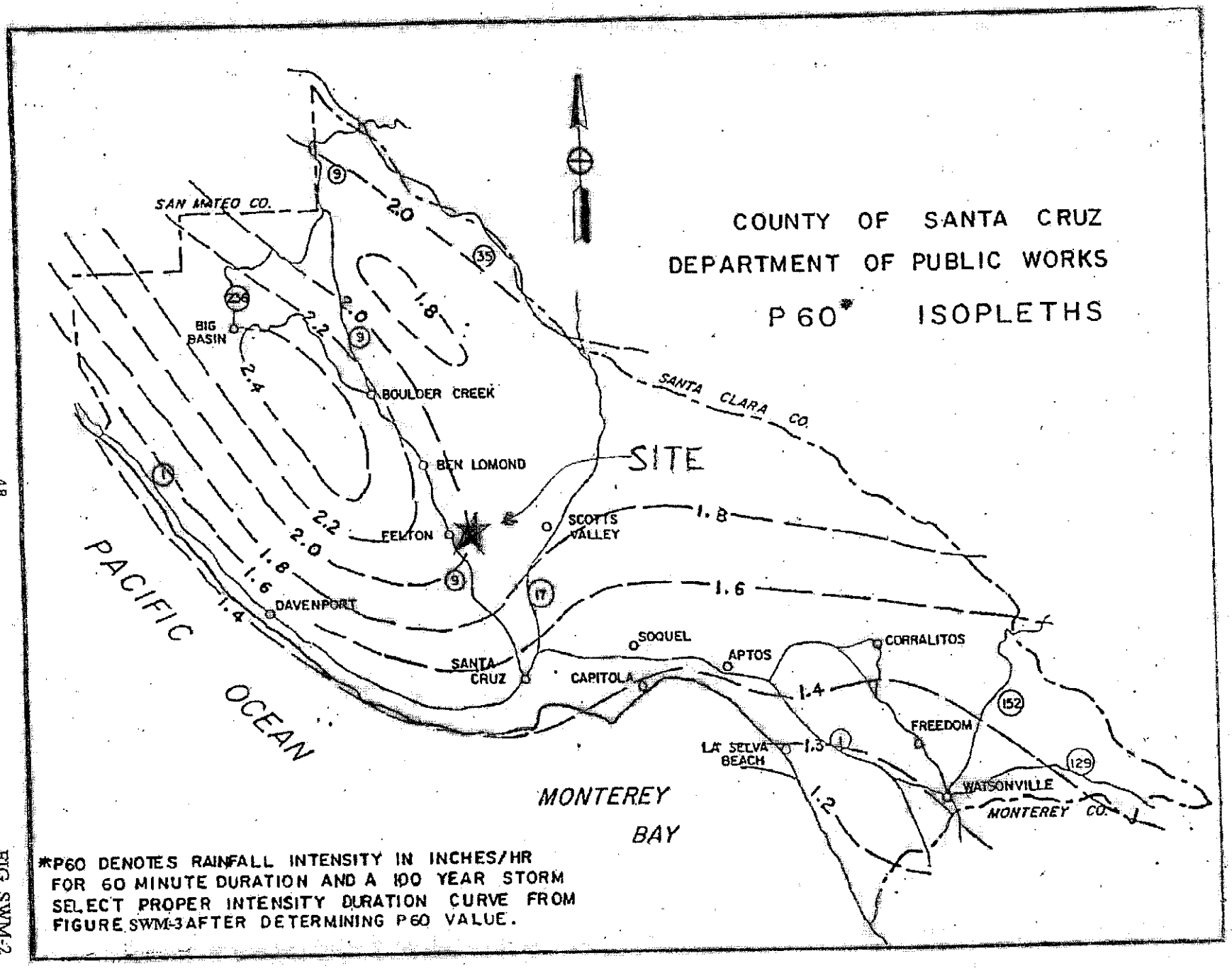
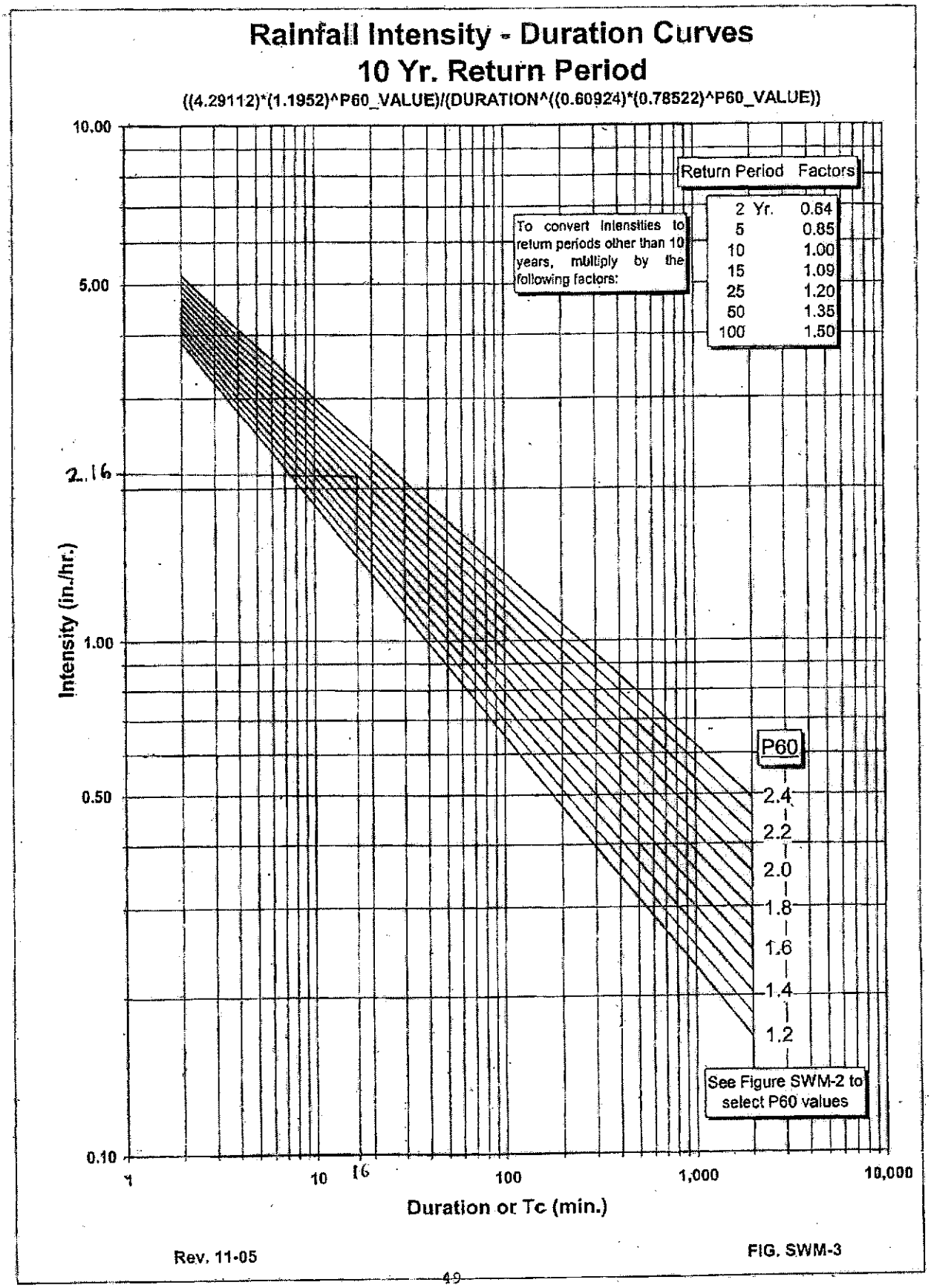
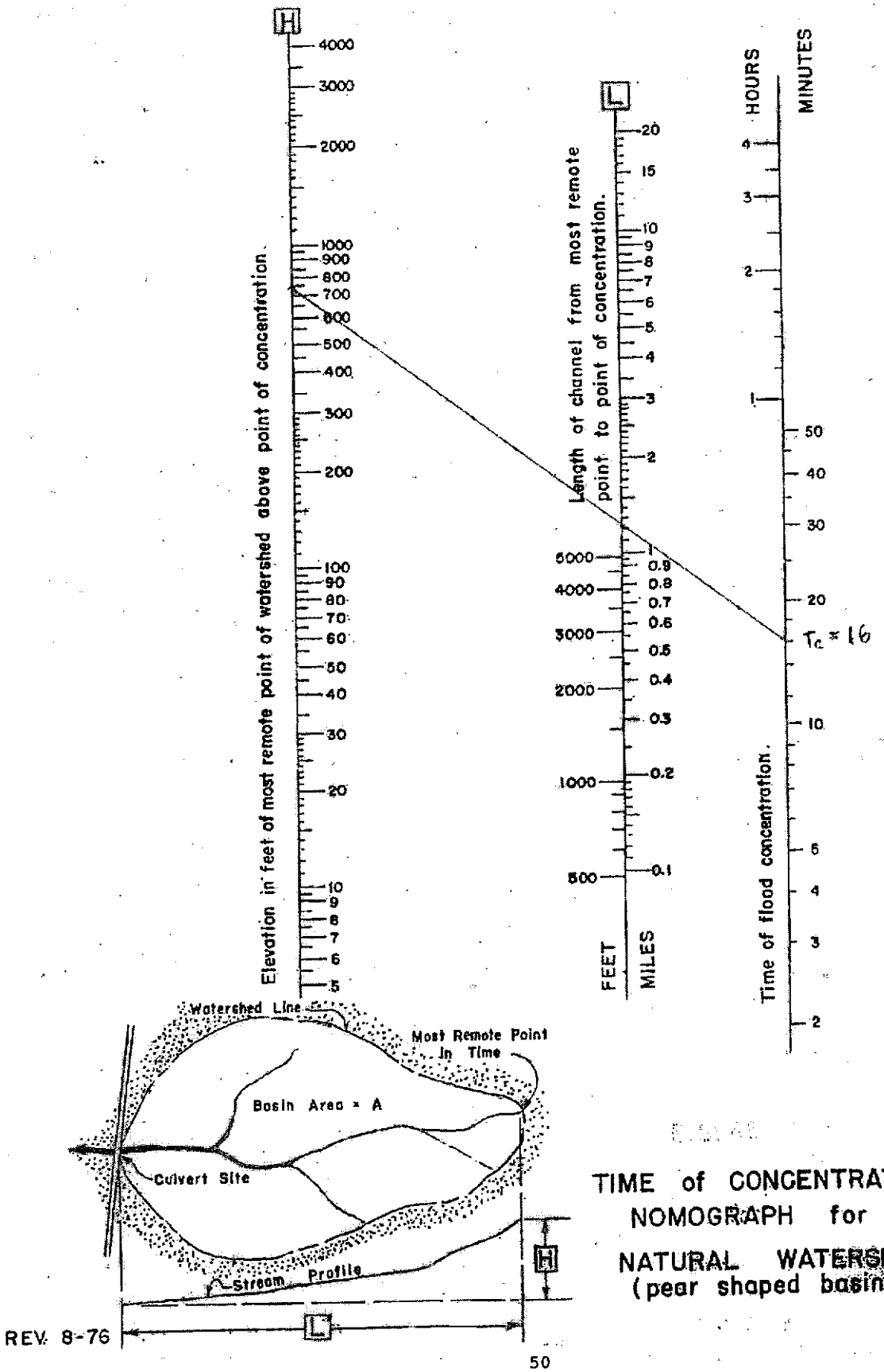

COUNTY OF SANTA CRUZ
DEPARTMENT OF PUBLIC WORKS
P 60* ISOPLETHS
SAN MATEO CO.
SANTA CLARA CO.
SITE
BIG BASIN
BOULDER CREEK
BEN LOMOND
FELTON
SCOTTS VALLEY
DAVENPORT
SOQUEL
APTOS
CORRALITOS
SANTA CRUZ
CAPITOLA
LA SELVA BEACH
FREEDOM
WATSONVILLE
MONTEREY CO.
PACIFIC OCEAN
MONTEREY BAY
2.0
1.8
2.2
2.4
1.6
1.4
1.2
1.3
*P60 DENOTES RAINFALL INTENSITY IN INCHES/HR FOR 60 MINUTE DURATION AND A 100 YEAR STORM SELECT PROPER INTENSITY DURATION CURVE FROM FIGURE SWM-3 AFTER DETERMINING P60 VALUE.

FIG. SWM-2



Rev. 11-05

FIG. SWM-3



TIME of CONCENTRATION NOMOGRAPH for NATURAL WATERSHEDS (pear shaped basins).

FIG. SWM-4

REV. 8-76

ed Exhibit
SCALE: 1" =400'

JOB NO. 03008.01 - QUAIL HOLLOW POND RESTORATION
SHEET NO. _____ OF _____
CALCULATED BY RYAN CHAPATTE DATE 1/22/09
SCALE: 1" = 400'

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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

Attachment 7

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

INTRODUCTION

In April 2009 Archaeological Consulting was authorized by Robert Martin of Bogard Construction to prepare a Supplementary Archaeological Reconnaissance report for the proposed pond restoration on the Lichen Oaks Ranch parcel in Felton, Santa Cruz County, California.

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

PROJECT LOCATION AND DESCRIPTION

The project parcel is located at 110 Quail Hollow Road in Felton, Santa Cruz County, California (see Map 1). The project area includes the pond and adjacent areas in the south central portion of the project parcel, APN 074-181-01. The Universal Transverse Mercator Grid (UTMG) coordinates for the approximate center of the current project area are 5.8405/41.0360 on the USGS 7.5 minute Felton Quadrangle (1955; photorevised 1968).

At the time of the field reconnaissance the project area contained the existing pond behind an earthen dam crossed by a ranch road (see Plates 1 and 2). Most of the project impact area was covered with water, which limited soil accessibility. The dam, with a maximum height of 5.5-6.0 meters above the creek bed (see Plate 3), impounds Quail Hollow Creek just west of its confluence with Zayante Creek. The pond contained two small wooden piers and a pump. Vegetation around the pond included willows, oaks, and pines (see Plates 1-3). The pond and riparian area was bordered by grassy meadows (see Plate 4).

The project proposes that the pond, which has been filled with up to 6-7 feet of silt due to a massive culvert/road failure upstream on the adjoining property, will be dredged to restore its previous capacity. The spoils will be placed in a previously approved fill area in the meadow to the southwest of the pond (see Map 2). The project proposes removal of the existing, degraded headwall and construction of a new headwall and energy dissipater (see Map 2). A new drainage culvert will be installed and the existing culverts and drain inlet box will be renovated. The pond ecosystem will be refurbished and other associated site improvements will be made.

In addition to the pond area, the ranch road/culvert washout was examined for evidence of cultural materials in the exposed gully walls (see Plate 5).

PROJECT METHODOLOGY

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

Background Research

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

The Regional Information Centers have been established by the California Office of Historic Preservation as the local repository for all archaeological reports prepared under cultural resource management regulations. Following

completion of the project, a copy of the report also must be deposited with that organization.

Field Reconnaissance

The field reconnaissance was conducted by Mary Doane, B.A, on April 23, 2009. The survey consisted of a "general surface reconnaissance" of all project impacts areas which could reasonably be expected to contain visible cultural resources, and which could be viewed without major vegetation or water removal or excavation.

RESULTS OF THE RECONNAISSANCE

Background Research

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

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:

- 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.

REFERENCES

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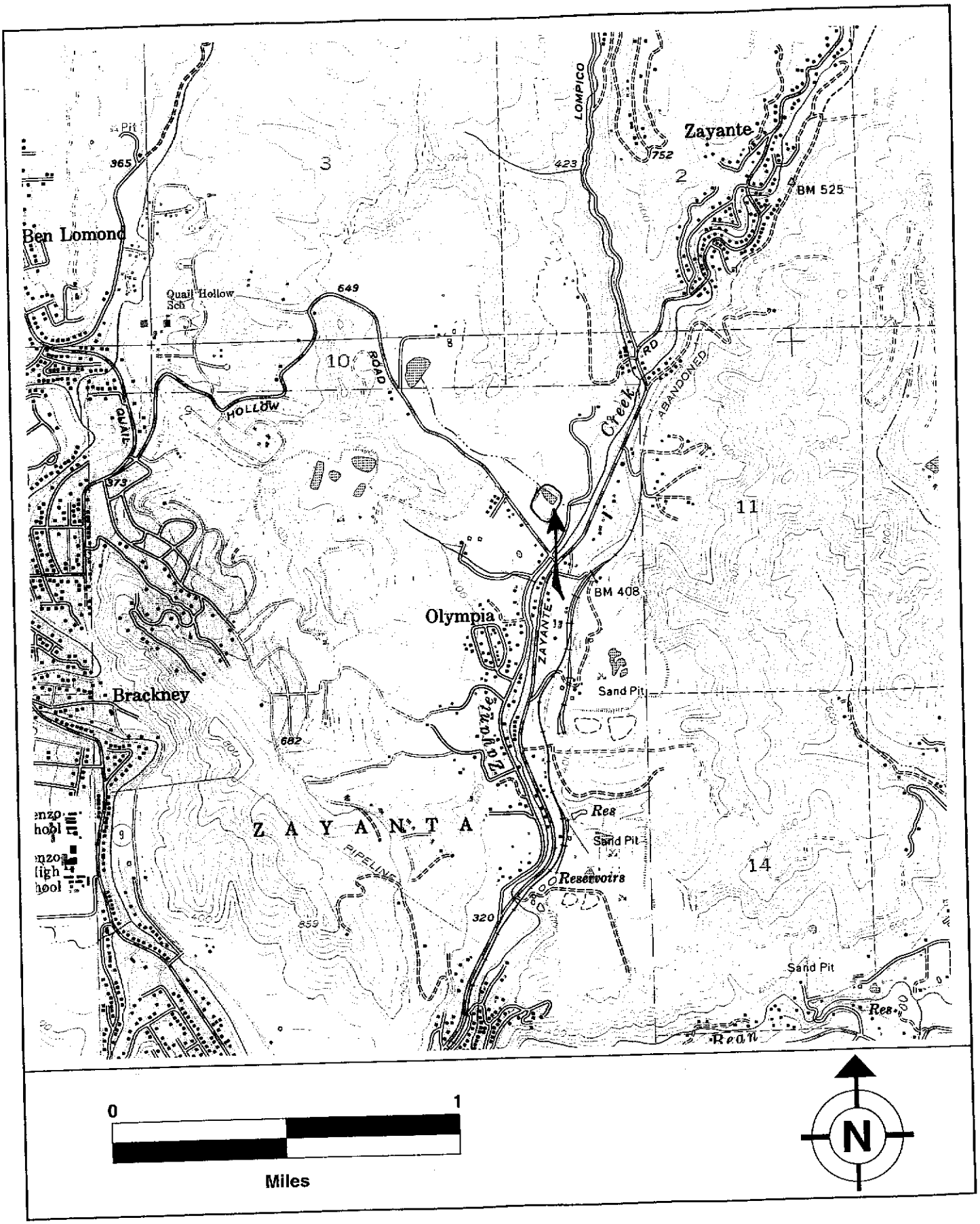
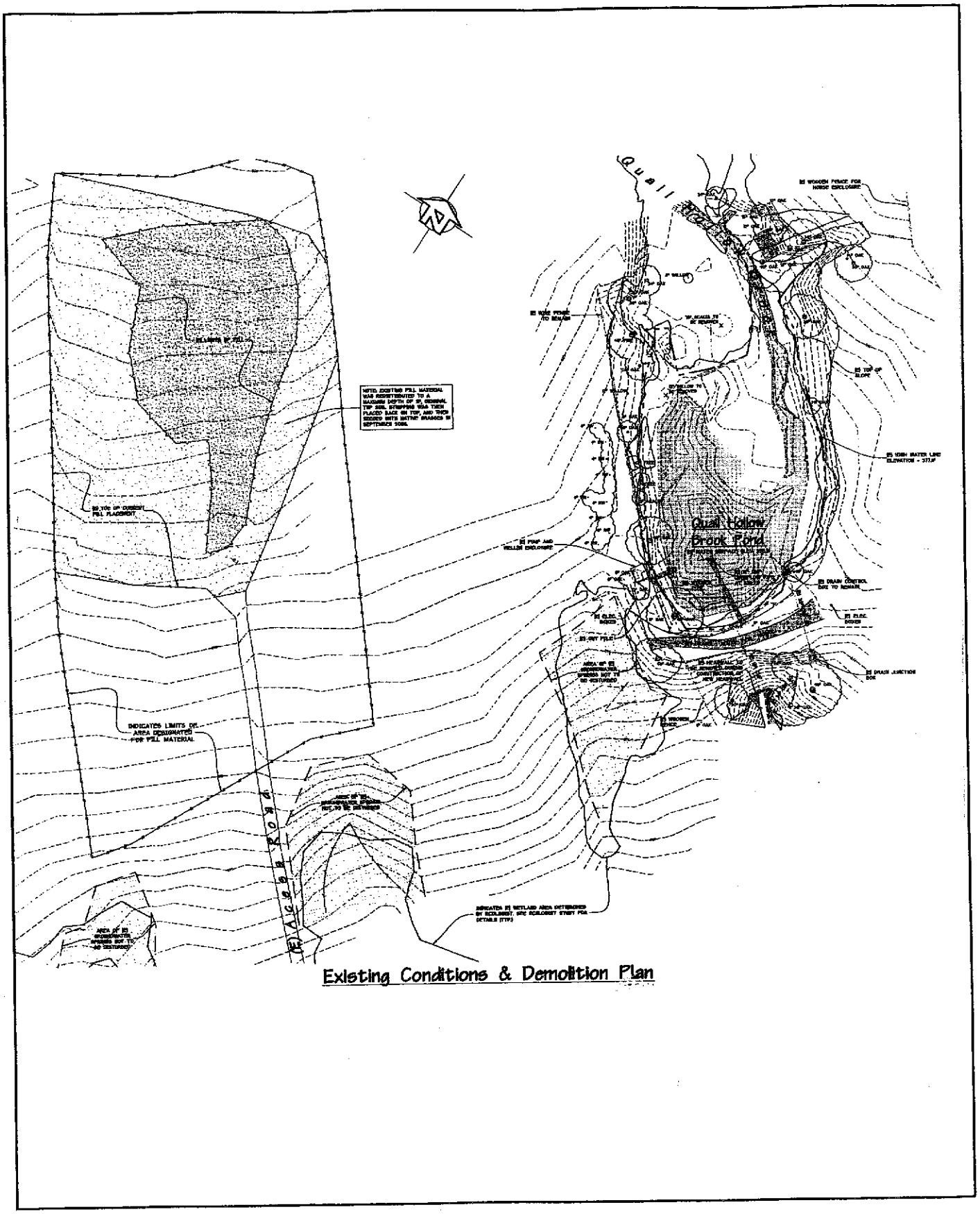


Map 1. Project Location.



Map 2. Project Location.

Plate 1. Pond from dam. Note wooden pier to the left.

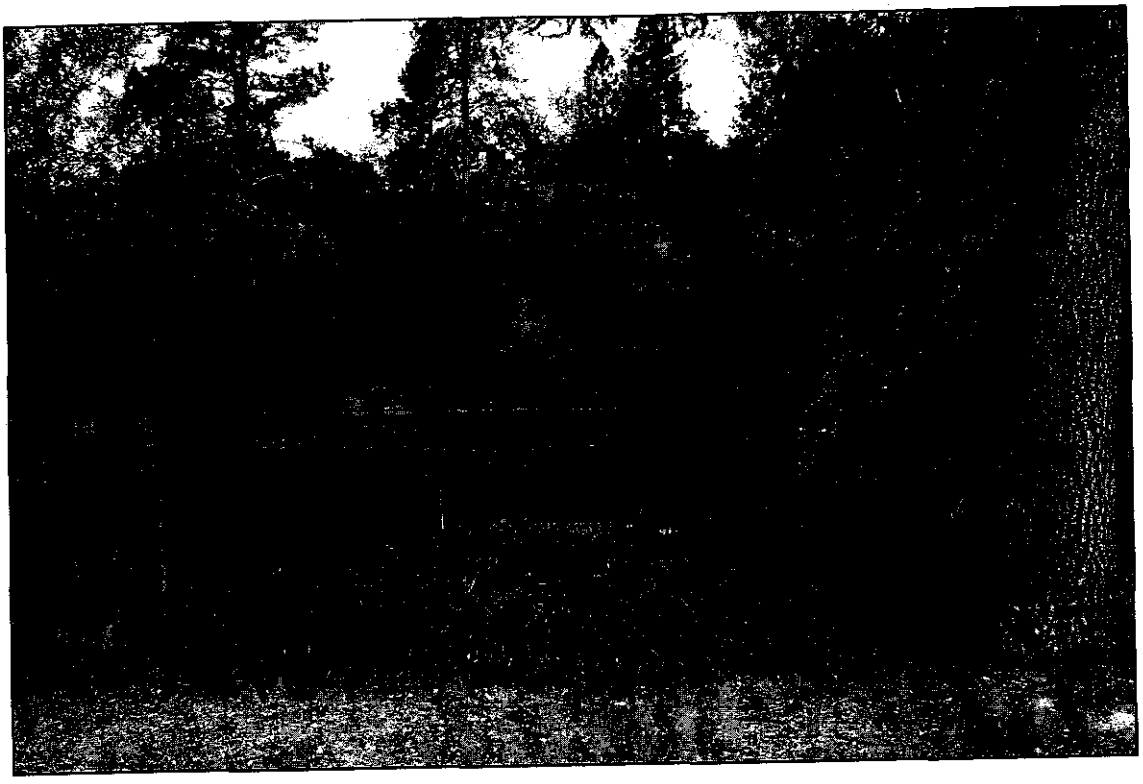


Plate 2. Pond from dam (north side).

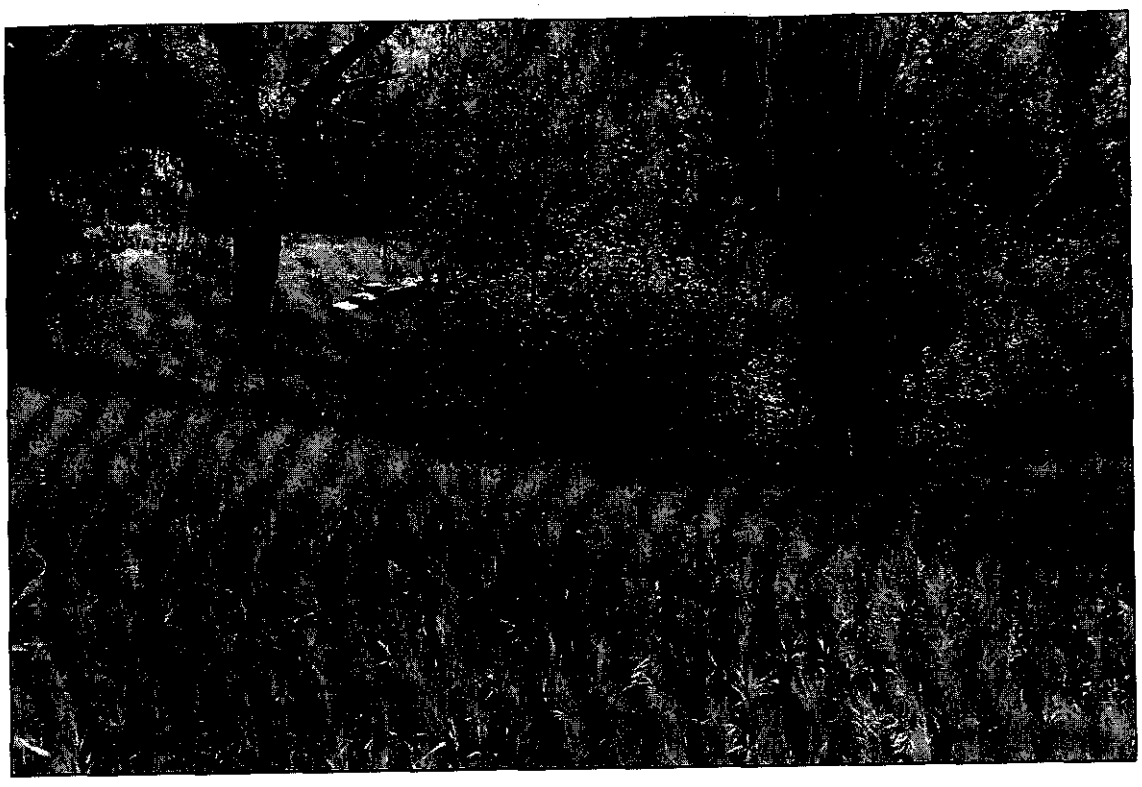


Plate 3. View toward headwall from top of dam.

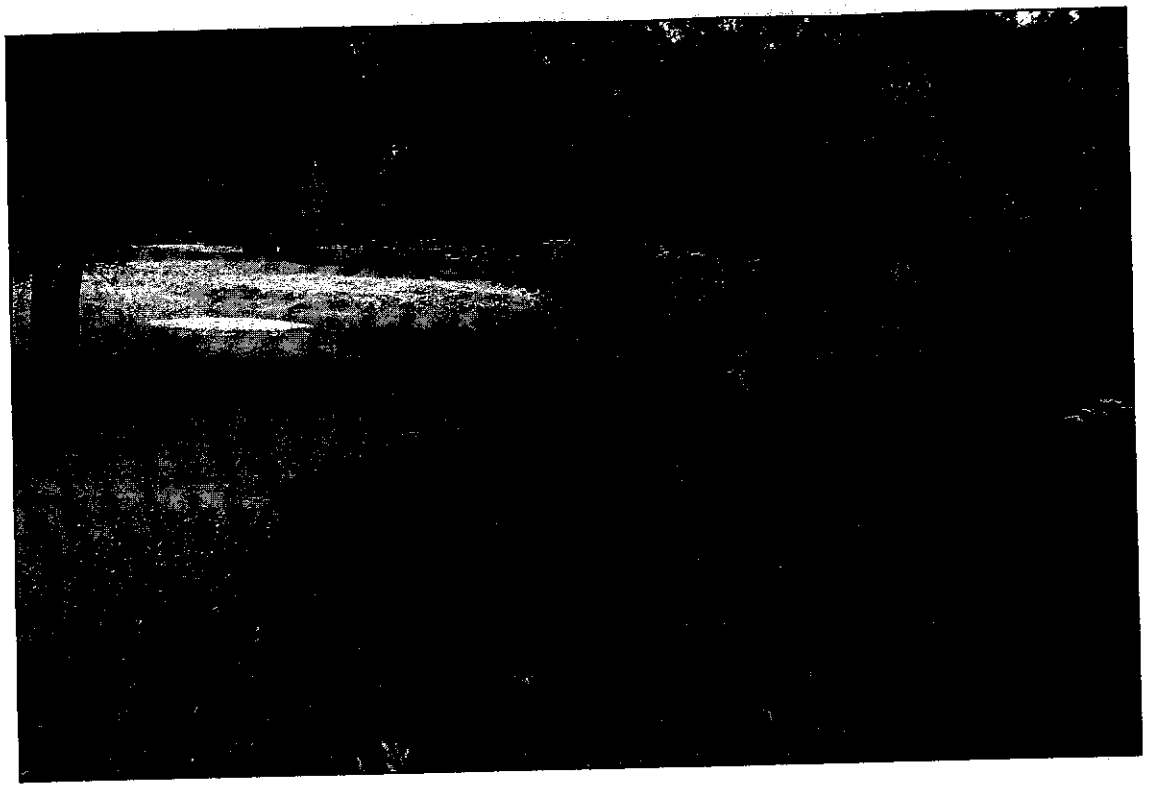


Plate 4. Meadow north of dam.

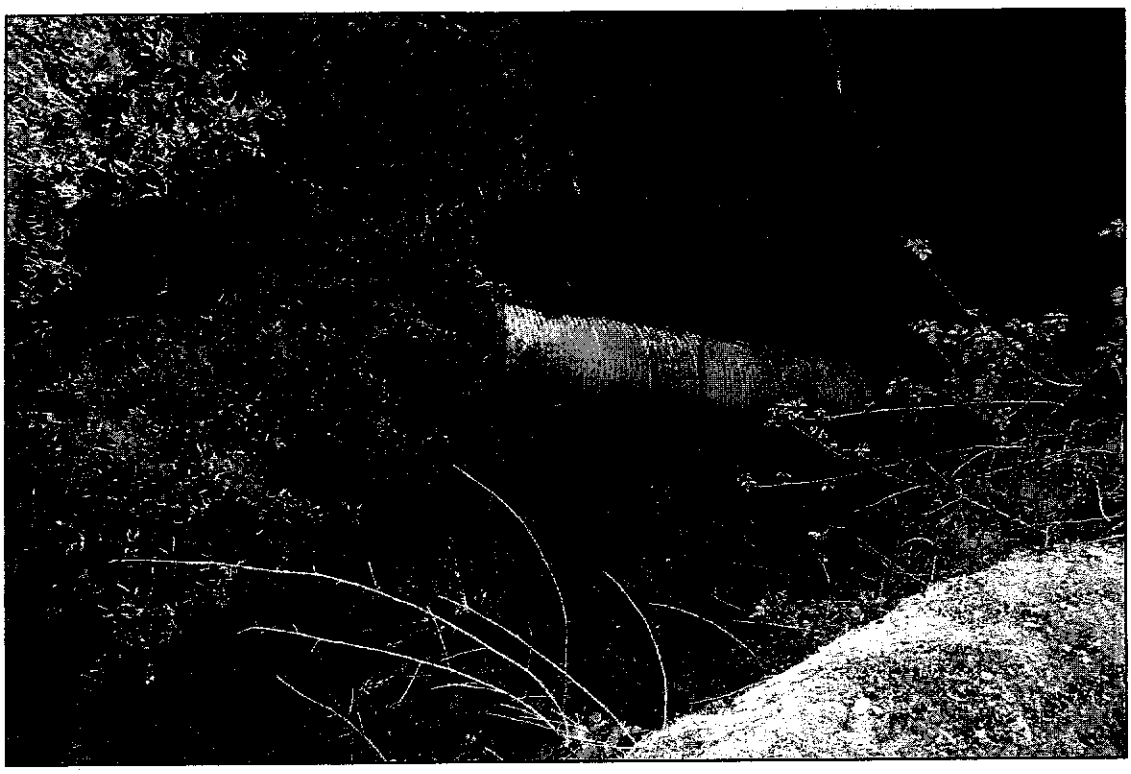


Plate 5. Failed culvert. Note depth of washout.

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

Attachment 8

20 April 2009

Project # 867-02

983 University Avenue, Building D • Los Gatos, CA 95032 • Ph: 408.458.3200 • F: 408.458.3210

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.

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

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, ROOM 400, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
TOM BURNS, DIRECTOR

March 25, 2009

Deidre Hamilton
500 Chestnut Street
Santa Cruz, CA 95060

APN: 074-181-01
Situs: 110 Quail Hollow Road, Felton, CA 95018
App #:08-0532

Dear: Ms. Hamilton,

We have received and reviewed the completed Biotic Report for the Lichen Oaks Ranch Pond Restoration Project, prepared by H.T. Harvey and Associates, December 15, 2008. The report is required to accurately assess the potential impacts of a proposed pond dredging and restoration project on the subject parcel and to allow avoidance of impacts to be planned in the design phase of the project, as well as to recommend mitigation measures to unavoidable impacts. A copy of the review letter from our consultant is attached for your reference. The letter explains that the findings of the biotic report are consistent with the County and the County's consultant's understanding of the biotic issues regarding the proposed project, and makes some recommendations that the County supports.

This letter grants the biotic approval required in County code section 16.32.060 with the following conditions:

Prior to issuance of the riparian exception or grading permit, the report shall be revised to incorporate the following recommendations contained in the attached letter from Ecosystems West:

1. The design shall be revised to remove reference to gabion basket and include willow staking within the rock slope protection.
2. The two species of tarplant that were identified in the project area, grassland tarweed (*Hemizonia increscens*) and yellowflower tarweed (*Holocarpha virgata*) have not been documented in the County of Santa Cruz. These species shall be collected and vouchered during the summer surveys and added to the list Santa Cruz county vascular plant checklist.
3. Revise the report to include the new proposed protocol for woodrats recently presented by H.T Harvey and Associates at the Wildlife Society Conference:
   a. Complete avoidance. Establish an exclusion zone around the woodrat house/condo and retain as much surrounding habitat as possible.
   b. If avoidance is not possible, obtain authorization from CDFG to move sticks from

Attachment 9

the woodr ouse/condo (not the nest in its entiret once) into nearby suitable woodrat habitat or create new habitat (e.g. slash piles) for woodrats to move into.

c. Conduct follow-up resource monitoring to confirm if relocated woodrat structures become occupied by woodrats.

4. The report shall be revised include the following California red-legged frog (CRLF) mitigations:
   a. Require US fish and Wildlife (USFWS) protocol breeding season surveys prior to any site disturbance. Include protocols if frogs are present, Include language regarding coordination with USFWS and any approvals required.
   b. If CRLF egg masses are present, work shall not begin until after June 1st.
   c. Incorporate language into the mitigation measure to check under all equipment before use and to avoid working at night or during rain events if CRLF are present.
   d. Revise mitigation measure 5d to mention that authorization will be obtained by USFWS before capturing, seining, and relocating CRLF earlier in the text of the measure. Move the second-to-last sentence in this measure somewhere to the beginning of the measure. Additionally, the text in number (v.) states relocation sites will be approved by USFWS prior to moving any frogs or larvae and the relocated animals will be monitored. This statement should be introduced earlier in the discussion of measure 5d. Include a statement emphasizing that relocation sites should be void of invasive predators (e.g., fish, crayfish, bullfrogs).
5. Regarding western pond turtles (WPT), revise the report to state that a qualified biologist shall conduct preconstruction surveys for WPT during the nesting season (spring/summer) in upland habitat before ground disturbance and/or sediment spreading activities begin. If found, the biologist shall set up exclusion zones around any discovered nests (where you may witness female laying eggs) or aestivating turtles. Keep all project activities from entering these exclusion zones. Have the qualified biologist monitor the excluded resource to determine when to remove the exclusion zone materials. Relocate WPT to sites formally approved by CDFG.
6. Revise mitigation measure 6e regarding roosting bats, revise the eviction window to September 1 to October 15 and February 15 to April 15 and incorporate follow-up monitoring of any new alternative roost sites constructed for this mitigation measure.
   a. As an alternative, you may consider changing demolition activities to take place during the time period between 15 October and 31 January. This time period incorporates the non-breeding season for birds and is outside of the bat eviction time frames.
7. In addition to the removal of the non-native invasive silver wattle adjacent to the pond, include the removal of all individuals of French broom and other non-native invasive plants from the project area. These species should continue to be removed during monitoring and maintenance regimes.

As long as the development is confined to the portion of the parcel that is identified in the biotic report as the project area and all mitigations listed above and within the submitted report are incorporated, significant impacts to sensitive habitat and special status animals are not expected.

The report submitted is conditionally accepted, provided the changes listed above are incorporated into a revised report. Please submit 2 copies of the revised report to be routed to Jessica Degrassi, Resource Planner, for her use in drafting the initial study and riparian exception.

Please call me at 831-454-3[illegible] if you have any questions. A copy of [illegible]s letter will be sent to Ms. Degrassi so that she is aware of the biotic conditions on the parcel.

Sincerely,

Matt Johnston
Environmental Planning

For: Claudia Slater
Principal Planner

cc: Jessica Degrassi, Resource Planner

COUNTY OF SANTA CRUZ
DISCRETIONARY APPLICATION COMMENTS

Project Planner: Jessica Degrassi
Application No.: 08-0532
APN: 074-181-01

Date: March 25, 2009
Time: 11:13:26
Page: 1

Environmental Planning Completeness Comments

========= REVIEW ON JANUARY 8, 2009 BY CAROLYN I BANTI =========

--- First Review Completeness -- Soils and Grading ---

Please provide an original copy of the soils report that includes the boring logs/maps and all other attachments.

Prior to discretionary permit issuance, please provide a geotechnical plan review letter stating that the project plans conform to the recommendations of the geotechnical investigation. The review letter should specifically approve the location of the graded overflow path on the eastern end of the dam and provide additional recommendations as necessary to ensure the stability of the existing fill.

Please provide the estimated depth of fill material to be placed in the meadow area designated for fill material disposal. ========= UPDATED ON MARCH 16, 2009 BY CAROLYN I BANTI =========

--- Second Review Completeness --- Soils and Grading ---

The soils report has been accepted. Please see letter dated 3/16/09.

The plan review letter has been received and accepted.

All completeness comments have been addressed.

Environmental Planning Miscellaneous Comments

========= REVIEW ON JANUARY 8, 2009 BY CAROLYN I BANTI =========

--- First Review Compliance -- Soils and Grading ---

As recorded in the submitted meeting notes (meeting date 10/9/08), a maintenance and monitoring plan for future sediment removal is to be included with the project proposal. Please submit this plan for review.

The plans currently propose a graded overflow path on the eastern end of the dam. This path should be lined with erosion resistant material and extended such that any pond overflow is routed safely over existing fill areas and re-enters the stream channel. Please revise.

--- First Review Misc. Comments/Conditions -- Soils and Grading ---

Please update the soils report to include 2007 CBC seismic design criteria prior to building permit application.

Please submit an electronic copy of the updated soils report prior to building permit issuance.

Please submit two copies of the updated soils report with the building permit application.

Please submit a geotechnical plan review letter with the building permit application that states the project plans conform to the recommendations of the geotechnical report.

During the 10/9/08 field meeting, an alternate overflow pipe design was discussed where a second overflow pipe would be installed parallel to the existing 32-inch pipe(s) on the northwestern end of the dam in order to avoid disturbance of the existing fill material. The applicant is encouraged to consider implementing this design option. ========= UPDATED ON MARCH 16, 2009 BY CAROLYN I BANTI =========

--- Second Review Compliance --- Soils and Grading ---

No management plan was submitted for review.

The overflow path was removed from the plans. No additional review is required.

--- Second Review Misc. --- Soils and Grading ---

As requested in the soils report acceptance letter, please submit an electronic copy of the soils report in .pdf format via compact disk or email to carolyn.banti@co.santa-cruz.ca.us. This may be submitted at the building permit stage.

Dpw Drainage Completeness Comments

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

========= REVIEW ON JANUARY 12, 2009 BY LOUISE B DION =========
Application with plans dated 12/10/08 by Ifland Engineers has been received and reviewed. Please address the following:

1) Provide a description of the system and how it is intended to function. "System" meaning the pond and associated controls. Clarify the purpose of two control boxes (existing connecting to 32" existing CMP and proposed connecting to new 30" outlet pipe).

2) Provide an explanation for lowering the upstream flow elevation of Quail Hollow Brook.

3) A new 30" outlet is proposed. Does this result in an increase in downstream discharge? Please quantify discharges pre and post sediment removal. Clarify the need for the new 30" outlet pipe. What data was used to size the pipe? What will be the velocity at the discharge outlet? Will this result in any downstream erosion issues?

4) Describe any existing downstream capacity restriction, is any.

Until further information is submitted addressing the above comments, a thorough review of this application cannot be completed. Once submitted, additional items may need to be addressed before the application can be deemed complete.

If you have questions, please contact me, Louise Dion, at 831-233-8083.

========= UPDATED ON JANUARY 12, 2009 BY LOUISE B DION =========
========= UPDATED ON MARCH 6, 2009 BY LOUISE B DION =========

Revised plans 1/26/09, revised drainage calculations dated February 2009 and correspondence from Ifland Engineers dated 1/26/09 have beenreceived. Our concerns have been addressed and the application is deemed complete with respect to the discretionary permit application stage. Please see miscellaneous comments for additional guidance.

Dpw Drainage Miscellaneous Comments

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

========= REVIEW ON JANUARY 12, 2009 BY LOUISE B DION =========
NO COMMENT
========= UPDATED ON MARCH 6, 2009 BY LOUISE B DION =========

The following should be addressed prior to building permit issuance:

1. Q values calculated on page 3 of report all state Q10=, rather than Q25=, Q50=, Q100= . Please revise. 2. Report states on page 4 that erosion is taking place at the base of the earth dam behind the headwall. Pictures should be included in report as documentation. 3. Building plans should provide more detail of erosion control measure (riprap) proposed at discharge of 18-in and 30-in pipe .

Environmental Health Completeness Comments

========= REVIEW ON JANUARY 8, 2009 BY JIM G SAFRANEK ========= Comments from K Kittleson: No stocking of non-native fish due to potential red-legged froghabitat, which, if found during construction, should be protected. Bullfrogs discovered at

the construction site should be killed.
========= UPDATED ON MARCH 3, 2009 BY JIM G SAFRANEK =========
NO COMMENT, other than for the previous req by Kittleson.

Environmental Health Miscellaneous Comments

========= REVIEW ON JANUARY 8, 2009 BY JIM G SAFRANEK =========
NO COMMENT