APPENDIX A
NOTICE OF PREPARATION (NOP)
AND NOP COMMENTS

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Cathleen Cox
Acting Director

Notice of Preparation

September 13, 2010

To: Reviewing Agencies

Re: Southern Humboldt Community Park
SCH# 2010092037

Attached for your review and comment is the Notice of Preparation (NOP) for the Southern Humboldt Community Park draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Michale Richardson
Humboldt County Community Development Services
Planning Department
3015 H Street
Eureka, CA 95501

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

RECEIVED
SEP 16 2010
Humboldt County
Planning Division

Document Details Report
State Clearinghouse Data Base

SCH# 2010092037
Project Title Southern Humboldt Community Park
Lead Agency Humboldt County

Type NOP Notice of Preparation

Description This project involves 3 parts: First, a General Plan Amendment is proposed to change the General Plan designations on portions of the 430 acre property from Agricultural Lands (AL20) and Agricultural Rural (AR5-20) to allow recreation open to the public, multifamily housing, and community assembly uses. The second part of this project is rezoning portions of the property consistent with the new Plan designations. The third part of the project is the proposed Conditional Use Permit and Special Permit to allow specific activities withint he AE and PR areas. Portions of the AE designated areas are proposed to be used for small picnics, day use parking, portable restrooms, public access, a labrynth, nature study, outdoor education and staff access along existing dirt roads during large events in the PR areas.

Lead Agency Contact

Name Michale Richardson
Agency Humboldt County Community Development Services
Phone 707-268-3723 **Fax**
email mrichardson@co.humboldt.ca.us
Address Planning Department
3015 H Street
City Eureka **State** CA **Zip** 95501

Project Location

County Humboldt
City
Region
Cross Streets 222-091-06
Lat / Long
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use PLU: AL20)GRBAP)
Z: AE

Project Issues Aesthetic/Visual; Biological Resources; Landuse; Minerals; Agricultural Land; Other Issues; Water Quality; Noise; Recreation/Parks; Geologic/Seismic; Population/Housing Balance; Traffic/Circulation

Reviewing Agencies Resources Agency; Department of Conservation; Cal Fire; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 1E; Native American Heritage Commission; State Lands Commission; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 1; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 1

Date Received 09/13/2010 **Start of Review** 09/13/2010 **End of Review** 10/12/2010

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: Humboldt.

SCH# 2010092037

Resources Agency

- [x] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Mike Sotelo
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Gerald R. Zimmerman
- [x] **Dept. of Conservation**
  Rebecca Salazar
- [ ] **California Energy Commission**
  Eric Knight
- [x] **Cal Fire**
  Allen Robertson
- [ ] **Central Valley Flood Protection Board**
  James Herota
- [ ] **Office of Historic Preservation**
  Ron Parsons
- [x] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [x] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou
- [ ] ____________________
  Conservancy

Fish and Game

- [ ] **Depart. of Fish & Game**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Game Region 1**
  Donald Koch
- [x] **Fish & Game Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Game Region 2**
  Jeff Drongesen
- [ ] **Fish & Game Region 3**
  Charles Armor
- [ ] **Fish & Game Region 4**
  Julie Vance
- [ ] **Fish & Game Region 5**
  Don Chadwick
  Habitat Conservation Program
- [ ] **Fish & Game Region 6**
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M**
  Brad Henderson
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] **Depart. of General Services**
  Public School Construction
- [ ] **Dept. of General Services**
  Anna Garbeff
  Environmental Services Section
- [ ] **Dept. of Public Health**
  Bridgette Binning
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Linda Flack
- [ ] **Cal EMA (Emergency Management Agency)**
  Dennis Castrillo
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Leo Wong
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [x] **State Lands Commission**
  Marina Brand
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- [x] **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- [ ] **Caltrans - Planning**
  Terri Pencovic
- [x] **California Highway Patrol**
  Scott Loetscher
  Office of Special Projects
- [ ] **Housing & Community Development**
  CEQA Coordinator
  Housing Policy Division

Dept. of Transportation

- [x] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Bruce de Terra
- [ ] **Caltrans, District 4**
  Lisa Carboni
- [ ] **Caltrans, District 5**
  David Murray
- [ ] **Caltrans, District 6**
  Michael Navarro
- [ ] **Caltrans, District 7**
  Elmer Alvarez
- [ ] **Caltrans, District 8**
  Dan Kopulsky
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Chris Herre

Cal EPA

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
  - [ ] Transportation Projects
    Douglas Ito
  - [ ] Industrial Projects
    Mike Tollstrup
- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights
- [x] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [x] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)
- [ ] **Other** ____________________

Last Updated on 07/12/10

NOTICE OF SCOPING MEETING
NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT

To: **Neighbors of the Southern Humboldt Community Park**

From: **Humboldt County Department of Community Development Services**
3015 H Street
Eureka, CA 95501

Subject: **This is to advise you that you are invited to attend a public meeting on Thursday, September 9, 2010 from 5 – 7pm in front of the barn on the Southern Humboldt Community Park (SHCP) property to identify potentially significant environmental impacts of the project described below. These impacts will be discussed in the Draft Environmental Impact Report (DEIR)**

The proposed project is a General Plan Amendment, Zone Reclassification, Conditional Use Permit and Special Permit on the Southern Humboldt Community Park in the Garberville Area. This project involves three parts. First, a General Plan Amendment is proposed to change the General Plan designations on portions of the 430 acre property from Agricultural Lands (AL20) and Agricultural Rural (AR5-20) to allow recreation open to the public, multifamily housing, and community assembly uses. Most of the property (305 acres) is proposed for continued agricultural use. The 38 acres of the property currently used for a gravel mining operation would also continue with that use. The 3 - 5 acres proposed for multifamily housing will have an RM - Residential Multifamily Plan designation. The 96 acres proposed for public recreation, the agricultural areas, and the gravel mining areas are proposed to be assigned a PR-Public Recreation designation, a new Plan designation which allows agriculture, playing fields, special events and other recreational uses open to the public.

The second part of this project is rezoning portions of the property consistent with the new Plan designations.

The third part of the project is the proposed Conditional Use Permit and Special Permit to allow specific activities within the PR areas. Portions of the PR designated areas are proposed to be used for small picnics, day use parking, portable restrooms, public access, a labyrinth, nature study, outdoor education and staff access along existing dirt roads during large events.

Portions of the PR areas are proposed to be used for small events of 500 persons or less, such as weddings, birthdays and memorials. Up to five (5) times per year, medium sized events for up to 1,200 persons would be allowed. And one time per year an event is proposed for up to 5,000 persons similar to the Benbow Summer Arts Fair. Amplified music would be allowed at all these events.

Other portions of the PR areas will be used as playing fields and accessory uses, such as bleachers, and concession stands, a disc golf course, camping areas, a skate park, a group picnic area, public restrooms, a playground, and multi use trails. The parcel is served by community water and on-site sewer.

Humboldt County Department of Community Development Services will be the Lead Agency and will prepare a draft environmental impact report for the project identified below.

The project location, surrounding land uses and setting, and potential environmental effects are described below. A copy of the Initial Study is not attached. Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Michael Richardson at the address shown above. We will need the name, phone number, and email address of a contact person. Your comments may also be transmitted electronically to mrichardson@co.humboldt.ca.us. We may wish to directly contact NOP respondents for assistance in preparing the Draft EIR. Please identify the name(s) of the person(s) to contact in the event there are questions about your agency's comments.

Location: The project site is located in Humboldt County, in the Garberville area, at the intersection of Sprowel Creek Road with Camp Kimtu Road, on the property known as the Southern Humboldt Community Park located at 1144 Sprowel Creek Road.

Surrounding land uses and setting: The Southern Humboldt Community Park's 430 acre property is located approximately one mile from the town of Garberville, Humboldt County, California. There is one-mile of Eel River frontage within the property borders. The property borders Highway 101 (without access) and is one-mile from the town of Garberville. The location has been used for ranching and agricultural activities for many decades. There are numerous dwellings and out-buildings clustered on the property. The park property offers aquatic, riverine habitats bordered by riparian vegetation as well as mixed deciduous and conifer forest, native redwoods, regionally-unique grasslands and prime farmland.

Adjoining properties across the river include a cluster of low-density rural-residential single-family zoned properties, single family horse ranch and a 20-acre parcel zoned Heavy Industrial – Qualified (MH-Q) in operation.

To the west the property is bordered by a 70-acre undeveloped and unoccupied property in private ownership. To the east the property is bordered by an 80-acre unoccupied parcel where the Garberville Services District is currently planning installation of expansion facilities on a portion of the property.

With the exception of a separate parcel of property owned by SHCP zoned Heavy Industrial – Qualified (MH-Q) and Single Family Residential (R-1-B-6) on the north side of the South Fork of the Eel River, the property is zoned AE.

Tooby Memorial Park has been operating as a park for more than fifty years and is a part of the Southern Humboldt Community Park parcel. Nearby Benbow State Recreation area offers compatible recreational land-use and public access opportunities as well as the potential for future trail and facility linkages through future collaborative projects.

Project Applicant: Southern Humboldt Community Park

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact".

.

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

Date 9/1/10

Signature Michael Richardson

Title: Senior Planner
Telephone (707) 268-3723

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Responses to Notice of Preparation

The following comments were submitted to the Humboldt County Planning Department, the lead agency, in response to the Notice of Preparation (NOP) of a draft environmental impact report (DEIR) for a general plan amendment, a zone reclassification, conditional use permit on the Southern Humboldt Community Park. The NOP was noticed on September 5, 2010 and the following responses were received. A public scoping meeting was held on September 9, 2012.

Inventory of Agency Letters Submitted

1. Bear River Rancheria
2. California Department of Transportation CalTrans
3. California Regional Water Quality Control Board
4. California Dept. of Forestry and Fire Protection (CalFire) Planning Battalion CalFire Humboldt—Del Norte Unit-Letter1
5. CalFire- Letter 2
6. California Department of Fish and Game (Fish and Wildlife)
7. California Highway Patrol
8. Garberville Sanitation District- Mark Bryant
9. Garberville Sanitation District – Herb Schwartz- Board Chair
10. Humboldt County Building Dept.
11. Humboldt County Department of Public Works

BEAR RIVER BAND of ROHNERVILLE RANCHERIA
27 BEAR RIVER DR. LOLETA, CA 95551 707.733.1900, fax 733.1972

9-27-10

M Richardson
HCPC
3015 H Street
Eureka, CA 95501

RE: Southern Humboldt Community Park

Dear, Mr. Richardson

This letter is in regards to Southern Humboldt Community Park. We have no knowledge of cultural resources in your project area if identify cultural resources during your project implementation please remit the appropriate site records to our office for our future use if you have any questions please contact our THPO Asst. Eli Sanderson at 707-733-1900 x229.

Sincerely,

X

Elijah Sanderson
Archaeological Technician
esanderson@bearrivertribe.com

-----Original Message-----
From: Alyson Hunter [mailto:alyson_hunter@dot.ca.gov]
Sent: Thursday, September 09, 2010 3:41 PM
To: Richardson, Michael
Subject: So Hum Comm Park Scoping Sesh

Hi Michael -

Unfortunately, we just got this notice in our mail in Planning this afternoon, so I will not be able to attend tonight's meeting in Garberville. Is there talk of either of the Reggaes moving to this site? Caltrans will have similar comments to this that we generally have for Reggae; i.e., traffic control for events, signage, CHP coordination, etc. This site would seem preferable to us since the distance from the highway will help filter impacts to our facility. We will provide additional comments when the DEIR is circulated, but those mentioned above generally suffice at this point.

Regards,

Alyson Hunter, Associate Transportation Planner
Caltrans, District 1, System Planning
PO Box 3700, Eureka CA 95502
Ph: 707-441-4542

Please consider the environment before printing this email.

> -----Original Message-----
> **From:** Kathryn Lobato [mailto:kathryn@sohumpark.org]
> **Sent:** Thursday, September 23, 2010 3:04 PM
> **To:** Richardson, Michael
> **Subject:** Re: So Hum Comm Park Scoping Sesh
>
> Hi Michael,
>
> Am I reading this correctly? Are they saying they think the Park would be the preferable location for the Reggae events? Interesting input.
>
> Kathryn
>
> **From:** Richardson, Michael
> **Sent:** Thursday, September 23, 2010 3:09 PM
> **To:** Kathryn Lobato
> **Subject:** FW: So Hum Comm Park Scoping Sesh
>
> That's my read of it as well. I'm not sure that everyone in CalTrans feels that way. We won't know until they give us their official written comments.
>
> Michael.

-----Original Message-----
From: Alyson Hunter [mailto:alyson_hunter@dot.ca.gov]
Sent: Monday, October 18, 2010 9:59 AM
To: Richardson, Michael
Subject: Southern Humboldt Community Park NOP Comments

Michael -

My apologies that these comments are a little late. I was away on Caltrans-sponsored training last week. Our Safety and Operations units have reviewed the proposal and concur with County staff's recommendation that a Traffic Impact Study (TIS) be prepared to determine whether or not impacts to circulation created by the proposal would require mitigation. Please ensure that the project proponent's traffic engineer is directed to our website for more information on the preparation of the TIS:

http://www.dot.ca.gov/dist1/d1transplan/tisguide-Dec02.pdf

Regards,

Alyson Hunter, Associate Transportation Planner
Caltrans, District 1, System Planning
PO Box 3700, Eureka CA 95502
Ph: 707-441-4542

-----Original Message-----
From: Alyson Hunter [mailto:alyson_hunter@dot.ca.gov]
Sent: Thursday, September 09, 2010 3:41 PM
To: Richardson, Michael
Subject: So Hum Comm Park Scoping Sesh

Hi Michael -

Unfortunately, we just got this notice in our mail in Planning this afternoon, so I will not be able to attend tonight's meeting in Garberville. Is there talk of either of the Reggaes moving to this site? Caltrans will have similar comments to this that we generally have for Reggae; i.e., traffic control for events, signage, CHP coordination, etc. This site would seem preferable to us since the distance from the highway will help filter impacts to our facility. We will provide additional comments when the DEIR is circulated, but those mentioned above generally suffice at this point.

Regards,

Alyson Hunter, Associate Transportation Planner
Caltrans, District 1, System Planning
PO Box 3700, Eureka CA 95502
Ph: 707-441-4542

California Regional Water Quality Control Board
North Coast Region
Geoffrey M. Hales, Chairman

www.waterboards.ca.gov/northcoast
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

October 25, 2010

Mr. Michael Richardson
Humboldt County Community Development Services
Planning Department
3015 H Street
Eureka, CA 95501

Dear Mr. Richardson:

Subject: Comments on the Notice of Preparation for the Southern Humboldt Community Park draft Environmental Impact Report (EIR), SCH No. 2010092037

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of an Environmental Impact Report for the Southern Humboldt Community Park. We appreciate the chance to participate early in the environmental review process. The North Coast Regional Water Quality Control Board (Regional Water Board) is a responsible agency for this project, with jurisdiction over the quality of ground and surface waters (including wetlands) and the protection of the beneficial uses of such waters. Many individual projects implemented pursuant to the EIR may require specific permitting from the Regional Water Board.

The proposed project consists of a General Plan Amendment to allow recreation open to the public, multifamily housing, and community assembly uses. Additionally, Zone Reclassification, a Conditional Use Permit, and a Special Permit are being requested so the property is consistent with the new plan designations and allows for specific activities within the AE and PR areas.

As noted in the NOP, the proposed project site is in very close proximity to Eel River. The Eel River is listed as impaired on the Clean Water Act section 303(d) due to sedimentation/siltation, and temperature.

Comments

The NOP describes the general scope of development intended to occur through the project but it does not identify potentially significant environmental impacts of the proposed project. The Regional Water Board is supportive of the implementation of the Southern Humboldt Community Park as long as the project is fully protective of water quality. Therefore, we strongly recommend that the full impacts to water quality, from all viable alternatives, be evaluated in an Environmental Impact Report for the proposed

project. Specific analysis regarding water quality impacts due to new construction, wastewater disposal, land disturbance within waters of the state, and modification to storm water runoff quality and quantity should be included.

We expect that a forthcoming environmental document will address areas of concern. Consequently we will withhold specific comments until we receive an Environmental Impact Report.

If you have any questions regarding these comments, you may contact me at (707) 576-2065 or jshort@waterboards.ca.gov.

Sincerely,

John Short
Senior Water Resource Control Engineer

cc: Scott Morgan, State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812, RE: SCH No. 2010092037

DEPARTMENT OF FORESTRY AND FIRE PROTECTION

Humboldt – Del Norte Unit
118 Fortuna Blvd.
Fortuna, CA 95540
Website: www.fire.ca.gov
(707) 726-1272

Ref: 7100 Planning
Date: September 2, 2014

Kirk A. Girard, Director
Humboldt County Community Development Services Department
3015 H Street
Eureka, CA 95501

Project: APN: Area: Attention:

So. Humboldt Community Park c/o Kathryn Lobato General Plan Amendment, APN 222-091-03-06&-241-08
Garberville Area Richardson

Mr. Girard,

The California Department of Forestry and Fire Protection (CALFIRE) provides these standard project review comments on the above noted project.

FIRE SAFE

General
CALFIRE has responsibility for enforcement of Fire Safe Standards as required by Public Resources Code (PRC) 4290 and 4291. However CALFIRE is not the lead agency in planning development and project permitting. CALFIRE provides input as a contributing agency, generally limited to plan review, and is not the approving agency for these projects.

Local Responsibility Areas
Should this project include Local Responsibility Area (LRA) lands, CALFIRE has no direct fire safe input on those parcels. However, in those areas with LRA parcels adjacent to State Responsibility Area (SRA) land, CALFIRE recommends that local standards be applied that are consistent with those CALFIRE makes for SRA lands.

State Responsibility Areas
Should this project include State Responsibility Area (SRA) lands, the following are CALFIRE's Fire Safe minimum input and recommendation for any and all development.

1. In Humboldt County, developments must meet minimum fire safe standards by constructing the project in conformance with County Fire Safe Ordinance 1952, which the California Board of Forestry and Fire Protection has accepted as functionally equivalent to PRC 4290. The County Fire Safe Ordinance provides specific standards for roads providing ingress and egress, signing of streets and buildings, minimum water supply requirements, and setback distances for maintaining defensible space.

2. New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas shall comply with the 2007 California Building Code (CBC) Section 701A.3.2. This requires roofing assemblies, attic and eve ventilation, exterior siding, decking and deck enclosure, windows and exterior doors, and exposed under floor areas that are approved "ignition resistive" in design.

3. All development, especially commercial or industrial development, should be designed to comply with the most current versions of the following standards:

a) California Fire Code (CFC) — for overall design standards
b) Public Utilities Commission (PUC) General Order 103 — for design of water systems
c) National Fire Protection Association Standards (NFPA) for fire flow minimums and other design questions not specifically covered by CFC and PUC
d) Housing and Community Development Codes and Standards —for mobile home parks and recreational camps

4. For Department of Real Estate reporting purposes, fire protection coverage in SRA is generally described as follows:
   During the declared fire season (usually June through October) CALFIRE responds to all types of fires and emergencies in SRA.
   During the remainder of the year (winter period), CALFIRE responds to emergency requests with the closest available fire engine, if a response can reasonably be expected to arrive in time to be effective. A fire engine is usually available somewhere in the Unit, but may have an extended response time.
   There are many hazards confronting fire protection agencies in most subdivisions on SRA lands. Steep terrain and heavy wildland fuels contribute to fire intensity and spread. The distances from fire stations and road grades encountered usually create an excessive response time for effective structure fire suppression purposes.
   Subdivisions increase fire risks from additional people and increase probable dollar losses in the event of fire due to added structures and improvements.

5. If the project expects to produce densities consistent with a major subdivision, the impacts on all infrastructures should be mitigated. Local government more appropriately provides the responsibility for high-density area protection and services. Annexation or inclusion into Local Responsibility Area should be studied as well.

6. CALFIRE does not support development in areas where there is no local agency fire service for structure fires and emergency medical response. Fire services should be extended into service gap areas as a condition of development. New development can adversely impact existing fire services. Careful consideration must be given where development may overload the local fire service's ability to respond.

RESOURCE MANAGEMENT

CALFIRE has enforcement responsibility for requirements of the Z'berg—Nejedly Forest Practice Act of 1973. CALFIRE is also the lead agency for those parts of projects involving the scope of the Forest Practice Act. The following basic input will cover the majority of projects. Each project will be reviewed with additional input sent at a later date, if needed.

The following comments reflect the basic Resource Management policies of the Board of Forestry and Fire Protection and CALFIRE on CEQA review requests. These policies apply to both Local and State Responsibility Areas.

1. If this project reduces the amount of timberland, by policy, the Board of Forestry and CALFIRE cannot support any project that will reduce the timberland base of California. "Timberland" means land which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees regardless of current zoning (PRC 4526). However, if the zoning and intended use are consistent with the county's general plan; and if no land other than timberland can be identified to site the project; then CALFIRE may choose not to oppose the project.

2. If **any** commercial timber operations are involved with a project, the timber operations cannot be conducted without a CAL FIRE permit. Commercial timber operations include the cutting or removal of trees offered for sale, barter, exchange, or trade or the conversion of timberlands to land uses other than the growing of timber (PRC 4527). Contact your nearest CAL FIRE Resource Management office for guidance on obtaining the necessary permits.

3. If **any** timberlands are being converted to a non-timber growing use by this project, the conversion operations cannot be conducted without a CAL FIRE permit (PRC 4621). Conversion of timberland takes place when trees are removed and the land use changes, even without the sale, barter, exchange, or trade of the trees.

Contact your nearest CAL FIRE Resource Management office for guidance on obtaining the necessary permits.

4. If timberland is in the viewshed of a project, the current and future owners should be overtly notified that changes will occur to their views due to timber management activities. Further, no project should be allowed to negatively affect access to timberland for timber management purposes; neither on the project parcel(s) nor any other timberland parcels.

5. If timber harvesting has occurred and post-harvest restocking and prescribed erosion control maintenance obligations have not been met on a parcel, future owners should be overtly notified (14 CCR 1042). The current owner of a parcel is responsible for restocking requirements and maintenance of roads whether or not they were involved in the actual harvest plan.

6. If the project involves the development of parcels zoned as Timber Production Zone (TPZ), CALFIRE cannot support the project. Dividing TPZ land into parcels of less than 160 acres requires a Joint Timber Management plan prepared by a Registered Professional Forester (RPF), recorded as a deed restriction for a minimum of 10-years on all affected parcels, and approved by a four – fifths vote of the full board (Govt. Code 51119.5). TPZ may be rezoned using a "Ten Year Phase Out," which precludes the need for a Timberland Conversion Permit. CALFIRE opposes immediate rezoning of TPZ land.

If CALFIRE staff develops additional comment on this project, it will be forwarded in an additional response letter.

By
Planning Battalion
CALFIRE Humboldt – Del Norte Unit

For Ralph Minnich, Unit Chief

State of California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Northern Region
601 Locust Street, Redding, CA 96001
http://www.dfg.ca.gov

***ARNOLD SCHWARZENEGGER**, Governor*
***JOHN McCAMMAN**, Director*

October 21, 2010

Mr. Michael Richardson
Senior Planner
Humboldt County Planning and Building Department
3015 H Street
Eureka, CA 95501-4484

RE: Notice of Preparation for the Southern Humboldt Community Park (SCH #2010092037), Humboldt County, California

Dear Mr. Richardson:

On September 15, 2010, the Department of Fish and Game (DFG) received from the Humboldt County Planning and Building Department (Lead Agency) a Notice of Preparation (NOP) for the Southern Humboldt Community Park (Project) draft environmental impact report (DEIR). It is our understanding based on our conversation with you that Humboldt County Planning and Building Department will accept comments on this Project up to October 27, 2010. The Project site is approximately 430 acres and is located between the town of Garberville and the South Fork of the Eel River along Camp Kimtu Road and Sprowl Creek Road. The subject parcel contains approximately one mile of river frontage on the South Fork Eel River.

As a trustee for the State's fish and wildlife resources, DFG has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and their habitat. As a responsible agency, DFG administers the California Endangered Species Act (CESA) and other provisions of the Fish and Game Code (FGC) that conserve the State's fish and wildlife public trust resources. DFG offers the following comments and recommendations on this Project in our role as a trustee and responsible agency pursuant to the California Environmental Quality Act (CEQA), California Public Resource Code §21000 *et seq*.

DFG's most substantial environmental concerns relate to the current health of the South Fork Eel River, as explained below, and how the Project as proposed may lead to additional cumulative effects such as decreased water quality and availability.

Project Description

The Project includes three elements; first, a general plan amendment to change the General Plan designation on portions of the 430-acre property from agricultural lands (AL20) and agricultural rural (AR5-20) to allow recreation open to the public,

multifamily housing, and community assembly uses. Approximately 305 acres are proposed to stay in agricultural exclusive (AE) designations. Approximately 38 acres of the property currently used for gravel mining would continue in the AE plan designation. In addition, 3-5 acres are proposed to be multifamily housing and will have a Residential Multifamily Plan designation. Approximately 96 acres of the 430-acre parcel are proposed for public recreation and will be assigned a Public Recreation (PR) designation, a new plan designation which allows agriculture, playing fields, special events and other recreational uses open to the public. The second element of the Project includes rezoning portions of the property consistent with the new plan designations. The third element of the Project is a proposed Conditional Use Permit and Special Permit to allow specific activities within the AE and PR areas. These activities include picnics, day use parking, portable restrooms, public access, a labyrinth, nature study, outdoor education and staff access along existing dirt roads during large events in the PR areas. Portions of the PR areas will also have small events of 500 people or less and large events up to 5,000 people five times a year.

Listed and Species of Special Concern

The South Fork Eel River is a regionally-important fish-bearing stream that currently supports three listed salmonid species. Coho salmon (*Oncorhynchus kisutch*) is State- and federally-listed as "threatened" pursuant to CESA and the federal Endangered Species Act (ESA). Chinook salmon (*O. tshawytscha*) and steelhead (*O. mykiss*) are federally-listed as "threatened" pursuant to the ESA. DFG has identified the South Fork Eel River coho salmon population key to maintain or improve as part of the *Recovery Strategy of California Coho Salmon* (DFG 2004). Coho salmon has undergone at least a 70% decline in abundance since the 1960s, and is currently at 6 to 15% of its abundance during the 1940s (DFG 2004).

Pursuant to Clean Water Act §303(d), the North Coast Regional Water Quality Control Board has identified the South Fork Eel River as impaired due to elevated levels of sedimentation/siltation and temperature. Additionally, the South Fork Eel River had extreme low-flows in 2008 and 2009. The U.S. Geologic Survey gauge at Miranda shows that for the 69-year period of record, the mean discharge in September is 53 cubic feet per-second (cfs). The discharge in September 2009 was around 20 cfs. The record low discharge was in September 2008 at 13 cfs, a quarter of the mean discharge for the period of record. Low instream flow leads to increased water temperature, disconnected pools, and degraded salmonid rearing habitat.

DFG maintains historic files and databases on the abiotic and biotic condition of streams within the region. Numerous aquatic dependent Species of Special Concern (SSC) are present in the South Fork Eel River and its tributaries and wetlands

including the foothill yellow-legged frog (*Rana boylii*), northern red-legged frog (*Rana aurora*), western tailed frog (*Ascaphus truei*), and western pond turtle (*Actinemys marmorata*). Recent studies in the South Fork Eel River in Mendocino County have shown that increased water temperatures, decreased daily discharge, or a combination of both, promote outbreaks of non-native parasites (i.e., copepods) in foothill yellow-legged frogs and present a threat to the long-term conservation of the species (Kupferberg et al., 2009).

DFG designates certain vertebrate species as SSC because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction or extirpation in California. Though not listed pursuant to the ESA or CESA, the goal of designating taxa as SSC is to halt or reverse these species' decline by calling attention to their plight and addressing the issues of conservation concern early enough to help secure their long-term viability. Hence, the ultimate goal of the SSC designation is to avoid CESA or ESA listing.

Wetlands

The Project area contains wetlands. DFG recommends that a wetland delineation be conducted to identify, map, and characterize all wetland habitats within the Project area. DFG recommends that all wetland delineation work be conducted by a biologist/ecologist with formal training and experience in wetland delineation using guidelines provided by the U.S. Army Corps of Engineers (ACOE). Furthermore, it is important to note that DFG and the U.S. Fish and Wildlife Service recognize one-parameter wetlands, so it is imperative that any wetland delineation include one-three parameter wetlands. The DEIR should evaluate alternatives that avoid or minimize temporary and permanent impacts to wetlands. Where wetland impacts cannot be avoided, mitigation measures should be developed in consultation with the ACOE and DFG to ensure that project improvements will not result in a net loss of wetland acreage or habitat values. A typical mitigation ratio for the loss of high-quality wetland and riparian habitat is 3:1.

Stream Restoration

The Project area contains tributaries to the South Fork Eel River. DFG finds there is a direct linkage between in-stream and near-stream biological communities, with near-stream riparian communities providing vital in-stream ecological services such as bank protection, habitat heterogeneity, shade, microclimate, and woody debris, as well as providing habitat for invertebrates, birds, mammals, and amphibians. It is therefore imperative to protect and restore near-stream riparian habitat to maintain or achieve properly functioning stream ecosystems.

Based on the aerial imagery provided in the NOP package, the western-most stream on the subject parcel appears to lack overstory vegetation (i.e., riparian habitat). DFG recommends the Project applicant restore overstory vegetation through native plant planting. Riparian planting should extend out beyond the top of both banks to re-establish a properly functioning riparian habitat buffer. Guidance on restoration techniques and appropriate species for use should be consistent with the *California Salmonid Stream Habitat Restoration Manual* (DFG 2002), and can be found at the following link: http://www.dfg.ca.gov/fish/REsources/HabitatManual.asp.

Stream and Wetland Buffers

Buffers have been widely used for many years to mitigate impacts to sensitive habitats such as wetlands, streams and riparian habitat, and are a principal tool to protect and conserve natural resources, as well as provide for public health and safety. The rationale for using buffers (rather than protecting only the footprint of a sensitive habitat or population) is based upon the sound ecological principles and decades of research that shows that habitats and populations: 1) are dynamic and ever-changing, 2) are not typically discrete entities with clearly defined boundaries but rather a part of an ecological continuum, and 3) because of their ecological interconnectedness with adjacent habitats, they can be significantly impacted, indeed, even eliminated, by indirect effects of adjacent activities. These principles are well-established in the ecological literature.

To adequately minimize anthropogenic disturbance to stream and wetland function, and fish and wildlife value, DFG recommends a minimum 150-foot buffer on the South Fork Eel River and 100-foot buffers on the streams within the subject parcel. Protective buffers should be established from the top-of-bank on both sides of the stream(s). Minimum buffers proposed in this letter will more effectively minimize impacts to the South Fork Eel River by maintaining forest canopy, microclimate, water temperature, hydrology, native plant and animal diversity, and minimize potential sediment discharge from erosion and stormwater run-off. This mitigation approach would be consistent with the *Recovery Strategy for California Coho Salmon* as it pertains to the Eel River, specifically, recovery task ER-HU-03 which calls for (b) improvement of existing riparian zones through native plantings, and c) bank stabilization and fencing projects (DFG 2004).

For delineated wetlands, DFG recommends protective buffers of at least 100 feet from all Project related activities. During festivals and events, when temporal impacts could occur, DFG recommends either temporary (i.e., construction fencing) or permanent symbolic fencing (i.e., split rail) to exclude "people areas" from resource areas. The later fencing approach will likely be more beneficial and cost effective over the life of the Project and will exhibit a commitment to resource protection.

Lake or Streambed Alteration Notification

To protect streams from sediment discharge during or after construction activities, during festivals and events, or use of roads, all streams in the Project area shall be identified. California Code of Regulations §1.72 defines a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

If Project-related activities will result in substantial modifications to streambed, bank, or channel or substantial water diversion form a lake or stream, the Project proponent is required to notify DFG pursuant to FGC §1602 before undertaking any of these activities. When notified, DFG will determine whether or not a lake or streambed alteration agreement (LSAA) is required. The LSAA will include conditions to protect fish and wildlife resources, habitat, and water quality that are mutually agreed to by DFG and the Project proponent.

In issuing an LSAA, DFG will be acting as a Responsible Agency pursuant to CEQA. DFG is required by CEQA Guidelines §15096 to review the CEQA document certified by the lead agency approving the Project, and from that review, to make certain findings concerning the activities' potential to cause significant, adverse environmental effects. It is, therefore, important that the DEIR address all of the potential biological streambed alteration impacts and propose feasible mitigation. This will reduce the need for DFG to require additional environmental review for preparation of the LSAA. The process for notifying for an LSAA will be administered through the DFG Office in Eureka. Further information can be obtained by contacting DFG at (707) 441-2075 or from the DFG website at http://www.dfg.ca.gov/habcon/1600.

Water Use and Availability

On October 12, 2009, DFG issued an LSAA (R1-2009-0238) to Southern Humboldt Community Park for water diversion from the South Fork Eel River and an unnamed tributary to the South Fork Eel River. The LSAA limited the rate and season of diversion to protect instream flows. The LSAA was analyzed only for the purposes of irrigation, domestic use, and fire suppression. The Project as described in the NOP is beyond the stated scope of the water diversions described in the LSAA (R1-2009-0238).

The NOP states additional water will be supplied from several sources. However, the water sources are not identified. DFG recommends the DEIR identify all Project-related water sources not already permitted for Southern Humboldt Community Park

in LSAA R1-2009-0238. The rate of diversion permitted from the unnamed tributary to the South Fork Eel River, presumably the identified storage tank source and spring source is 2,000 gallons per day and the season of diversion is limited to November 1 to July 1 of each year. This source can not be used as a water supply beyond 2,000 gallons per day. Additionally, according to LSAA R1-2009-0238, water cannot be diverted from the spring from July 2 to October 31 of each year.

The rate of diversion from the infiltration gallery under the South Fork Eel River is limited to 108 gallons per minute or 10% of the stream flow whichever is less. However, the NOP states 400 gallons per minute will be used. DFG recommends the rate of diversion be limited to that which is permitted in LSAA R1-2009-0238 of 108 gallons per minute or 10% of the stream flow, whichever is less.

The South Fork Eel River has experienced record low flows in recent years during summer months. The stated additional uses will further impair an already impacted watershed during the lowest flow period. DFG recommends all water supplies be accurately identified and permitted, the quantity of water available verified, and water conservation measures employed to reduce demand.

Pollution and Event Parking

The Project as proposed includes festival and event vehicle parking below the top-of-bank or below the ordinary high water mark of the South Fork Eel River. DFG has determined through inspection of other large events in Humboldt County that vehicle parking on the active river bar will likely result in the release of petrochemicals associated with automobiles. Fish and Game Code §5650 states, "(a) it is unlawful to deposit in, permit to pass into, or place where it can pass into the waters of this State any of the following, (1) any petroleum...or residuary product of petroleum..." DFG believes it is likely that parking several hundred or more vehicles on the river bar could result in the discharge of automobile related petroleum product. In preparation of the DEIR, the Lead Agency should find an alternative location for vehicle parking independent of the river bar, or the Project should be re-sized to fit the subject parcel without use of the river bar for automobile parking.

Exterior Lighting Standards and Photo-pollution

Artificial light is another consequence of development and large outdoor festivals and events. Roads and buildings typically include exterior night lighting and therefore have the potential to introduce light pollution to adjacent fish and wildlife habitat. The adverse ecological effects of artificial night lighting on terrestrial, aquatic, and marine resources such as fish, birds, mammals, and plants are well documented (Johnson

and Klemens 2005; Rich and Longcore 2006). Some of these effects include altered migration patterns and reproductive and development rates, changes in foraging behavior and predator-prey interactions, altered natural community assemblages, and phototaxis (attraction and movement towards light). Johnston et al., (2004) list artificial lighting as a permanent impact to bat roosts and recommend that artificial lighting be directed away from bat roosts or possibly shaded by trees. To minimize the adverse effects of artificial light on wildlife habitats, DFG recommends that exterior lighting fixtures be fully-shielded and designed and installed to minimize off-site glare and photo-pollution.

Rare Plants and Sensitive Natural Communities

DFG's California Natural Diversity Data Base (CNDDB) indicates that several rare plants and sensitive natural communities occur within close proximity to the Project. The Project applicant is advised to use the CNDDB as a preliminary scoping tool to best direct focused surveys. It should also be noted that the CNDDB is not comprehensive and is only as reliable as the data submitted and by no means removes the necessity for on the ground evaluation by a qualified botanist. Species within the project area may meet the criteria set forth in §15380(b) of the CEQA Guidelines. Therefore, any potential impacts to these species must be reduced to a less than significant level. We recommend a qualified botanist review the Project site for rare plant habitat, and if suitable habitat is found, then field surveys should be conducted according to DFG's *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities.* Mitigation measures should be developed in consultation with DFG staff if special status plant species are identified within the Project impact area.

CNDDB Reporting

Any special status species detected during surveys should be reported to the CNDDB. The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to the CNDDB at the following address: cnddb@dfg.ca.gov. Species that warrant reporting to the CNDDB include Species of Special Concern, rare species as defined by the California Native Plant Society, species proposed for listing or candidate species, and species listed as threatened or endangered by either the State or federal endangered species acts.

Recommendations

1. Wetlands on the subject parcel shall be delineated. The DEIR should evaluate alternatives that avoid or minimize temporary and permanent impacts to wetlands.

2. The western-most stream on the subject parcel lacks overstory vegetation (i.e., riparian habitat). The Project proponent should restore riparian habitat on this stream with native plant planting.

3. A minimum 150-foot buffer shall be established on the South Fork Eel River and 100-foot buffers on streams within the subject parcel.

4. For delineated wetlands, establish protective buffers of at least 100 feet from all Project related activities.

5. During festivals and events, use fencing to exclude "people areas" from resource areas.

6. If Project-related activities will result in substantial modifications to streambed, bank, or channel or substantial water diversion form a lake or stream, the Project proponent is required to notify DFG pursuant to FGC §1602 before undertaking any of these activities. The Project as described in the NOP is beyond the stated scope of the water diversions agreed upon in the previously issued LSAA (R1-2009-0238) for Southern Humboldt Community Park.

7. All water supplies shall be accurately identified and permitted, the quantity of water available verified, and water conservation measures employed to reduce demand.

8. Parking on the river bar for festivals and events could result in water pollution. An alternative location for vehicle parking independent of the river bar should be determined or the Project should be re-sized to fit the subject parcel without use of the river bar for automobile parking.

9. Exterior lighting fixtures shall be fully-shielded and designed and installed to minimize off-site glare and photo-pollution.

10. Rare plants could occur on the subject parcel. A qualified botanist should evaluate the Project site for rare plant habitat. If the Project site contains habitat suitable for rare plants, then rare plant surveys shall be conducted in accordance with the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. The DEIR should evaluate alternatives that avoid or minimize temporary and permanent impacts to rare plants.

11. Report any special status species detected during surveys to the CNDDB.

As stated above, DFG anticipates continued involvement and interaction with the Lead Agency/Project proponent as needed to assist in further Project design, permitting, and implementation and to help meet the Project objectives. If you have questions or comments regarding this matter, please contact Environmental Scientist Michael van Hattem at (707) 445-5368 at 619 Second Street, Eureka, California 95501.

Sincerely,

NEIL MANJI
Regional Manager

ec: Kelley Reid
Army Corps of Engineers
Kelley.E.Reid@usace.army.mil

Dan Free
National Marine Fisheries Service
Dan.Free@noaa.gov

Dean Prat and Mona Dougherty
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Messrs. Curt Babcock, Gordon Leppig, Scott Bauer, Shane Embry, and Michael van Hattem
Mss. Laurie Harnsberger, Jane Arnold, and Gayle Garman
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References

Department of Fish and Game. 2002. *California Salmonid Stream Habitat Restoration Manual.* http://www.dfg.ca.gov/fish/REsources/HabitatManual.asp.

Department of Fish and Game. 2004. Recovery Strategy for California Coho Salmon. Report to the California Fish and Game Commission. Sacramento, CA.

Johnson, E.A. and M.W. Klemens 2005. The impacts of sprawl on biodiversity. Pp 18-53. in Johnson and Klemens (eds) Nature in fragments. Columbia University Press, New York, NY.

Johnston, D. Tatarian, G. and E. Pierson. 2004. California bat mitigation techniques, solutions, and effectiveness. *Prepared by H.T. Harvey and Associates for the* California Department of Transportation, Sacramento, CA. Project No. 2394-01.

Kupferberg, S. J., A.Catenazzi, K. Lunde, A.J. Lind, and W.J. Palen. 2009 Parasitic Copepod (*Lernaea cyprinacea*) outbreaks in foothill yellow-legged frogs (*Rana boylii*) linked to unusually warm summers and amphibian malformations in northern California. Copeia 3:529-537.

Rich, C. and T. Longcore, 2006. Ecological consequences of artificial night lighting. Island Press, Washington, DC.

Subject: Southern Humboldt Community Park Plans for Concerts & FestivalVenue

Michael,

Sgt Martin Abshire will be attending this Scoping meeting as I can not make it. This is my response to your Notice of Preparation which I received on September 2, 2010.

I have reviewed the Southern Humboldt Community Park Plan of Operation document. The CHP does not support the size of the proposed events being held in this location. In my opinion, Sprowel Creek Road leading down to the park is narrow and in its current condition, is not adequate to allow for the increased traffic flow these proposed events would bring. In addition, I see some real public safety issues with vehicles exiting US 101 S/B and N/B. On the S/B US 101 Sprowel Creek exit, event traffic would have the potential to back up onto US 101 causing a hazard. On the N/B US 101 Redwood Drive exit, traffic has the potential to back up as well. The Plan does not address the other US 101 exits, N/B and S/B or signs and traffic control on US 101. Garberville traffic is already congested on Redwood Drive with businesses, especially during the summer months. If event traffic is added, there could be real problems as vehicles travel S/B and N/B on Redwood Drive and have to stop at Sprowel Creek Road and make a right/left turn onto Sprowel Creek Road. This intersection is especially congested with businesses on each corner.

The alternate emergency route of using Old Briceland Road to Briceland would not be in the best interest of public safety due to being narrow and curved. Allowing these types of events is going to increase traffic flow on these roads even when there is not an emergency, as there will be a certain percentage that will want to avoid the congestion in Garberville and the possibility of having law enforcement encounters.

The Plan of Operation does not adequately address traffic concerns in the town of Garberville, the lack of parking in Garberville and/or Redway, traffic on US 101, the amount of traffic proposed traversing down Sprowel Creek Road to the park, and the public safety issues of event goers leaving the park at night and traversing these roads, especially if alcohol is being served to event goers.

If the re-zoning of this area is allowed, the Garberville CHP Area would be taxed with traffic control at Redwood Drive and Sprowel Creek Road intersection, US 101 S/B exits at Spowel Creek and Redwood Drive, both US 101 N/B exits, on Sprowel Creek Road to enforce no pedestrians, bicyclists and equestrians who normally have the right to traverse

Sprowel Creek Road, the intersection of the park entrance and extra patrol in the area due the increased traffic flow and potential of under the influence drivers. In addition, the CHP would be called upon to migrate concerns of property owners who can not access their property, illegal parking, illegal camping, and provide assistance to the HCSO and local/state fire agencies.

Thank you

Lt. Adam Jager
Garberville CHP Commander

GARBERVILLE SANITARY DISTRICT

P.O. BOX 211 • GARBERVILLE, CA 95542 • (707) 923-9566

11-30-2010

Michael Richardson
Humboldt County Community Development Dept.
3015 H Street
Eureka CA, 95501

Subject; Rezoning of APN 222-091-03 & 241-08

Mr. Richardson

The above noted parcels are within the Garberville Sanitary District's (GSD) current Sphere of Influence (SOI). At this time the districts does not have the infrastructure necessary to serve additional development in that area. GSD has major concerns with any development in that area. The communities drinking water source is in the aquifer directly beneath adjacent to the properties mentioned above. If any development was to happen the District will require connecting to the Recycled Wastewater Treatment Facility and additional water storage. The District is currently developing unfunded Capital Improvement Projects in the area.

The community is currently working through the SOI and Master Services Review processes hopping for competition by April 2011. This process will guide future development for the District.

Respectfully,

Mark Bryant
General Manager

From: HERB SCHWARTZ <herb@changemediation.com>
Subject: **Garberville Sanitary District Response to Case No. GPA-10-02, SHCP's request for a General Plan Amendment**
Date: December 2, 2010 10:45:43 PM PST
To: Michael Richardson <m.richardson@co.humboldt.ca.us>, Kirk Gothier <kirkgothier@gmail.com>, "Miller, John" <jpmiller@co.humboldt.ca.us>, Clif Clendenen <cclendenen@co.humboldt.ca.us>
Cc: Mark Bryant <mbryant@garbervillesd.org>, Bill Stewart <bstewart@bluestargas.com>, Peter Connolly <peter@humboldtnaturalfoods.com>, Dennis Bourassa <dennisbour@yahoo.com>

Dear Michael:

The Board of the Garberville Sanitary District has just received on December 2, 2010, your notice dated September 5, 2010, requesting our comments and any recommended conditions of approval with respect to the SHCP's request for a General Plan Amendment, rezoning, and Conditional Use and Special Permit to allow specific activities with the Agricultural Exclusive and Public Recreation designations.

We will need an extension of time to file complete comments and recommendations, but:

As you know several major planning actions are happening in our area at the same time which includes, among others, the General Plan Update and Garberville's Sphere of Influence Study and Municipal Service Review. With regards to the Sphere of Influence work, we plan to have public meetings throughout that process which we hope will actually become a template for SOI public participation for Special Districts as well as Municipal Agencies throughout the county. We have hired Kirk Gothier to help us with this process.

Now is a critical and opportune time to integrate public participation in the County's review of SHCP's application at the same time the Garberville Sanitary District, the only local public agency whose jurisdiction and mission is critically impacted by the issues raised in SHCP's application, is engaged in its own self examination of available and appropriate services within the context of the General Plan Update that is taking place simultaneously with SHCP's Amendment to the out of date (and probably out of compliance with state law) existing General Plan.

Having said all of this, knowing that our General Manager Mark Bryant is managing our major rehabilitation of our existing sanitary remediation system and bringing to our district the complex funding of our almost simultaneous rehabilitation of our drinking water system, and starting construction on that project, all within the next few months, asking him to take the lead managing an initiative on the part of our District and community to address the issues both with the GPU and the SHCP application, is asking, too much. And I will be unavailable because of legal/professional and personal obligations until approximately February 1, 2011. Further I do not want to unnecessarily delay the SHCP's process. Yet I can not responsibly avoid the issues that must be addressed with both the SHCP application, the GPU, the SOI and MSR and whatever other collateral study and work required by LAFCo given the fact that the Garberville Sanitary District's 1987 SOI report was made well before GSD became the provider of healthy drinking water for our community.

It is a bit of a time quandary. Ideally, you and I and Mark and Clif should meet to develop a "local governmental" point of view. Then we would meet with local stakeholders, like the SHCP, and members of the community. Finally we would meet with the state agencies that are also stake holders around the nexus of services and development centered around the South Fork of the Eel River, a wild and scenic river that needs major environmental protections and consideration of health impacts for our own as well as downstream communities. But this could take many months. I don't have a ready answer except that I see a significant responsibility but don't see a way of "shouldering it."

I look forward to your comments as well as the comments of all of the other recipients of this email except for the other Board members of the Sanitary District who are prohibited from answering this email or participating in this discussion unless it is in a public meeting. BROWN ACT NOTICE to other members of the Board of the Garberville Sanitary District: Do not disclose this email to any other person, respond to me as the sender of this email via email or any other communication or discuss this email with any other person. Remember it is a violation of the Brown Act if through serial meetings a quorum of the Board (three members) discusses this email outside of a public meeting.

Note: I will be out of the office and in a hearing in San Francisco until December 11th.

Best,

Herb Schwartz

HERB SCHWARTZ
herb@changemediation.com
829 Locust Street
Garberville, CA 95542
Office: 707 923 2223
Fax: 707 923 2082
Cell: 707 499 4936

P S to Mark: Please deliver a copy of this email to our other Board member, Dwight Knapp, who no longer uses email. (Smart fellow)

Humboldt County Building Department
Todd Sobolik
September 2, 2010

-----Original Message-----
From: Sobolik, Todd
Sent: Thursday, September 02, 2010 9:10 AM
To: Richardson, Michael
Subject: RE: Scoping meeting for the Southern Humboldt Community Park Project and Notice of Preparation of Draft Environmental Impact Report

Michael,

A couple of items:

- Permits will be required for any building, plumbing, mechanical, or electrical work.
- This is a commercial facility, all plans will have to be prepared by a licensed engineer or architect.
- Use of the "Barn" or any other structures as a public buildings is a change of occupancy.

Todd

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HUMBOLDT
MAILING ADDRESS: 1106 SECOND STREET, EUREKA, CA 95501-0579
AREA CODE 707

ARCATA-EUREKA AIRPORT TERMINAL
McKINLEYVILLE
FAX 839-3596
AVIATION 839-5401

PUBLIC WORKS BUILDING
SECOND & L ST., EUREKA
FAX 445-7409

ADMINISTRATION	445-7491	NATURAL RESOURCES	445-7741
BUSINESS	445-7652	PARKS	445-7651
ENGINEERING	445-7377	ROADS & EQUIP. MAINT.	445-7421
FACILITY MAINTENANCE	445-7493		

CLARK COMPLEX
HARRIS & H ST., EUREKA
FAX 445-7388
LAND USE 445-7205

LAND USE DIVISION INTEROFFICE MEMORANDUM

TO: Michael Richardson, Senior Planner

FROM: Robert W. Bronkall, Associate Engineer

DATE: 11/24/2010

RE: SOUTHERN HUMBOLDT COMMUNITY PARK
TRAFFIC ASSESSMENT, MANAGEMENT AND CONTROL PLAN
GPP-10-02; ZR-10-02; CUP-10-04; SP-10-10
APN 222-091-003, -006, & -241-008

The Department does not maintain any parks in the vicinity; therefore the Department supports the concept of expanding the existing park in order to provide recreational opportunities to the community. However, the Department is concerned that the existing roadway infrastructure serving the subject property is not be appropriate for the proposed level of use. The Department's primary concern involves impacts to non-motorized traffic on Sprowel Creek Road. In general, Sprowel Creek Road from Riverview Lane to Camp Kimtu Road is paved roughly 18 feet wide without any shoulders. In general, Camp Kimtu Road within the subject property is paved roughly 20 feet wide without any shoulders. Other concerns of the Department involve traffic management and traffic control issues regarding events that are proposed to be held on the subject property.

As part of the project, a traffic assessment, management and control plan should be prepared by a traffic engineer licensed by the State of California. The Department has prepared an outline of what the plan should include. This is included as Attachment "A". The plan also includes the assessment of capacity / quality of service of the existing roads:

1. To determine the maximum level of use before improvements to Sprowel Creek Road can be constructed.

2. To identify the needed improvements necessary for all of the proposed uses (ultimate plan).

Depending upon the maximum level of use that could be permitted without improvements to Sprowel Creek Road, this could allow the park to operate with some limited functionality. In the mean time, the park could then begin the process of funding and constructing improvements on Sprowel Creek Road to allow more intensified uses on the subject property.

Above: Picture of Sprowel Creek Road

Above: Picture of Camp Kimtu Road

Attachments:

- Attachment "A": Outline of the Traffic Assessment, Management and Control Plan for Southern Humboldt Community Park

// END //

TABLE OF CONTENTS

1.0 APPLICABILITY

The project shall be conditioned to comply with the traffic assessment, management and control plan approved by the Department of Public Works.

2.0 PROPOSED LEVEL OF USE

The applicant shall furnish to their traffic engineer and the Department an estimate of the daily number of employees, vendors, and event patrons expected for each proposed planned event. The estimates may be based upon similar recent events at other venues.

The applicant's traffic engineer shall apply this information in the preparation of a comprehensive traffic assessment, management and control plan that:

- Establishs event size group categories based upon levels of anticipated use of the facility in terms of event size.

- For each event size group category, ensures traffic management and control measures will address both efficiency and safety for all attendees accessing to and from the event.

- For each event size group category, ensures minimal disruption to local residents who access the adjacent County roadways.

- Provide mitigation that ensures non-motorized traffic (such as bicycles and pedestrians) use of Sprowel Creek Road will not be adversely impacted by event vehicular traffic. Example: Provide off-site parking and shuttle attendees –versus- increased traffic from on-site parking.

- Furnish parking layouts for both on-site and off-site parking facilities that include all dimensions necessary for the layout of access and parking for each parking facility; illustrates planned traffic flow to and from adjacent County roads; placement of traffic control personnel and signage for each proposed on-site and off-site parking facility.

- Provide procedures for traffic control personnel that meet or exceed the procedures specified herein.

If future events are scheduled that are similar in nature to previously identified events, the traffic control plan established for a similar event may be utilized.

2.1 CAPACITY OF ROADS AND QUALITY OF SERVICE

The applicant's traffic engineer must assess the capacity and quality of service of the existing roads to serve both motorized and non-motorized transportation. In particular, the plan must:

- Determine the maximum level of use for the park before improvements to Sprowel Creek Road can be constructed.

- Identify the needed improvements necessary for all of the proposed uses of the park (ultimate plan).

3.0 PARKING DEMAND DETERMINATION

The applicant's traffic engineer shall utilize the estimate of daily number of employees, vendors, and event patrons expected for each proposed planned event to determine the number of separate parking spaces required for each of the following groups:

- **Vendors** - The determination of the minimum number of parking spaces required for vendors shall not be less than one (1) parking space per each vendor.

- **Employees** – The determination of the minimum number of parking spaces required for employees shall not be less than that specified within Humboldt County Code (HCC) Section 109.1.3.3.4., as provided directly below:

> 109.1.3.3.4 Theaters or Stadiums. One (1) parking space for every four (4) seats, plus one (1) space for every two (2) employees. (Former Section INL#316-13.3(c)(4); Ord. 1668, Sec. 5, 1/15/85; Amended by Ord. 1692, Sec. 2, 6/11/85; Amended by Ord. 1842, Sec. 13, 8/16/88)

- **Patrons** – The determination of the minimum number of parking spaces required for patrons shall not be less than that specified within HCC Section 109.1.3.3.4, as provided directly below:

> 109.1.3.3.4 Theaters or Stadiums. One (1) parking space for every four (4) seats, plus one (1) space for every two (2) employees. (Former Section INL#316-13.3(c)(4); Ord. 1668, Sec. 5, 1/15/85; Amended by Ord. 1692, Sec. 2, 6/11/85; Amended by Ord. 1842, Sec. 13, 8/16/88)

- **Physically Handicapped** – The determination of the minimum number of parking spaces required for the physically handicapped shall not be less than that specified within HCC Section 109.1.2.8, including HCC Sections 109.1.2.8.1 through 109.1.2.8.3 inclusive, as provided directly below:

> 109.1.2.8 Parking Facilities for the Physically Handicapped. Facilities accommodating the general public, including but not limited to auditoriums, theaters, restaurants, hotels, motels, stadiums, retail establishments, medical offices and office buildings shall provide parking spaces for the physically handicapped in compliance with Section 431-2 of the Humboldt County Code and the following provisions: (Former Section INL#316-13.2(h); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)
>
> 109.1.2.8.1 Handicapped parking spaces shall be at least fourteen feet (14') wide and eighteen feet (18') long. (Former Section INL#316-13.2(h)(1); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)
>
> 109.1.2.8.2 Parking facilities containing six (6) through (40) spaces, inclusive, shall include one (1) handicapped parking space permanently signed with the international symbol of accessibility. One more handicapped space shall be provided for each additional forty (40) spaces or increment thereof. (Former Section INL#316-13.2(h)(2); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)
>
> 109.1.2.8.3 Two (2) handicapped spaces permanently signed, shall be required in conjunction with any use or combined uses which occur within a space of more than 10,000 square feet gross floor area. (Former Section INL#316-13.2(h)(3); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)

In the event parking demand exceeds on-site parking capacity, the ratio of one (1) required handicapped space for every forty (40) spaces or increment thereof shall apply to the total combined number of on-site and off-site parking spaces required. The total required handicapped spaces shall be sited at on-site parking facilities.

In addition to the above referenced requirements, the applicant's traffic engineer shall apply HCC Sections 109.1.2.9 through 109.1.2.12 when necessary.

3.1 PARKING CAPACITY DETERMINATION

The applicant's traffic engineer shall estimate available on-site parking, off-site parking allowed per HCC Section 109.1.2.1.1.3, or off-site parking beyond the distance allowed by HCC Section 109.1.2.1.1.3, by applying the dimensions per parking stall established within HCC Section 109.1.2.2:

109.1.2.2 Size and Improvement.

109.1.2.2.1 Each normal size parking space shall be not less than eight feet (8') wide, eighteen feet (18') long and contain seven feet (7') of vertical clearance. (Former Section INL#316-13.2(b)(1); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)

109.1.2.2.2 Each compact car space shall be not less than seven and one-half feet (7-1/2') wide and sixteen feet (16') long. (Former Section INL#316-13.2(b)(2); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)

109.1.2.2.2.1 No compact car spaces shall be allowed in parking areas containing less than ten (10) parking spaces. (Former Section INL#316-13.2(b)(2)(a); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)

109.1.2.2.2.2 In lots where compact car spaces are permitted, up to twenty-five percent (25%) of all spaces in the lot may be compact car parking spaces. (Former Section INL#316-13.2(b)(2)(b); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)

109.1.2.2.2.3 Compact car spaces shall be visibly marked with signs and shall be clustered in one section of the parking area. (Former Section INL#316-13.2(b)(2)(c); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)

In addition to the individual parking stall dimensions established within HCC Section 109.1.2.2, access lanes between parking and encompassing the perimeter of each parking area shall be identified that satisfy HCC Section 109.1.5.1:

109.1.5 Additional Requirements.

109.1.5.1 Any off-street parking area for other than residential uses wherein five (5) or more spaces are proposed shall be in conformance with the standards in this Code which pertain to encroachment (Section 411 and following), and shall be designed so as to provide sufficient maneuvering room for vehicles on-site so that they may leave the site to enter onto any street without backing onto the street. The adequacy of maneuvering room shall be determined by the Department of Public Works, based upon engineering standards. (Former Section INL#316-13.5 (a); Added by Ord. 1668, Sec. 7, 1/15/85)

3.2 PARKING FACILITY LIGHTING

Any events that do not end within one-half hour before dusk shall require all parking facilities to be properly illuminated with either permanent or temporary lighting facilities per HCC Section 109.1.2.7:

109.1.2.7 Lighting. Any lights used to illuminate the parking spaces or driveways shall be designed and located so that direct rays are confined to the property where the parking area is located. (Former Section INL#316-13.2(g); Added by Ord. 1668, Sec. 3, 1/15/85; Amended by Ord. 1692, Sec. 1, 6/11/85)

3.3 IDENTIFICATION OF PARKING FACILITIES

Based upon the parking demand determined for each event size group category, the comprehensive traffic assessment, management and control plan shall identify all required parking areas that meet the requirements of HCC Section 109.1.2.1.

Where exceptions to HCC Section 109.1.2.1 are necessary due to estimated parking demand for any event size group category exceeding existing on-site parking capacity, the provisions of HCC Section 109.1.2.1.1 shall apply.

If the requirements of HCC Section 109.1.2.1.1.3 cannot be met, the comprehensive traffic assessment, management and control plan shall include requirements for the safe and efficient transportation of attendees to the event from off-site parking facilities properly secured by the applicant.

3.4 MINIMUM NUMBER OF PARKING LOT ACCESS POINTS

The minimum number of access points from any County road to any parking area, whether on-site or off-site, shall be two (2), utilizing a primary / secondary access plan. The primary access shall be the longest access route from the County road to the parking area to enable the longest available queue (back-up of waiting vehicles) into the parking area without queuing into or over the County right of way. Should the primary access queue extend to the County road, the traffic control personnel on the County road at the primary access point shall redirect traffic to the secondary access point until the queue along the primary parking lot access road is satisfactorily reduced to allow resumption of traffic onto the primary parking lot access. Traffic control personnel stationed on the County road at the primary parking lot access location may also release traffic to the secondary parking lot access location when outbound traffic on the County road is

approaching and passing through the primary parking lot access location to avoid a stoppage of inbound event traffic and interference with the passage of local traffic.

3.5 PARKING AREA ACCESS

All access roads serving parking areas from County roads shall have a durable dust free surface (either compacted gravel aggregate base or asphalt pavement), and shall be a minimum Class 3 Road (16 foot width) with two foot (2') gravel shoulders on each side.

The first fifty feet (50') of any access road and the first twenty-five feet (25') of any driveway from the edge of pavement of any County road serving any parking area utilized by the event shall be surfaced with asphalt concrete. If it is necessary to improve any access road or driveway to meet this requirement, a minimum of 0.2 foot of Class A asphalt concrete pavement shall be placed over a prepared subgrade consisting of a minimum 0.6 foot of Class 2 or Class 3 aggregate base compacted to 95% per California Test 216 specifications.

3.6 PARKING RESTRICTIONS ON COUNTY ROADS

Event parking on all County roads west of the intersection of Sprowel Creek Road and Route US 101 southbound off and on ramps shall be prohibited and signed in accordance with California Vehicle Code Sections 22651.(m) or 22651.05.(3). The applicant shall furnish and erect signage as directed by the Department herein that includes the telephone number of the local traffic law enforcement agency.

3.7 PARKING RESTRICTIONS ON PRIVATE ROADS

Wherever the width of the durable dust free surface of any access road to event parking is less than twenty-eight feet (28'), the access road shall be properly signed prohibiting parking along both sides of the access road. Wherever the width of the durable dust free surface of any access road to event parking is greater than twenty-eight feet (28') but less than thirty-six feet (36'), the access road shall be properly signed prohibiting parking along one side of the access road.

Event parking shall be prohibited along Leino Road, a private road, in its entirety, and signed in accordance with California Vehicle Code Section 22658.(a)(1). The applicant shall furnish and erect signage as directed by the Department herein that includes both the telephone number of the local traffic law enforcement agency and the name and telephone number of each towing company that is a party to a written general towing authorization agreement with the owner(s) or person(s) in lawful possession of the property that encompasses Leino Road.

3.8 ADDITIONAL PARKING RESTRICTIONS

Event parking shall be prohibited within Tooby Park and signed in accordance with California Vehicle Code Sections 22651.(m) or 22651.05.(3). The applicant shall furnish and erect signage as directed by the Department herein that includes the telephone number of the local traffic law enforcement agency.

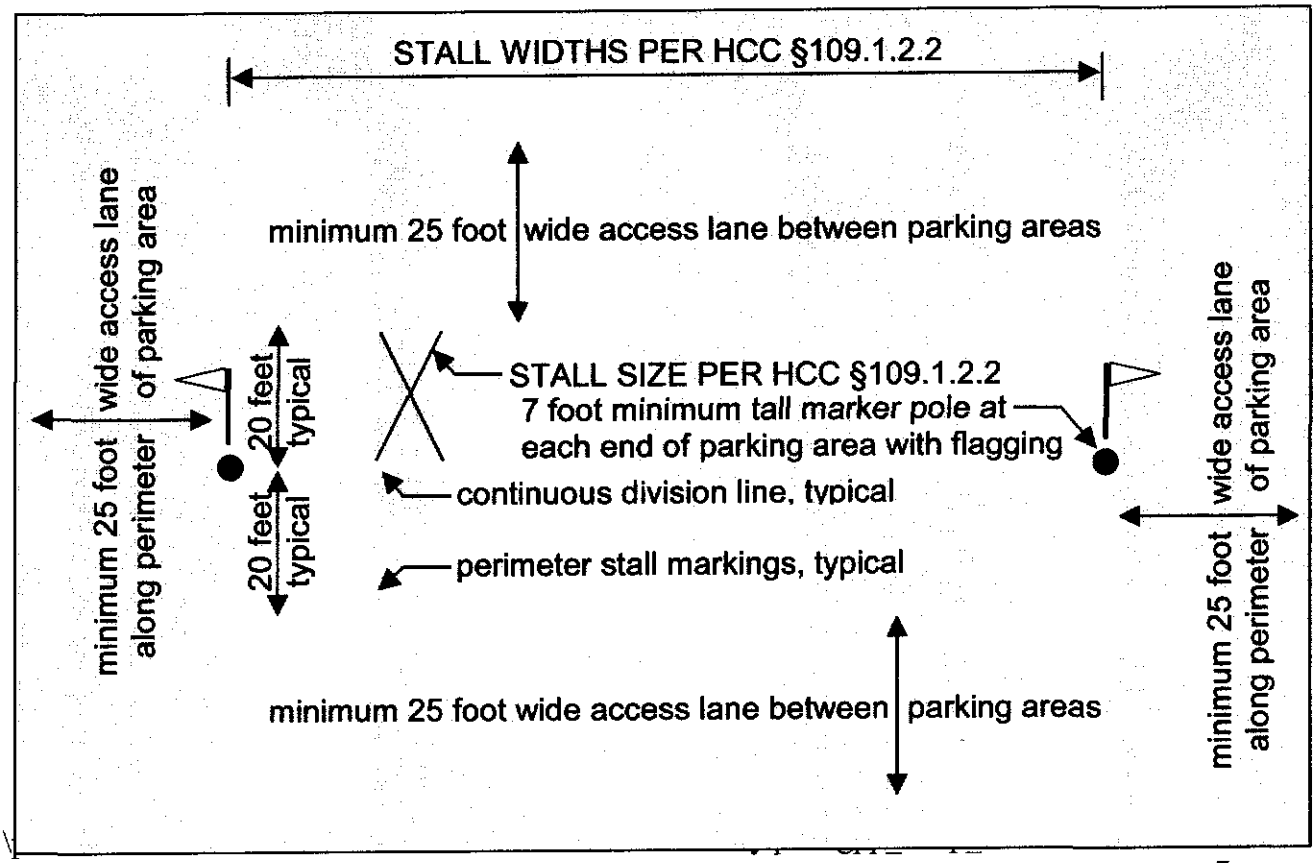
If it is determined by the Department that any further parking restrictions are required, whether on private property or within public rights of way to ensure local traffic accessing the County road in either direction is not stopped nor delayed by traffic control personnel except for allowing emergency vehicles to pass, applicant shall, upon notification by the Department, immediately take all measures necessary or required to establish traffic conditions whereby local traffic accessing the County road in either direction is not stopped nor delayed by traffic control personnel except for allowing emergency vehicles to pass.

3.9 PARKING AREAS

Parking areas should either be surfaced with a durable, dust-free material (compacted gravel aggregate base or asphalt pavement), or closely mowed grass. Grass fields shall be sufficiently watered in the morning and repeatedly sprinkled throughout the day of any event to prevent any potential occurrence of ignition of the grass and to serve as a dust pallative.

The ends of parking rows should be prominently marked by poles with flags and the division line between adjacent head-to-head parking spaces lined with either temporary marking paint or lime chalk striping from pole to pole on a straight, even alignment. Individual parking stalls should be marked out with twenty foot by nine foot (20' x 9') dimensions off both sides of each division line. Stall markings opposite the division lines may consist of either lines or "X"s or "T"s along the faces of the parking rows.

The following example illustrates the fundamental layout requirements for a parking lot:



4.0 NON-MOTORIZED DEMAND DETERMINATION

For each event size group category, the applicant's traffic engineer shall determine an estimated anticipated volume of non-motorized traffic, both event related and local, originating from the urban center of Garberville to and through the event site via County roads. The applicant's traffic engineer shall determine specific event size group categories where non-motorized safety mitigation along Sprowel Creek Road will be required. The applicant's traffic engineer shall include within the traffic assessment, management and control plan detailed non-motorized safety mitigation plans for any event size group category identified by the traffic engineer to require such a mitigation plan.

If future events are scheduled that are similar in nature to previously identified events, the non-motorized safety mitigation plan established for a similar existing event may be utilized.

4.1 NON-MOTORIZED LEVEL OF SERVICE / QUALITY OF SERVICE

Safe non-motorized (bicycle and pedestrian) traffic shall be maintained at all times on Sprowel Creek Road from one (1) hour before to one (1) hour after each and every event.

As a condition for the approval of the Conditional Use Permit (CUP), the applicant's traffic engineer shall determine specific event size group category thresholds that would require a need for improved shoulder widths along Sprowel Creek Road for non-motorized traffic. Establishing such an event size group category threshold enables the applicant to operate under limited conditions without otherwise burdening the applicant with costly shoulder improvements to safely accommodate non-motorized traffic.

Shoulder improvements may include, but not be limited to the widening, grading, and compaction with aggregate base gravel and asphalt concrete paving of the existing road shoulder along Sprowel Creek Road from approximately Post Mile (P.M.) 0.2 to the last parking area access from a County road. Shoulder improvements shall be completed that achieve a clear, uniform asphalt concrete pavement surface no less than four feet (4') in width from the existing edge of pavement or behind guard railing with a minimum five foot by five foot (5' x 5') path area at a spacing not less than two hundred feet (200'). Existing turnout shoulders shall satisfy, where required, the minimum five foot by five foot (5' x 5') path area.

Upon the satisfactory completion of shoulder improvements by the applicant as determined by the Department, the applicant, notwithstanding any other requirements conditioned by the CUP, may conduct event size group categories that required the level of non-motorized traffic improvements along Sprowel Creek Road.

5.0 TRAFFIC CONTROL PERSONNEL

The traffic engineer shall establish minimum standards for traffic control personnel. In determining the minimum standards, the following shall be considered:

All traffic control personnel, whether working on County roads or on private grounds, shall be properly trained and fully knowledgeable of the procedures established within the Caltrans document entitled: "Flagging Instruction Handbook", a copy of which can be found at the following web address:

http://www.dot.ca.gov/hq/construc/flagging/flaggerhandbook2007.pdf

Each individual assigned to traffic / parking control shall wear a standard safety vest (retro reflective international orange or lime green), and be in possession of a flag and an operable two-way radio with sufficient extra batteries to allow radio communication over the time period individuals are assigned to traffic / parking control. Individuals assigned to traffic control on County roads (Sprowel Creek Road or Camp Kimtu Road) shall wear either a white hardhat or white baseball-type cap to increase visibility and awareness by drivers, and have a standard STOP / SLOW paddle sign in addition to a flag and operable two-way radio.

Traffic control measures and personnel in place and working beyond one-half hour before sunset shall adhere to the procedures as outlined within the Caltrans document entitled "North Region Construction Nightwork Guide", a copy of which can be found at the following web address:

http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/2007NRNightWorkGuide.pdf

Traffic control personnel assigned to public street intersections for the purposes of traffic control shall adhere to the requirements of California Vehicle Code Section 21100.(e):

> *21100.(e) Regulating traffic by means of a person given temporary or permanent appointment for that duty by the local authority whenever official traffic control devices are disabled or otherwise inoperable, at the scenes of accidents or disasters, or at locations as may require traffic direction for orderly traffic flow.*
>
> *A person shall not be appointed pursuant to this subdivision unless and until the local authority has submitted to the commissioner or to the chief law enforcement officer exercising jurisdiction in the enforcement of traffic laws within the area in which the person is to perform the duty, for review, a proposed program of instruction for the training of a person for that duty, and unless and until the commissioner or other chief law enforcement officer approves the proposed program. The commissioner or other chief law enforcement officer shall approve a proposed program if he or she reasonably determines that the program will provide sufficient training for persons assigned to perform the duty described in this subdivision.*

Traffic control personnel meeting the requirements within California Vehicle Code Section 21100.(e) shall display proper insignia as required by California Vehicle Code Section 21100.3:

21100.3. It is unlawful for any person to disobey the traffic directions of a person appointed or authorized by a local authority to regulate traffic pursuant to subdivision (e) of Section 21100 when such appointee is wearing an official insignia issued by the local authority and is acting in the course of his appointed duties.

In addition to the aforementioned required training, all personnel assigned to traffic control shall be briefed and fully understand the procedures specified under the heading "Emergency Access" below.

5.1 MINIMUM NUMBER OF TRAFFIC CONTROL PERSONNEL

The traffic engineer shall determine the quantity of traffic control personnel needed. The following shall be evaluated as part of the plan:

- One (1) traffic control person stationed at the intersection of Sprowel Creek Road with Redwood Drive in Garberville.
- One (1) traffic control person stationed on Sprowel Creek Road at the intersection with the Route US 101 southbound off / on ramps.
- One (1) traffic control person stationed at the intersection of Sprowel Creek Road with Alsford Lane and Riverview Lane approximately four hundred feet (400') west of the Sprowel Creek Road intersection with the Route US 101 southbound off / on ramps.
- One (1) traffic control person stationed on Sprowel Creek Road at ***each*** access point to event parking.
- Two (2) traffic control personnel assigned within the parking area for ***each*** access point to event parking consisting of: One (1) directing traffic off any private access road into the parking area and one (1) directing each vehicle into a designated parking space to assure vehicle parking is efficiently arranged in a timely manner to prevent queuing and delays.
- If off-site parking lots are used, the number of personnel will be determined by the Department based upon the primary exit point from Route US 101 and existing physical conditions of County roads and access off County roads onto the proposed parking locations via private access roads.
- In addition to the minimum required number of traffic control personnel specified, sufficient additional traffic control personnel shall be furnished to relieve personnel for mandatory break periods.

  Example of break period required pursuant to Part 12. of the California Industrial Welfare Commission Order No. 9-2001M:

12. REST PERIODS

(A) Every employer shall authorize and permit all employees to take rest periods, which insofar as practicable shall be in the middle of each work period. The authorized rest period time shall be based on the total hours worked daily at the rate of ten (10) minutes net rest time per four (4) hours or major fraction thereof. However, a rest period need not be authorized for employees whose total daily work time is less than three and one-half (3 ½) hours. Authorized rest period time shall be counted as hours worked for which there shall be no deduction from wages.

(B) If an employer fails to provide an employee a rest period in accordance with the applicable provisions of this order, the employer shall pay the employee one (1) hour of pay at the employee's regular rate of compensation for each workday that the rest period is not provided.

(C) This section shall not apply to any public transit bus driver covered by a valid collective bargaining agreement if the agreement expressly provides for rest periods for those employees, final and binding arbitration of disputes concerning application of its rest period provisions, premium wage rates for all overtime hours worked, and regular hourly rate of pay of not less than 30 percent more than the State minimum wage rate.

5.2 REQUIRED PARKING RESTRICTION SIGNAGE

The traffic engineer shall determine the required locations, type and quantity of parking restriction signs. All parking restriction signs shall be in place no less than twenty-four (24) hours or one (1) day before the date of the event taking place.

5.3 ADVANCED WARNING SIGNS

Advanced warning signs shall be placed at locations designated by the Department at approximately evenly spaced intervals not less than two hundred feet (200') nor more than five hundred feet (500') apart consisting, in order, of a SC5 (CA) ("SPECIAL EVENT AHEAD"), a C9A (CA) (pictorial flagman ahead), and a W3-4 ("BE PREPARED TO STOP") fabric retro reflective signs on collapsible flag stands with a retro reflectorized cone placed adjacent to each flag stand.

The traffic engineer shall determine the required locations, type and quantity for advanced warning signs. The following locations should be evaluated as part of the plan:

1. Between the intersection of Redwood Drive and Sprowel Creek Road facing eastward towards westbound traffic.

2. On Sprowel Creek Road west of the most westerly event access location, facing westward towards eastbound traffic.

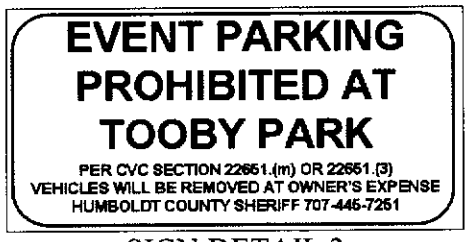
3. On Camp Kimtu Road, south of the most southerly event access location, facing southward towards northbound traffic.

4. If any Caltrans encroachment permit issued for the special event does not otherwise specify, an identical arrangement of signage shall be placed along the southbound Route US 101 off-ramp northerly of the Sprowel Creek Road intersection at a 500 foot minimum spacing between signs and the intersection with Sprowel Creek Road and the last sign (Type W3-4) .

5.4 SAMPLE SIGNS

SIGN DETAIL 1

SIGN DETAIL E

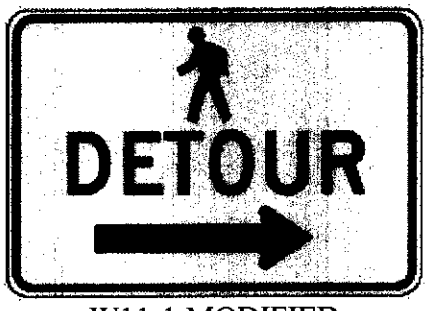


SIGN DETAIL 3

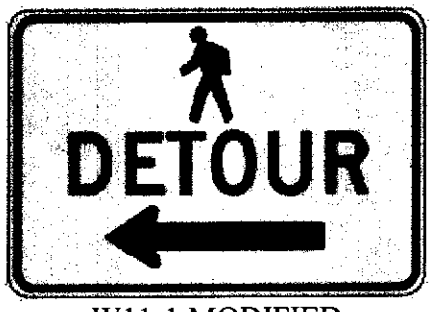
R28A LEFT

R28A RIGHT

R28A BOTH



W11-1 MODIFIED
LEFT ARROW



W11-1 MODIFIED
RIGHT ARROW

SC5

C9A

W3-4

6.0 EMERGENCY ACCESS

In the event an emergency vehicle requires access to a County road, event site, or points beyond, traffic control personnel shall adhere to the guidelines established within the Caltrans Flagging Instruction Handbook. The traffic engineer shall provide a plan to accommodate emergency vehicles.

Example: Immediately upon determination by traffic personnel located at either the Sprowel Creek Road intersection with Route US 101, or the intersection of Redwood Drive and Sprowel Creek Road, that an emergency vehicle needs to proceed on the County road through the event area, an "all stop, emergency vehicle" or similar order shall be given over the radio by the traffic control personnel first aware of the emergency vehicle's presence. Traffic control personnel stationed on the County road at all parking lot access points shall immediately require all traffic in both directions to stop and direct outbound traffic on the County road to pull over onto the shoulder area or otherwise move or back-up so as to allow sufficient clearance for emergency vehicles to get through the event area.

Upon securing a clear path, traffic control personnel stationed on the County road at each parking lot access point should broadcast on the radio a "cleared route secured" or other brief communication stating the emergency vehicle can proceed.

Traffic control personnel stationed on the County road at each parking lot access point securing a clear road should hold all traffic in both directions until the emergency vehicle has passed.

Traffic control personnel shall be in constant radio contact with event personnel and advised of the need for any emergency vehicle to access a County road.

6.1 LOCAL TRAFFIC ACCESS

Local traffic accessing a County Road in either direction shall not be stopped nor delayed by traffic control personnel except for allowing emergency vehicles to pass.

6.2 SHUTTLE BUS ACCESS AND PICK-UP LOCATIONS

All shuttle bus pick-up and drop-off locations shall be situated upon the private parking facilities properly secured by the applicant and shall not be established within any County right of way. Shuttle bus stops shall be located to prevent parking lot traffic queuing into County roads.

// END //

Individuals Letters Submitted

1. Roger and Kristi Clark
2. Ann Constantino
3. Charlotte Silverstein
4. Dennis O'Sullivan
5. Doug Ingold
6. Gina Paine
7. Jay Sooter
8. Jerry Latsko
9. John Hardin
10. Kyle Keegan
11. John Laboyteaux
12. Margaret Lewis
13. Mateel Community Center
14. John Christianson
15. Susan Gardner
16. Gladys Madsen
17. Sandy Ferreto
18. Jayne Slabaugh
19. Ed Voice
20. Pam Hansen

-----Original Message-----
From: Ann Constantino [mailto:aconstantino@humboldt.k12.ca.us]
Sent: Friday, September 17, 2010 1:52 PM
To: Richardson, Michael
Subject: Southern Humboldt Community Park, neighbor of park response

PO Box 337

215 Leino Lane,
Sprowel Creek Road
Garberville, CA 95542
707-923-7227
hounddog@asis.com; aconstantino@humboldt.k12.ca.us

Michael Richardson, County Planning Commission
3015 H Street, Eureka, CA 95501
mrichardson@co.humboldt.ca.us

September 17, 2010

Dear Mr. Richardson:

As a near neighbor of the Southern Humboldt Community Park there are a few issues that alarm me about the proposed rezoning which would allow amplified events and other developments in the park.

Safety: The road to the park is narrow and windy. Inebriated people driving home from amplified events are going to have bad accidents. Security of my property and other properties adjacent to the park will be compromised as concert goers cross private property on foot or in vehicles to get to and from events.

Property value: My property value could potentially be damaged by the security and safety issues. Other locations in this area where big concerts are held have had problems with concert-goers being disrespectful of private property.

Wildlife: As an almost daily user of the park for seven years I have found it to be a treasure of local wildlife. Every year I see young families of turkey, quail, countless other birds, as well as deer, raccoon, and squirrels. Their reproductive cycles will be impaired if not destroyed by the constant presence of noise and traffic during the breeding season.

Type of recreation: Southern Humboldt has numerous developed locales for amplified concerts and arts fairs. It has no public access areas for family recreation that serve the working class people of Southern Humboldt. For people who live and work in town the park is an oasis of

peace and quiet. Many studies show that it is disconnection from this kind of closeness to nature that contributes to stress-related ailments. There is a mental and physical health need for public access to nature. The state parks do not serve this function as well due to seasonal restrictions, closures, high entrance fees, and distance from town.

Cost of maintenance: I completely reject the idea that the developments allowing for amplified events will raise money. The maintenance and upkeep of concert areas is extremely expensive and will require a lot of manpower to achieve. Until there are concrete numbers proving money will be raised from these events beyond the cost of maintenance the park board is being very irresponsible in its claims that money will be raised in this way. There are numerous local examples of big events failing to net income, and in fact causing debt.

Let's keep this precious resource for outdoor education, family recreation, and interaction with nature as clean and untouched as possible. It is time to make some unselfish choices when human desires for certain kinds of recreation will negatively impact nature. I suspect many park board members and other supporters of the development would label themselves environmentalists. Yet a true environmentalist in this day and age must be willing to make sacrifices in order to make up for the countless sacrifices and degradation forced upon nature by human encroachment.

Thank you for your time.

Ann Constantino

Michael,

I should add that I'd be happy to contribute up to $500 per year to keeping the park undeveloped. I know I am not alone. Thanks for your attention.

Does my letter suffice as a response to the letter I received from the County as a neighbor, or should I send something under separate cover?

Ann

Hello,

I just wanted to put my two cents in.
I have lived in Southern Humboldt for 25 years. I am a local business owner.
I think that having amplified music at the Community Park and any other gatherings there. would be beneficial to the whole entire community. Any event that brings outside visitors and their spending power and their tax revenue into this business community would be an extra added bonus.

The local businesses of Southern Humboldt have been struggling for several years. Any move to bring more entertainment, more people traffic to the region would be supported by me.
We have lost several large events in our area.

As a business person, my bottom line is going to be greatly affected if we do not find other venues to create revenue.

Please feel free to contact me, if need be.

Sincerely,

Charlotte Silverstein, owner, Garden of Beadin'

Good Morning,

We live at the end of Kimtu Road and we are some of the original donors to the park. We were thrilled to help preserve the area and to avoid residential and commercial development.

What we didn't expect was that the park board would eventually want to stage large events of 5000 people and amplified rock concerts there. Sprowel Creek Road in its present condition cannot handle all that traffic and we are very concerned about access for emergency vehicles during such events. We object to the idea of parking on the river bar. We vehemently object to the idea of using our neighborhood as a turnaround. The road narrows to one lane before you get out here and it's a private road from the Mitchell property on. We never envisioned the park being used to build housing and we also object to that. That doesn't say "park" to us.

Thank you for your time,
Roger and Kristi Clark

From: Susan and Dennis OSullivan [mailto:sprowlcreekcottage@gmail.com]
Sent: Thursday, September 30, 2010 10:23 PM
To: Richardson, Michael; Clendenen, Clif
Subject: So. Humboldt Community Park

Good evening, we are Susan and Dennis O'Sullivan and we reside at 4235 Sprowl Creek Road. Thank you for the opportunity to provide input on the Draft EIR. We have been hesitant to respond to your request because on one hand we support the original vision of the Park to preserve one of the last flat agricultural pieces of property in So. Humboldt and on the other hand we have direct contact with the Park that infringes on our right to a peaceful residence. We understand your request for facts and we support and applaud your desire to view the request objectively and not politically. We have many concerns environmentally with respect to the entire amendment but we do not possess the knowledge to address them factually.

Our immediate concerns are related to the portions of the PR areas that will be used for events that are noted as medium sized and one sized at 5,000. We would like to state as fact that amplified events impact our property and the privacy we cherish. We also note as fact that Sprowl Creek Road cannot handle the flow of traffic required to handle large events. It is also fact that the CHP is in a much better position than your staff or other County agencies in assessing the roadway as worthy of this flow. While any County investment into the structure of this roadbed would be well received by residents and those that travel this route it is a fact that other roads in Southern Humboldt are in much greater need. Please consult Garberville VFD and Redway VFD who would be required to supply services at large events as well as protect those of us who reside beyond the entrance of the Park.

It is unfortunately a fact that this will be very political in nature and that we will be considered NIMBY's. It is a fact that you must support our concerns and when they cannot be mitigated you may be crucified and we thank you for taking this responsibility. We still trust the process, you and your staff. No politics, just facts.

Respectfully

Susan and Dennis O'Sullivan
4235 Sprowl Creek Road
Garberville

923-2889 h
923-2188 w

Douglas A. Ingold
Attorney at Law
780-A Redwood Drive
P.O. Box 715
Garberville, CA 95542
Voice/Fax (707) 923-2455
dai@asis.com

September 14, 2010

Michael Richardson
Humboldt County Planning Division
Sent via email to: mrichardson@co.humbolt.ca.us

Re: Southern Humboldt Community Park

Dear Michael:

I was present at last Thursday's scoping session outside the big barn. I didn't speak because I did not have anything original to say, but do I want to add my support for the Board's proposed plan and confirm a couple of things that were said.

I was the president of the board of directors of Southern Humboldt Working Together when it took title to the property. I later served on the park board for a number of years. While I am no longer involved with the park other than to walk the trail every week or so, I do have great respect for the work the present board has done to bring this plan to fruition.

Since I was involved at the beginning, I can confirm that the park was always proposed as a multi-use facility. A number of early donors were excited about soccer fields, tennis courts and a swimming pool, for example.

I can also confirm that beautiful natural settings rich in wildlife can accommodate regular human traffic. Though I continue to work in Garberville, I now live in Arcata. My home is within a hundred yards of the community forest and I regularly walk at the marsh. Both are excellent examples of this phenomenon.

From the beginning, Steve Dazey preached that no one would be excited about everything that happened at the park, but people should support the project if some of the things they wanted to see happen did take place there. Thus, while I personally have no interest in attending large festival events if they can be held without damaging other values, I have no reason to oppose them, or to oppose the entire project because of them.

I trust the planning process. I believe with your good efforts, and the board's continued good will, a system can be put in place that is both flexible and clear enough that the park can continue to evolve in an orderly way. Thanks for taking on this challenging project.

With regards,

Douglas A. Ingold

Michael Richardson, Senior Planner
Humboldt County Planning Department

This letter is in response to the call for input as part of the scoping process for the Environmental Impact Report that the Community Development Services Department is preparing on the Southern Humboldt Community Park's (SHCP) application for zoning changes.

First, I believe that it's important to view this application in a historical context as well as considering what alternative uses might have occurred had the community not purchased the property. Before the current owners took possession the Tooby Flat had been used for ranching and farming purposes for over 100 years. The gravel operation had been ongoing for a couple of decades. There was not a square centimeter that could be called "wild." The land has been managed and manipulated for human purposes for more than a century. The previous owners gave little thought to protecting the seasonal wetland areas, the forests were high graded for the best fir, and the pasture area had been compacted by the hooves of generations of cattle. The very acquisition of the Park by the public benefit non-profit that became the owner in itself improved these conditions by reducing certain of the detrimental impacts of the past. Beyond that the Park took on some substantial habitat improvement projects including the forestry project on the land surrounding the flat. The Park board has been consistently mindful of its responsibility towards protecting and enhancing habitat for the array of species that exist on the parkland, even as this property is not a wild area. To bemoan the potential loss of native forest or grassland through the execution of the current proposal, though clearly having a certain emotional appeal, is simply not supported by fact.

Additionally, the alternative to the present and projected use of the land currently in park ownership was, arguably, one to five acre ranchettes. Now, it might be *argued* that this was not inevitable given that the zoning would have had to be changed to accommodate that kind of development. But given the temper of the time, the expansive real estate boom of the early part of the decade, it is unlikely that the Commission would have turned down a well-crafted proposal of just that sort.

Let's imagine for a moment the impact of the one to five acre ranchette development model. For the sake of argument let's say that 300 acres would be given over to this activity (assuming some protection for wetlands and riparian zones). Let's say half of that would be one acre, half five. That translates into 180 potential home sites. Imagine the daily impact of that on the neigborhood, particularly the road use.

This, then, was the highly likely alternative to present use. When evaluating the environmental impacts of the present application the Department and Commission need to keep in mind that present ownership has protected environmental values far more extensively than any potential alternative owner likely would have. The park board has demonstrated this commitment to protect and enhance the physical environment. Prime

examples are the dedication to organic agriculture and the forest improvement activities that have taken place.

Another contextual element regarding this application is the fiscal reality of owning and managing a public park. The Southern Humboldt Community Park is a private, public benefit non-profit organization. As a private entity it receives no regular stream of public funds to support the activities and development of the facility. There are considerable fixed costs to this enterprise, not to mention the expense involved in developing or rehabilitating the property. If the park is to maintain itself as a public benefit institution, if it is to continue to provide the services – agricultural, social, recreational – that it currently offers, if it is to expand its potential recreational uses or if it is to restore more of its holding, the park will require a reliable means to fund such pursuits. The present application for zoning change seeks to establish the legal basis for such income-generating activities. As such, some land will be more intensely developed. Other portions of the land will see more recreational activities, others more social events. Many of these will be fee-based and thus revenue generators for the park. It is imperative that the park be given enough opportunity to host remunerative activities in order to support the basic maintenance and management costs. This is not to suggest that environmental concerns should be subordinated to commercial ones. However, if the levels of protection that the park currently affords are to be maintained and enhanced, there must be a revenue stream available to conduct activities in the furtherance of those aims.

The rezoning application poses very little in the way of new uses of the land. The park anticipates an array of uses similar to those activities conducted by the park before it was ordered to cease those that were outside of the existing permitted uses under the current ag zone. The exception in the new plan is the approximately five acres devoted to residential development. The residential development will, of course, be subjected to all the expected environmental reviews independent of this application. The zoning change is necessary to allow for family residences. This component is an important part of the park's economic plan. The park hopes to create an endowment for future management and development, and the development of housing is a source of those funds.

Use under the proposed plan (other than the residential development) differs notably in frequency and scale from those activities hosted by the park prior to the order to cease. The SHCP is requesting that they increase both the number and size of events held on the property. This and the related impacts seem to be the most troubling of the issues, particularly from the point of view of nearby residents. The challenge to the park is to mitigate the impact of expanded uses.

That said, the current application provides neither a monitoring nor mitigation plan. Both should be negotiated with the Planning Department and other appropriate agencies. Monitoring should be focused on (in the case of wildlife) critical species. Monitoring in general should not be designed so that it is so burdensome that it is impossible to accomplish either from excessive complexity or cost. For example, wildlife monitoring should include only sensitive species. Common species (e.g., quail, gray squirrels) have

an abundance of appropriate habitat in the area such that the park's impacts will have little bearing on their sustained success in the vicinity.

The Community Park is comprised of several micro-environments. The present proposal concentrates human activities in an area that comprises less than twenty-five percent of the ownership. This portion of the property is contiguous and already has experienced human uses for a century and more. Some of the activities will have impacts beyond their specific location. Large gatherings will require attention to:

- Traffic management
- Parking
- Security and crowd management
- Clear delineation of use areas
- Protection of natural values
- River protection
- Sound management
- Water supply
- Waste disposal

Generally the proposed zoning change provides an opportunity to further protect both the human and natural environment while retaining and expanding recreational, cultural and social activities. It is my firm belief that thoughtful planning, monitoring, mitigation, restoration and rehabilitation of the site can and will be accomplished by the present board and management of SHCP. I would like to see the Planning Department and Commission acting as a partner in what is proving to be a unique and exemplary occasion of private and public participation in providing an enduring legacy for the Southern Humboldt Community.

Thank you.

Douglas Fir

Sept. 9-2010

Humboldt County Planning Department,

My name is Gina Paine and I am a long standing resident of Southern Humboldt. I have many family roots here and understand the history of our area. I am writing this letter to support the Community Park of Southern Humboldt in obtaining a zoning change so that it may develop.

I see the need in our community for a gathering place that can include all kinds of events. But my foremost concern is for our kids. I have been the Southern Humboldt Youth Soccer Representative for the past 10 years, I sit on the Southern Humboldt Schools Foundation Board and South Fork High School Boosters Club. Through my direct involvement I understand that our children do not have a large enough space to accommodate all of the sports programs.

For instance youth sports share a very small space at the Redway Elementary which all of the programs have out grown. During the current season youth soccer has 160 kids from the ages of 4 to 14. Youth football is also in this space and often has three teams practicing, with cheerleading squads, which can sometimes include another 75 kids.

A zone change in one area to recreational use would serve the youth of our area immensely. Any child that wants to participate in sports should never be turned away because of lack of space to play. And what is a community park without an area for the kids? We are having an increase enrollment in our schools and this means that these programs will continue to grow, but there is no room. And as a community we need the ability to support our growing youth population in a positive way. Children involved in sports make better community members.

A sports complex would be a great addition to our community and the Southern Humboldt Community Park is the only place that has the space to do this for our kids. There is also a large population of adult athletes in our area that would like to expand their programs.

Please consider the youth in our area when you rezone our park -

Gina Paine
P.O. Box 2431
Redway, Ca. 95560
(707)923-1971

10/21/10

Mr. Richardson,

I have been a resident and public school teacher in So. Humboldt since 1959. I am writing in regard to the Community Park and the plans that they have presented. I am very much opposed to the park. I believe it will cause great harm to the environment and to the Garberville area, especially to the homeowners in the vincinity. There privacy will be invaded and the value of their property will certainly go down. The land and water supply will be degraded with 5,000 people plus cars, etc at even one large event, not to mention the other events throughout the year.

The park should be Community-based. It should benefit the health and welfare of the So Hum population, and not be the means of gaining a profit. With the thoughtful consideration of a committee made up of local residences, a plan can be developed without large venues.

Thank you.

Sincerely,

Gladys R. Madsen

P.O. Bx 526, Redway, Ca 95560

RECEIVED
2010
Humboldt County
Planning Division

September 9, 2010

Regarding EIR for Southern Humboldt Community Park General Plan Amendment and rezone.

To the Humboldt County Planning Department
Humboldt County Planning Commission
Humboldt County Board of Supervisors

I am opposed to the General Plan Amendment, rezone, rewriting of the Public Recreation Land Use Designations and rewriting of the Public Facility Rezone for the Southern Humboldt Community Park.

The use of a Public Facility Zone, which is for Extensive Impacts Civic Uses for publicly owned land is inappropriate, since this Park is privately owned (in spite of being purchased with donations from the public) and Extensive Impact Uses to the environment of the park land is unacceptable.

The Plot Plan included in the Park Board GPA indicates a wet meadow. This is the same area that is proposed for:

1) Rezone of an unspecified size of land (but appears to be twice as big as River Crest Subdivision across the river which is 7 or 8 acres) for multi-family housing. A plan of construction must be included in this EIR so that the environmental impacts can be assessed. Geological studies must be included in the EIR, grading and foundation plans, soils assessment, traffic studies, cultural resource reports, biological reports, how the agricultural land will be replaced, studies of hydrology and water quality, loss of recreation land and aesthetics. The engineering of the housing, construction plans must be included. Affects on wildlife must be addressed in the EIR. Furthermore, as soon as the General Plan Update is completed, the whole area around the park for miles is to be "Urban Study Area". This is defined as areas where services are available or feasible and densities greater than one unit per acre are appropriate to consider. Multi-family zoning can be up to 15 units per acre, according to Michael Richardson in a KMUD news report regarding housing. For this reason, the Park must not have housing.
2) Recreational Facilities Sports Fields are proposed. (The map in the GPA says see detail, but there is no detail in the GPA, although a conceptual sketch was thrown in). This conceptual sketch includes 27,000 square foot pool, but no plans of excavation or construction, which must be included in order to assess the impacts to the environment. A 42,000 square foot field house, which must include excavation, grading, engineering and construction plans plus all soil and geological studies required for the EIR in order that the extensiveness of the impacts to the environment may be assessed. This appears to require massive grading and scraping of the hillside that is an historical hazardous slide area. There are also, in this conceptual sketch, two parking areas for a total of 260 cars, this on the historical Woods Family Orchard, and is prime agricultural soils. How will the loss of agricultural land be addressed? The ballfields are shown as almost 6 acres on this conceptual sketch. All environmental impacts of these ballfields must be addressed, including the effects of night lighting, noise and crowds on the nocturnal wildlife that live in the Park, water, and loss of agricultural land.
3) Garberville Sanitary District has said that these proposed uses, housing development and sports fields/recreation facility would be considered new hook-ups and there is an ordinance (per LAFco) prohibiting new hook-ups. Sewer or septic must be addressed for the sports fields/recreation facility and housing development.

4) This same area as the Recreational Facilities Sports Fields is also proposed for organic hayfields and a Parking Lot for proposed concerts, festivals and events. This may or may not be on the Wet Meadow, it is hard to tell from the Plot Plan, but it is clearly in the historical orchard sight and is prime agricultural soil, since it is directly below an historical hazardous slide area. Much more appropriate for orchards.

Regarding the Extensive Impacts to the environment of a commercial and non-profit concert venue/festival facility:
There appear to be at least 4, possibly 6 streams in the area proposed for the event facility and camping areas. The impacts of large crowds and camping on these streams must be addressed in the EIR. Studies should be required to determine the extent of damage on the wildlife of loud noise, bright lights and massive crowds, since these are known to be damaging to wildlife, particularly nocturnal creatures.
The effects of noise, lights, crowds and traffic on the surrounding neighborhoods of Kimtu Road, Rivercrest Subdivision, Sprowel Creek Road, Leino Lane, Sunnybank Lane, Connick Creek and Old Briceland Road must be addressed and studied. I have lived on Sprowel Creek Road for more than 20 years, and every year at Reggae Time, tresspassers camp on my family property without permission. This is during an event that is at least 9 miles away! Since the Reggae Events and the Summer Arts and Music Events are currently near the State Parks, there is the necessity, according to state park staff, of hiring extra rangers to deal with tresspassers and vagrant camping during these events. Our family does not have at our disposal extra rangers to deal with the increased tresspassers and vagrant campers associated with events with-in less than a mile of my home. There is also no way to keep trespassers from accessing my family's property from the river, which is about one hundred yards from Park Property (on the other side of the river). The Traffic and Road issue could require volumes to address. The Park Board's proposal to route traffic down Kimtu in a "holding Pattern" is crazy. How will the residents get in and out? How dare the Park Board say that residents of the area will not be allowed to walk on our own road? And to suggest Old Briceland Road as an alternative is absurd and dangerous, since it is a very long, narrow, winding road, unpaved in areas and one lane in parts, with many blind curves. Then are they supposed to careen back to the freeway down Briceland Road?
Regarding:Parking on the Riverbed for big events: NO. This is the worst imaginable use of the riverbed, as bad as surface mining: destructive to fish, wildlife and wildlife habitat. Will the attendees be permitted to stay in their cars there on the riverbed overnight or have to leave every night, creating late night noise, dust and traffic?
Cars leak oil, coolant, asbestos, brake fluid. Cars driving on the riverbed flattens and widens the riverbed making the river wider and expediting evaporation. Wildlife habitat is destroyed. How will this effect the fish? Sunscreen and insect repellant are toxic to fish and amphibians. Parking is not permitted anywhere else on Wild and Scenic River. It must not be permitted here. There is no way to "mitigate" these egregious damages to the South Fork Eel River, already listed as impaired. On page 8 of the Park Board's GPA narrative, they say that their MHQ zoned land is on a separate parcel not included in the GPA, yet they are asking for an additional land use designation of parking on the MHQ property.

How many acres of Specialty Camping? It looks like a lot on the maps in the GPA. Will this be a full time camping facility? If not, how often will there be camping there? Where will the campers park? How many people will these camping areas accommodate? How will camping in stream areas effect them? What will be used for water for campsights? Restroom facilities? Septic? Will there be lighting? A wet-bar? How will camping effect the wildlife of the parkland?

The GPA states regarding large events: "The year 2010 was the most financially successful year to date with attendance rising to 4000 per day. In addition, there are approximately 1000 workers and vendors at the event....We are looking for a stepped approach to this event, beginning at current attendance levels, working with the Mateel Community Center to relaocate the event to the Community Park and get the Event firmly established and then evaluate for future growth potential" Does this mean, since this application, in addition to everything else includes a special permit and conditional use permit, that it will be up to the Park Board, not the county, to decide the attendance levels of events? This is not acceptable. I emailed Michael Richardson to ask what a special permit is, but he did not respond as of this writing, so it is not possible to know what they are getting a special permit for.

Has the California Clean Air Act been addressed in this GPA? Holding events to bring thousands of people to our area will increase pollution.

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The "expediting" of this GPA and bundling of so many aspects; rezones, changes of land use designations, EIR, housing and rewriting of land use designations and zones, special permit and conditional permit has made this process almost impossible for citizens to fathom. I am opposed to rewriting Public Recreation, which is for publicly owned land, to include non-profits. This non-profit in particular is the most private of land-owners, despite the fact that the property was purchased using donations from the public. There is NO Public Oversight. For this reason it is imperative that Public Recreation and Public Facility can not be used by the Southern Humboldt Community Park. Non-profits are not public anything.

Since this GPA application is the sketchiest imaginable, I request that at least another public scooping session is held by the county in the Southern Humboldt area, after the DEIR is complete. I request that the entire town of Garberville be added to the noticing, since the town will be effected by the park boards plans if they are approved. The next scoping should be held in an indoor facility that is accessible to everyone (as the Park Barn is not), for example, the veterans hall in Garberville, or the Civic Club.

There will probably be more to say about this, whenever some real information, studies and documentation are available. Thank you for your consideration.

Sincerely,

Sandy Feretto

Sandy Feretto
Garberville

Michael Richardsen
Senior Planner
Humboldt County
Dept of Community Development Services
3015 H St
Eureka, CA 95501

Sept 21, 2010

Dear Mr. Richardsen,

I am in receipt of notice of 'Scoping Meeting' that was held on Sept 9th. Unfortunately, neither my mother, Sara McLeod, or myself acting on her behalf, were able to attend. My mother owns 40 acres of land near the area proposed to allow open recreation to the public.

As an absentee landlord, I wonder if you could address some questions?

What was the community response at the meeting on the 9th?
Foremost concern is how will the proposed plan impact the 40 acres my mother owns?
Will it be a benefit to access her acreage as it is currently 'land locked'?
Could you please verify where her property is in relation to the project site?

Overall, I imagine the project will be an improvement to the community and look forward to learning more about it's status at this time.

Thank you for your attention to these questions,

Sincerely

Janyne Slabaugh
Successor Trustee for
Sara Virginia McLeod Trust

Parcel No. 222-231-001-000

7548 Maxwelton Rd
Clinton, WA 98236
Phone – 360-579-1749
Cell phone - 206-484-2535

Subject: Southern Humboldt Community Park

To: Michael Richardson

From: Justin Crellin (resident of Miranda, CA)

To the Humboldt County Planning Dept,

I would like to express my support in writing for the operation plan submitted to you by the Southern Humboldt Community Park. This park represents a great opportunity for the Southern Humboldt community and I applaud the vision of the park's board of directors to make it a multi-use area that can serve current needs while also being broad enough to allow for the changing needs of a growing community for long into the future.

While I support the park's plan in its entirety as an average community member, I am also employed as the Event & Talent Coordinator with the Mateel Community Center and, as such, would like to weigh in specifically about events at the park. I know you've heard a lot of negative feedback from a handful of concerned citizens about events at the park, especially larger-scale events, yet I feel it has been clear in public meetings that community support for these kinds of events far outweighs those who would not like to see the park used for this purpose.

Specifically, I have heard complaints about noise impact, traffic/ parking congestion, and pedestrian safety as reasons why the county should not allow larger-scale events at the park. While these are certainly legitimate concerns, I feel all could be successfully mitigated in a way that would allow these events to take place safely and with minimal impact to the surrounding neighborhood. The Mateel Community Center has a great track record of doing this work, and in more densely populated communities, like Benbow, where we have successfully staged annual events like the Summer Arts and Music Festival and Reggae On The River and maintained good working relationship with our neighbors.

Though we have received very few noise complaints from Benbow neighbors for any of our events, which should suggest that sound levels have been quite tolerable, there are also a number of things that can be done to minimize sound impact. Clearly a professional sound study would need to be conducted to identify areas of concern and to determine the best placement for stages, speakers, etc. Also, with the modern sound systems we are now using for our festivals, we have the ability to set the trajectory of the speakers to throw sound a specified distance before essentially dissolving it into the air.

In regards to parking/ traffic concerns, Benbow actually has less available parking than the community park's plan allows for, so this move would be improving the current situation for the Summer Arts & Music Festival. Our experienced parking and traffic control crew, headed up by Jerry Von Dohlen for more than a decade, has been extremely effective at allowing a smooth traffic flow for residents of Benbow and both freeway back-ups and illegal parking are virtually non-existent. Though delays are occasionally encountered at the festival gate at Benbow, the community park's traffic plan also has a much longer processing area which will prove invaluable in keeping traffic moving on Sprowel Creek Rd.

Festival shuttles have also been an important way we've been able to minimize traffic congestion and parking issues in Benbow and though this has been promoted as the primary way for Redway and Garberville residents to commute to the festival, the parking capacities of these two towns has been more than adequate at current attendance levels and we've never received a single complaint from a local businesses or neighbor about the way the shuttle parking impacts the community. Additionally, we would also be able to maintain use of the parking lot next to the Benbow golf course for auxiliary parking and as a shuttle stop for attendees coming up from the south. These shuttles will also be the best way to ensure pedestrian safety as foot traffic would not be allowed on Sprowel Creek Rd. during the event and all pedestrians would be required to access the event via the free festival shuttles.

I should also note that the Mateel Community Center has a great track record of working with our local and state agencies and we would welcome the opportunity to sit down and work together to mitigate any of the above concerns or other areas I have not specifically touched on in this letter. Thank you for taking the time to read this and I encourage you to reach out to me directly if you are interested to speak further about these matters. I also strongly urge you approve the park's operation plan as it stands as this park will surely enhance the quality of life for all Southern Humboldt residents and will also be an economic boon to an area sorely in need of new income opportunities.

Sincerely,

Justin Crellin

Mateel Community Center

923-3368 x25 / justin@mateel.org

John LaBoyteaux
Camp Grant Ranch
3345 Dyerville Loop Rd.
Redcrest, CA. 95569

Michael Richardson
Humboldt County Planning Division
3015 "H" St.
Eureka, CA. 95501

ADDITION TO SCOPING COMMENTS -- Southern Humboldt Community Park -- 9/26/2010

Dear Michael,

Attached is an e-mail which contains the text of the November 2009 Redwood Times article which I referenced as an attachment (item 4) in the letter I sent you last week.

There seems to be some confusion as to whether SHCP actually completed the "grassland management plan" and incorporated it in a contract with NRCS. The neighbors think not. My conversation with NRCS led me to believe there was a contract. NRCS takes the position that these contracts are not public information, so sort of hard to know. I know SHCP had an EQUIP contract in connection with the forest fuel load and stand improvement work.

A "grassland management plan" and contract would be a very significant impact from the agriculture perspective, IF IN FACT THAT HAS OCCURRED. I am concerned that SHCP could preempt local land use planning through this USDA contract. Could I suggest that you might ask County Counsel to contact NRCS to determine the general nature of any contracts with SHCP, and if there is a contract can it be amended in the public interest?

THE FOLLOWING FIVE PARAGRAPHS ADDRESS THE CONTINGENCY THAT SHCP HAS ENTERED A "GRASSLAND MANAGEMENT PLAN" AND CONTRACT WITH NRCS AS DESCRIBED IN THE NOVEMBER 2009 REDWOOD TIMES ARTICLE.

Referencing this article, it seems to me unlikely that SHCP will ever find a cattle owner willing to lease into this situation unless it is purely a hobby or someone with much larger adjacent acreage. Generally 160 acres is considered a minimum practical grazing unit in dry areas of the County. (We sometimes see smaller units around the Bay where grasses grow nearly year round.) With the habitat constraints and other existing or proposed SHCP uses, the actual annual acreage available for grazing would be less than half of 160 acres. Further, fencing has been removed or is in poor condition and there is no water source on the south end of the property. These would be added expenses presumably to be borne by a grazing tenant.

In contrast during the later years of Tooby ownership, the ranch manager would rotationally graze about 30-40 head of cattle (including cows with calves) on the three major pastures on the NORTH end of the property, the south end being little used. This is because grasses continue to grow much longer on the Ferndale, Hookton and Honeydew soils at the north end. This corresponds to the most agriculturally productive areas of the ranch, centered on the ranch headquarters, to which I referred in my comments on AGRICULTURAL RESOURCES. After two or three rotations in late Spring the cattle would be moved to the upland part of the ranch.

I suppose local conditions can vary but reference to Sibley's Guide indicates that the Western Meadowlark is a common grassland species. The Grasshopper Sparrow is listed as a species of

concern by the State of California, not threatened or endangered. The Grasshopper Sparrow is a migratory species which will inhabit different available grassland locations as appears to have happened when SHCP changed management of the subject property. My understanding after contacting California Department of Fish & Game is that the Grasshopper Sparrow is not a regulated species and no special measures are required of landowners for its protection.

It seems to me that a grassland management plan/contract raises issues of cumulative impact both on the subject property and within the region. There are many thousands of acres of range and grasslands in the South Fork Eel watershed. There is very little prime agricultural soil. I am surprised that NRCS would enter a contract of this type on prime farmland since it severely limits agricultural use and in this case there may be no agricultural use at all.

Of course no one can be required to farm or graze their property. It appears to me that a contract along these lines might also serve to prohibit more intensive agricultural or recreational uses and thus preserve view shed for Steve Dazey's planned residential development along the south boundary of the SHCP property. (See 8/26/08 letter from Steve Dazey to Tom Hoffweber.) I believe the southwest area of the subject property may be a much better location for a ball field, if there is a public need for that use, because little excavation would be required and those soils are better drained.

Sincerely,

John LaBoyteaux

CC NRCS

P.S. Michael, I wanted to double check my memory about some of these things and so walked the property this morning. There are a couple of new developments which I would add to my list under item 3, existing conflicting uses of prime farmland, within my comments on AGRICULTURAL RESOURCES. Please add to that list:

f. The "labyrinth", which I had thought was located in the Tooby Memorial Park is actually on farmland south of the barn. This approximately 60' diameter circle is paved with gravel and bricks and like the skateboard facility impacts about 1/2 acre of prime agricultural soils.

g. There is a new rocked road extending a couple of hundred yards north of the Kimtu entrance to a structure located in the escarpment forest. The road impacts about 1 acre of prime agricultural soils. The structure is in an area which is forested and which I would consider non-productive. Although unoccupied, the structure appears to be a residence composed of several small sheds tied together.

One irony of this situation is that the location of the structure might have been a good place for the "labyrinth" and there are other non-productive locations within the escarpment forest that might serve similar uses.

Sept. 27, 2010

Michael Richardson

My name is Pam Hanson. I have owned the Woodrose Cafe for almost 34 years. I have lived in Garberville for 37 years. I am a past member of Soroptomists Int. of the Redwoods and served as president for 3 years. I have also served on the KMUD Board of Directors, the Garberville-Redway Chamber of Commerce and was a founding member of the Humane Society of the Redwoods.

I live on Zeino Lane, which is off Sprowel Creek Rd. on the way to the community park. I support the park, however, I am strongly opposed to having large events held there as the proposed Summer Arts Festival. I attended a Community Park meeting, where I had the opportunity to state my objection to large events held at the park. Zeino Lane is off to the right of Sprowel Creek as you just come down the hill. I told the Board members how "ludicrous" it was to even think of having such a large event held at the park. The road is too narrow and dangerous, and will block access for emergency vehicles. I'm glad the CHP agrees. There are sump holes 3-4 inches in diameter, and over a foot deep where Zeino Lane meets Sprowel Creek Rd. There is also a small slide on Sprowel Creek above Zeino Lane. This portion of Sprowel Creek Rd. was supposed to be repaired this year sometime because the county is well aware of the existing problems.

I asked the board members what was wrong with having the Summer Arts Festival at Benbow State Park, where it has been held successfully for over 30 years, but could not get a good answer.

I have lived on Zeino Lane for 24 years, and I can assure you, 80-90% of the property owners who live out here feel very strongly about this and agree with me, they also do not want amplified music. None of us are against a park or music. We just don't want amplified music there. We moved here for peace and quiet, not for amplified events.

Thankyou for considering the property owners.

Pam Hanson

-----Original Message-----
From: jkr49@asis.com [mailto:jkr49@asis.com]
Sent: Friday, September 17, 2010 9:43 PM
To: Richardson, Michael
Subject: So Hum Community Park

Hi Michael,

Some comments for the EIR:

It's important to remember that all environmental impacts are not necessarily negative. In some important ways, the Park's purchase and subsequent minimal development have already had positive mitigating effects on the immediate (trashed) environment, and on any possible future down-sides to the Board's plans.

For perhaps eighty years prior to the change of ownership, the predominant use of the entire parcel was for cattle grazing -- clearly a long-term questionable impact. The current populations of grasshopper sparrows and meadowlarks are the direct result of the Park's careful management since then. They would not be on site but for this change in use! And the current policy of not hay-mowing their nesting areas is testimony to the Board's pro-active sensitivity in ecological stewardship.

Another area that qualifies as a "pre-mitigation" is the extensive work already done (and continuing) in restoring the huge ravines that existed at the interface between slopes and meadows. This heavy erosion is the result of prior logging uphill, and continued over-grazing. It's obvious, viewed from the perimeter trail, that positive results have already been obtained in restoring the deeper washouts and streambeds. Again, this project was done by crews brought in by the Park long before anyone thought it might be required as EIR mitigation.

I already spoke at the scoping meeting about the parcel's use as literal "Ag land": productive truck gardening and Farmers' Marketing have expanded every year for the last seven, and amount to far more true agricultural use of this land than was ever managed before the Park's ownership. (My own personal positive effect has been my membership in the Farm's Community Supported Agriculture (CSA), which afforded me wonderful boxes of fresh organic produce the last two seasons.)

Please make sure the EIR reflects this notion: that the Park's vision and policies have already GREATLY improved the physical

environment of this neglected and stressed parcel, even before taking into account the many benefits to our local social and cultural environment that will proceed from the Board's long-term planning.

I was an original large donor to the purchase, and it was made manifestly clear to all of us from the get-go that the founders' intent was the creation of a multiple-use community gathering space, and not primarily a nature reserve. That it is becoming enhanced in both these realms is fruit of careful tending in this first decade of the "100-year vision".

Thanks for your work on this!

--Jared Rossman
Box 786 Redway 95560

I have been co-leader of the once a month Redwood Region Audubon Society bird walk in the park for about 5 years. I've been a resident of Southern Humboldt since 1965 when I taught at the high school.

I'm give my input on most of the 13 factors you want addressed starting with Aesthetics.

Aesthetics. I am completely opposed to the commercial development of this property with apartments and proposed recreational buildings, playing fields with lights and the attendant roads, noise and general degradation of this wonderful natural resource which so many of us enjoy. Additionally I do not trust the judgment of the board in any of these matters. This is a proposed project of the local counter-culture and this "group's" record for building functional, beautiful buildings is dismal. The Mattel Center is a good

example of a poorly planned, ugly structure build by some of the same folks who want to develop the park.

Widening the county road for parking and grading the riverbed for parking will be not to my aesthetic standards as well! Presumably (according to the park board) there will be a riparian trail adjacent to the road. Widening the road will leave little of the riparian habitat in several beautiful areas.

Biological Resources. The park is the home to many animals and plants and habitats that the proposed development would affect in a negative way. A better plan would be to restore the land which has been overgrazed. Native plants could replace the many non-native plants which have been introduced. A prime example is the big field which supports a population of Grasshopper Sparrows(a bird designated as " a bird of concern" in the State of California and many other states). The Harding grass in the field is non-native and because of the height which it grows the Grasshopper Sparrows will abandon the site. This colony, I'm told, is the largest (up to 60) in N. California. The field also has a marsh (used by Mallards for nesting) which, like the rest of the field, has been drained. I see no mention of this marsh or the other marsh (near the barn) which supports a population of Wilson's Snipe. The large meadow is also used by W. Meadowlark (breeding) and by White Tailed Kite (breed uphill from the meadow) and Bald

3
Eagle for hunting. We believe the B. Eagle has returned to this area and is now breeding. Breeding Bald Eagles have never been recorded in S. Humboldt since I moved there in 1965.

Widening the road for parking will reduce habitat for the Yellow Warbler and Yellow Breasted Chat which breed in that area. Grading the riverbed (proposed for the non park side of the river bridge) will negatively affect the Green Herons that nest adjacent to this site. The pollution from the cars and the muddy run off from this area are not acceptable.

Amplified sound and lights and BIG crowds and camping at events will all have a negative effect on the animals and humans in the area.

(The appeal of events, especially big ones,
as a good revenue source has diminished. The Harley Run and
Reggae Rising are prime examples of events that don't pay.)

We have a small population and have many existing resources for events. Benbow Park has parking, restrooms, excellent freeway access. The Mattel and Beginnings buildings can accommodate our population's needs. The same holds true for playing fields. The South Fork High School campus is under utilized and the gym is being refurbished. It's a small school and cannot field a football team. There's lots of room for soccer…I've been to many soccer games there. Parking, lights, restroom, food stand all exist.

4
Mineral Resources. Gravel is the only such resource I know of
on the property. I believe the gravel company's river mining operation is regulated and legal and is meeting a community need. I'm not crazy about the destruction of the hillside upriver from the river bridge and the noise produced by this new venture.

Agricultural Resources. The non irrigated land that is , for the most part, currently being used for vegetable production which is clearly a benefit to the community. The planting of wheat on this land and the proposed planting of wheat in the big field is a terrible idea and is totally misguided!

Hydrology/Water Quality. I'm aware of 2 wells in the river that appear to be intended for irrigation. There are large pipes plumbed up to the big meadow. I'm opposed to these wells and doubt that they were constructed with proper permits although they may be permitted now. The Eel is already a dying river and shouldn't have more water extracted. The water quality of the river will be negatively affected by field parking, new roads and river parking because of increased sedimentation. Cars will pollute and compact the ground. The proposed buildings (one in consideration would be 3 times the size of the Mattel), playing fields and events will require a septic or waste disposal system of a grand scale. I don't believe the resources are available to build such a system that won't pollute the ground water. The Garberville Sanitary District (of which I was once a board member) is spending millions to accommodate state law

5

regarding the water it discharges into the Eel. In passing, I might ad that Doug Wallace (at the time a SHCP board member) told me the board was considering a deal in which the park would take the Garberville Sanitary District's final discharge water for use in the park. He wasn't sure what they would do with all of that water! I shutter to think about the impact on the land such a huge infusion of "free" (and questionably pure)water would have. Maybe lawns and a bigger bamboo farm will need the water!

There is much soil erosion on the land. Tim Metz started a project to stop erosion in one large run off area. The water is still muddy when it rains. The horses that are presently overgrazing some of the former pasture will cause more muddy run off. I sent Tim pictures of the heavy sediment running off the park land last winter. Hopefully the park board will try to control erosion and run off which will clearly raise the water table. The big fields were ditched by Tooby to increase run off.

Noise

Traffic noise and the use of generators for big events will degrade my life and that of the other park neighbors. The animals who live in the park will assuredly be disturbed negatively from additions day and night noise. Big events sometimes close down after midnight.

Recreation. It's a perfect place for walking, horse back riding, cycling and other low impact forms of recreation like wedding

6

and memorial gathering.

Land Use. If the county grants this new zoning it will set a precedent for other owners of agricultural land to demand the same zoning. That would be a nightmare for the county as you must be surely aware.

Population/Housing. I'm opposed to housing on the site. Housing will bring more people, cars and pets (24/7 at that) to land that needs preservation and restoration. New housing in Garberville will be possible with the new sewage treatment plant since new hook ups will be allowed. I'm told a private party (partner of Bob McKee) has been granted 3 hook-ups adjacent to the park for residential housing due to a rather suspicious land swap.

Transportation/Traffic. The road down to the park is dangerous and totally unsuitable for heavy traffic . It'll be additionally hazardous when events serve alcohol. Furthermore, the route is a bottleneck and no amount of good planning for traffic control for events will made it safe and not noisome to the neighbors and community. Kimtu Circle

(where, as a general contractor, I once built a lovely home) will be inundated with unwanted cars and maybe even campers. Sprowel Creek Road towards the airport will be a
complete traffic jam if cars are “diverted” there. Parking in
Garberville is already scarce.

Jay Sooter

7

Resident of 272 Sprowel Creek Rd., former Garberville Rotary member, Past President (2005-6) Rotary Club of Southwest
Eureka, board member of the Redwood Region Audubon Society.
9-23-2010

Attention: Michael Richardson, Senior Planner

Subject: Environmental Factors Potentially Affected by changes in Southern Humboldt Community Park if rezoned as the board proposes.

Michael,

I write primarily as a neighbor of the park. I’ve lived at 272 Sprowel Creek Road since 12/30/1979.

3750 Broadway Eureka, California 95503 • Voice: 707.444.8001
800.824.1555 (in CA) • Fax: 707.444.3777 • Email: pwspas@tidepool.com

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From: Jerry Latsko [mailto:latsko.jerry@gmail.com]
Sent: Monday, September 20, 2010 12:42 PM
To: Richardson, Michael
Subject: Southern Humboldt Community Park Rezone Proposal

I am Jerry Latsko and I have been a resident of Garberville at 215 Leino Lane for the last 27 years. I would like to address several potential environmental impacts that I know will result if the rezoning proposal submitted by Southern Humboldt Community Park is permitted. I know that you have requested as much documentation as possible but, not having scientific credentials that are generally accepted, I can only pledge to truthfully tell you what my eyes have seen and what my ears can hear. So please bear with me in that regard, and I am sure that there will be many others with scientific backgrounds who will support what I have to offer. MULTI FAMILY HOUSING: This would be detrimental to traffic, water quality, sewage, biological resources, and aesthetics. Kimtu Road and Sprowl Creek Road are narrow and barely safe as is. The Garberville Sanitary District has sewage overload problems already. The river is so nearly dead now that dogs must be kept away at risk of certain death for at least a quarter of the year due to toxic algae growth. There is little "flow". In the 80s,dozens of great blue herons and egrets dotted the riverside and perched in the trees. Currently they are infrequently seen. People do not swim in the water or do so at risk of illness. 95 per cent of the trees are gone, perhaps forever, along with the shade that they provided. This real estate project would deteriorate and languish almost immediately. Wildlife that has flourished for decades would be adversely affected. Frogs and toads that were seen and heard regularly a few short years ago are already in severe decline. PUBLIC RECREATION: The special events proposed would exacerbate already existing problems for the river and the surrounding land. Precious, valuable grasslands and nesting sites would be wantonly trampled. Owls, foxes, and all other wildlife that function at night would face severe reduction of space. Only if all motor vehicles and sound amplification devices were banned would these events be acceptable and, even then, a gathering of 500 people would not be "small". A gathering of 4-5,000 people would be preposterous. The CHP and Humboldt Sheriff would be derelict to their assigned duties to approve such a mess. And the anticipated revenue would never justify all of that and is, at the same time, not quantified by the proponents in any reasonable manner. Many of us would very much rather pay a reasonable yearly fee to use the park. From experience, I can tell you that, even if restrictions are mitigated on this proposal, it is extremely doubtful that they will be adhered to, and neighbors will be reduced to complaining after the fact. CAMPING: This would be a disastrous permanent degradation to the lives of all humans and other creatures living in the area. Permitting this will lead to lighting, paving, and other ecological degradations. Who will police it? Currently, the private park board is not even able to enforce the leashing of dogs in the park and is unresponsive to complaints. Roadside litter is abundant already. Every property owner will suffer loss of value and the danger to public safety in an area already cumbersome to emergency vehicles will increase dramatically. PLAYING FIELDS: This is a community that already has plenty of space for this. Despite the efforts of valiant volunteers to maintain existing fields, keeping them open and viable has been a struggle. Adding a new site will not improve that situation. This rezoning would be a permanent, huge mistake. 98 per cent of our forests, 99 per cent of our grasslands are already gone. We cannot continue to exchange them for money. Thank you.

Subject: Comments to the So. Hum. Community Park EIR

I oppose the proposed zoning change to the Southern Humboldt Community Park on the following grounds:

1) The community does not need another venue for amplified music. Benbow Lake Recreation Area is available and well suited to host all of the proposed amplified music events now planned for the Community Park.
2) I strongly agree with the CHP's objections to the proposed use of the site for an event with up to 5.000 attendees. The parking, traffic and safety concerns the CHP raises will require major changes to roads in the area if the project goes forward. These changes, as well as the increase in traffic, will negatively effect and disrupt normal life in Garberville.
3) The noise concerns of nearby neighbors deserve serious consideration. Noise can negatively affect life in many ways that are still not very well understood. Neighbors who live in well-established neighborhoods nearby deserve the peace and quiet they paid for and expect.
4) Noise mitigation measures will likely employ large, unsightly structures that will negatively impact aesthetics and wildlife.
5) Sound propagation varies with humidity, which rises in the evening, when most amplified events take place. Sound levels at music events are rarely carefully controlled, and mitigation measures will not stop long-range propagation of low frequency sound waves. These deep bass and sub-sonic waves negatively effect wildlife and will undoubtedly disturb nearby neighbors. Noise mitigation measures, though unsightly and expensive will ultimately fail to mitigate noise sufficiently to make the Community Park a good neighbor.
6) Plans to park cars on the river bar will have significant impact to the river. Anyone who's looked at a parking lot knows that cars and trucks leak. Motor oil, diesel fuel and other vehicle fluids are extremely toxic to wildlife and will pollute the river. Windblown litter from vehicles will end up in the river in short order as well.
7) Parking on agricultural land will negatively affect the productivity of precious farmland. In addition to the aforementioned vehicle related pollution issues, soil compacted by heavy vehicles will be less productive as a result.
8) While this area has more than its share of amplified music venues, we have precious little land on which to grow food. The agricultural land should be preserved, in its entirety, for agriculture, in the best possible condition.
9) Local amplified music promoters rarely provide adequate restroom facilities resulting in pollution and sanitation problems.
10) The main reason the Community Park Board wants to have amplified music at the Community Park, rather than Benbow Lake is to benefit the illegal marijuana industry. Park Rangers and Sheriff's Deputies at Benbow Lake greatly inhibit marijuana sales. At the Community Park, they hope to create a more "marijuana friendly" environment for large events by holding them on private land, where law enforcement's presence can be minimized. This has been stated publicly, and published in local papers. This industry has a history of contempt for the law and dishonesty. They wrongly assume that everyone in Humboldt County benefits

from the illegal marijuana industry. Nothing could be further from the truth. This is a prime example of rich drug dealers steamrolling over the needs of the community for the benefit of themselves.

As a craft artist, I very much oppose plans to move Summer Arts and Music Festival to the Community Park because those plans also involve changing the only good craft show in Southern Humboldt into a marijuana and music festival paid for by craft artists. We need a more diverse economy here in Southern Humboldt. The proposed changes to Summer Arts and Music Festival will only make it harder to make a living as an artist here.

While the illegal marijuana industry is clearly the loudest voice in Southern Humboldt, it is by no means the only voice here. Don't let a greedy industry that doesn't play by the rules, and is in decline, ruin the long-term sustainability and economic diversity of this community.

Sincerely, John Hardin
P.O. Box 2301, Redway, CA 95560

John LaBoyteaux
Camp Grant Ranch
3345 Dyerville Loop Rd.
Redcrest, CA. 95569

Michael Richardson
Humboldt County Planning Division
3015 "H" St.
Eureka, CA. 95501

Dear Michael,

Enclosed are three (3) sets of attachments. Included are:

1) My scoping comments for the Southern Humboldt Community Park EIR.

2) My letter of November 3, 2009 to the Board of Supervisors regarding claimed agricultural uses at the Community Park.

3) A letter of 8/26/08 from Steve Dazey to Tom Hoffweber in which Mr. Dazey describes his development plans for his adjoining property.

4. Reference to a November 2009 article in the Redwood Times in which SHCP board member Carol Van Sant refers to a contractual agreement with NRCS regarding the "grasslands" on the subject property. (Michael if you would please try to get this article from the Redwood Times, I will do so also.)

Also attached is a copy of my letter of November 3, 2009 to the Board of Supervisors regarding claimed agricultural uses at the Community Park. Agriculturally speaking, little has changed since this letter. The CSA was discontinued and the market garden reduced to about 5 acres. Dan Primerano planted 7-8 acres of wheat in the same area used previously by the market garden, thus no net increase in agricultural use. Although the hay was harvested more timely this year, and I'm sure the market gardeners have tried, SHCP is still struggling with the management and sale of 100 plus/minus tons of annual grass hay. It is still my view that for the most part SHCP has discontinued agricultural use of the property.

It seems that the new soil survey covering the southern part of Humboldt County will be published sometime during the deliberations about this project. I have reviewed the new soils information for the project area which is still in draft form. It is not appreciably different from the Soils of Western Humboldt County. With the exception of the Hookton (Hk-3) soil, which corresponds approximately with the (159)--Grannycreek-Parkland complex in the new survey, all the lands on the flat are prime agricultural soils. Although the Hookton soils does not rate as prime in the soil surveys, it is a prime agricultural soils based on its productive capability pursuant to PRC 51201 (c) 1-5. I note in SHCP's recently released financial accounting they show hay sales every year however I stand on the statements I made in my November 3, 2009 letter to the Board of Supervisors. Haying has occurred in 2002, 2003, 2009 and again this year. Each year that haying has been attempted the volume and tonnage produced on this soil have well exceeded the standard. SHCP's ability to generate income from the harvested hay is a management issue. The productivity is there.

It is incomprehensible to me that anyone who purports, at least verbally, to want to continue agricultural use of the property, would propose to convert the ranch headquarters, in the middle of the most productive areas of the property, to still another (second, albeit smaller) event venue and visitor center. I address this more fully in my scoping comments.

It seems to me that the missing link in all SHCP planning to date has been an inventory based on broad agricultural experience and a continuing effort to place recreational uses on non-productive areas of the property. Please see the final paragraph under AGRICULTURAL RESOURCES in my scoping comments.

Sincerely,

John LaBoyteaux

(1)

John LaBoyteaux
Camp Grant Ranch
3345 Dyerville Loop Rd.
Redcrest, CA. 95569

SCOPING COMMENTS -- Southern Humboldt Community Park

I. AESTHETICS

The applicant proposes a large land form change. The gently sloping field above the ranch house, also known as the "old orchard field" would be excavated and leveled for athletic fields and parking. This would involve a cut bank along Tooby Ranch Road (Upper Park Rd.) and an embankment along the downhill side near the current entrance and ranch buildings. The applicant also proposes structures (a "field house", indoor olympic size swimming pool and a "pavilion") with a combined footprint approaching two acres. Widening the existing tree lined ranch driveway to a two lane events access road is also proposed.

This land form change, excavation, embankment, structures and new roadway would be visible from multiple locations on the property, from the freeway overlook (a historic postcard vista), from portions of Sprowel Creek Road, Kimtu Road, the Sprowel Creek Bridge and properties west of the river. This will have an adverse effect on an existing scenic vista and degrade the existing visual character of the site.

Housing on the subject property may induce development of adjacent properties which would substantially change the visual character of the site. (See HOUSING AND POPULATION)

Light towers would be a new source of light which would effect nighttime views in the area. The playing fields and parking lots would be brightly lighted casting other areas into shadow.

II. AGRICULTURAL RESOURCES

The County GIS soils layer contains an omission regarding prime agricultural soils within the project area. All of the open grasslands on the flat and some of the forest land are prime agricultural soils pursuant to PRC 51201(c) 1-5. In evaluating the agricultural resource only the open lands should be considered since no one proposes to clear forested lands for agricultural use.

Although the property is over 400 acres in size, it includes river bar, County road easements, ranch structures and curtilage, the Tooby Memorial Park which is mostly forested, and a large area of steep hillside. There are about 160 acres of mapped agricultural soils on the flat of which about 60 acres are forested, leaving about 100 acres of open fields. The applicant's estimates of the agricultural resource are confusing, sometimes including forested or other non-resource lands. The County, or with assistance from NRCS, should provide a GIS estimate of the acreage of agricultural lands so that everyone is talking from the same numbers.

Although the CEQA checklist uses terminology from the State of California, Important Farmland Mapping program, Humboldt County has never been included in that program. Humboldt County uses the Public Resource Code, PRC 51201(c) 1-5 to identify prime agricultural soils. Conversions or severe limitations by the proposed project, to agricultural use of these soils falls into four categories and the impacts of each is further explained below. The EIR needs to consider the cumulative impact of all the proposed uses in 1-4 below on the subject property. It also needs to consider the cumulative impact of this project within the context of other agricultural resource lands in the region. The 100 acres of open fields on this property are believed to be the largest remaining area of contiguous prime agricultural soils within the South Fork Eel watershed.

(1.) Construction of facilities and conflicting uses of lands associated with the large event site, parking, athletic complex, new access road and housing development.

Based on proportional estimate from photos in the application about 30 acres of prime agricultural lands would be impacted by just this portion of the proposed project. Impacts include both complete conversion or severe limitation of agricultural use. Applicant cites or implies various time worn specious arguments to "mitigate" these impacts. See list following this section.

(2.) Use of the ranch headquarters area and structures for parking and conflicting uses of lands associated with the the smaller "community events" site and proposed conversion of the ranch house to a visitor center.

Historic agricultural uses located the ranch dwellings and outbuildings at the center of the most agriculturally

productive areas of the ranch. The early farmers and ranchers lived and built outbuildings near the fields where they did most of their work. Use of this area for a visitor center and community events will impact the continued agricultural use of the property. The handling and storage of agricultural products and equipment, the use of farm structures and the organization of farm work will be restricted in order to accommodate numerous visitors and events. Lands which would otherwise be devoted to agricultural production will be reserved for parking and assembly. The current general visitation use of this area is having an impact which would be far more evident if the surrounding prime agricultural soils were being utilized approaching their capability.

Applicant continues to cite the Hospice Benefit in support of the community events venue. Hospice has held their benefit successfully at the Benbow Rodeo Grounds for the last two years.

There has never been any member of the SHCP board who had agricultural experience nor any member with park planning experience. Visitor facilities and parking are best located remote or at the edge of resource lands, not in the middle of them.

The applicant appears to be requesting an unlimited number of "community events" at this location. No plan of operation is provided. No map of parking, traffic control or areas reserved for assembly or plan of containment is provided.

There is no explanation of what interpretive function would be served by convertihg the ranch house to a visitor center or which user groups would be served. The current information kiosks have no information in them.

(3.) Existing conflicting use of lands on which SHCP has sited recreation development without regard to the agricultural impacts.

a. The Kimtu entrance and parking lot which began as a cattle gate has been rocked and other visitor facilities have been placed nearby converting about 1 acre of prime agricultural soil.

b. The skateboard facility was placed on very fertile prime agricultural soil south of the barn. This impacts about 1/2 acre.

c. Sections of the perimeter trail were rocked creating an unusable area and a "hazard zone" for agricultural operations in the adjacent fields. This may impact 1-2 acres.

d. A frisbee golf goal was placed in the middle of the old orchard field with the intention of maintaining a mowed circle of 75 yards radius so golfers would not loose their frisbees in the tall grass. This severely limits or converts over 2 acres of prime agricultural land.

e. The use of the barn area for "community events" creates a zone of influence around the barn including the campfire area. This currently impacts 1/2-1 acre.

All of these uses could have been located in non-productive areas of the property. Together they have a cumulative significant impact on prime agricultural lands.

(4.) The permanent dedication of a portion of the land to habitat, even in rotation, significantly impacts the Agricultural Resource and productivity of the property. (For example if 50% of the area is annually reserved as habitat, even if the reserved area and cropped areas are rotated, the result is a 50% reduction in the productive capability these prime agricultural soils.)

SHCP board member Carol Van Sant wrote in the Independent of a contract with NRCS regarding habitat protection and rotational grazing of the grasslands. Inquiry with NRCS confirmed that SHCP has entered a contract with NRCS but the terms of the contract are not public information. Permanent or long term restrictions of agricultural use, by easement, deed restriction, contract or other instrument may severely limit or convert prime agricultural lands. The contract may apply to the entire grassland area of the property, about 75 acres excluding the lower field, effectively the great majority of all the prime agricultural land on the property. Note that birding advocates claim that 75 to 250 acres are necessary to maintain a breeding population of Grasshopper Sparrows.

It would appear that limiting the use of the "grasslands" to rotational grazing and habitat would preclude other agricultural uses such as orchards, vineyards or row crop or field crops for which these prime agricultural soils are capable. Secondly, other than two draft horses, no grazing is occurring and is not likely to occur because of other property constraints and limitations placed by SHCP. While no one can be forced to use their property for agriculture a legally binding restriction of this use is a land use and public policy issue and may constitute a severe limitation or conversion of most of the prime agricultural land on the property.

The applicant cites various specious arguments as "mitigation" of agricultural impacts. These arguments are addressed below.

a. The applicant argues or implies that portions of the property will be farmed more intensively or in a more diverse manner. This argument fails because the whole could have been farmed more intensively so a portion is a net loss regardless.

b. The applicant claims they will continue to cut annual hay on portions of the property which will also be used for parking and assembly. This approach severely limits agricultural use since other crops such as orchards, vineyards, row crops, field crops or even grazing would be excluded by parking and recreational use during the majority of the growing season. Parking may result in damage to the productive capability of soils prone to soil compaction.

c. The applicant claims there will be continued hay production on the ball fields and parking areas however athletic events in Spring, Summer and Fall conflict exactly with the time when crops are grown and harvested. Additionally turf grasses used on athletic fields are not generally suitable for hay or silage production.

d. The applicant cites the Tooby Memorial Park as a precedent for the use of Agriculture Exclusive zoned land for recreation. However the Tooby Memorial Park is primarily a Redwood grove and beach front, not productive farm land.

e. The applicant argues that resident gardens associated with the housing development are a continuation of agricultural use. Agriculture is the commercial production of food and fiber.

f. A legally binding restriction of lands which have been historically used for farming or ranching, to create wildlife habitat, is an agricultural conversion. The open fields and some forested lands on the property are prime agricultural soils.

III. AIR QUALITY

No mention is made of air quality during events. From observation of previous non-permitted events, native grass and vegetation was heavily trampled leaving a loose dust surface.

IV. BIOLOGICAL RESOURCES

It is unlikely that Arthur Tooby would ever have used the term "permaculture". However his management was consistent with that concept. He planted perennial clovers and grasses in his fields and even on some up-slope ranch lands. Animals were an important part of his management system. It was a largely self sustaining system.

The applicant's assertion that the land was in a previously degraded biological and/or scenic condition is not supported. However some erosion was occurring due to previous management.

SHCP changed the management of the property and it is likely that some species were displaced while others established themselves. The discovery of the Western Meadowlark and the Grasshopper Sparrow on the property in 2002 coincides with the biological survey and thus provides no information about their previous presence or absence. However, it is thought that grazing is incompatible with the ground nesting habit of these species, raising the question of where in the thousands of acres of grasslands in Southern Humboldt did the Grasshopper Sparrow originate to migrate onto the property when the grasses grew tall?

The applicant provides no information about the impact of recreational activities, land form conversions, parking, large groups of people, camping, noise or bright lights on species of concern or any other wildlife which may live on the property.

Lastly the applicant themselves have made some management decisions which have resulted in biological degradation of portions of the property.

a. Dumping of waste from the Randal Sand and Gravel plant under the pretense of a "soil amendment" has resulted in the introduction of Star Thistle and reduced productivity of some locations in the lower field.

b. Poor agricultural practices by an early tenant have created a thistle problem in the lower field which has not been corrected.

c. Early over grazing by this same tenant has resulted in the spread of Harding Grass, a weed unfriendly to cattle and birds alike.

d. River run gravel placed on sections of the perimeter trail damaged the soils and made the trail unattractive to horse back riders. Wood chips or sand might have worked as well, been biodegradable and compatible with agriculture.

e. The unmanaged grasslands have become rank and weedy.

The applicant proposes no remedy for these degradations which are significant and cumulative biological impacts.

V. CULTURAL RESOURCES

It is wise that the location of cultural resources on the property is not publicized. The location of Nellie Woods grave is somewhat known. Susie Van Kirk pointed to another pile of rocks toward the south end of the property as a possible burial. Viewed from agricultural experience this looks like rocks removed from the adjacent field when a system of checks and flood irrigation was developed there. This question needs to be resolved because this general area might be a better location for some recreational activities if there is no actual burial in that location.

VI. GEOLOGY & SOILS

Referencing the geology study, the entire flat (below Tooby Ranch/Upper Park Rd. and above the flood plain) was formed by a landslide. These soils are now in stable repose. However excavation for the ball fields and parking may create new land form features which may be unstable. There is an unstable area of hillside on the Goldeen property above the proposed excavation. It seems to me that the study also revealed an earthquake fault in the general area of the NE corner of the project property.

In addition to the geologic history of this area, the Hookton (Hk 3) soil which dominates the NE 1/2 of the property remains wet for significant periods of time due to local springs and artisian water. It remains saturated all Winter and into the Spring. This condition which can make this soil difficult to work and prone to compaction, also contributes to vigorous plant growth later than other soils on the flat. It is possible that this wet condition would inhibit Spring use of athletic fields if constructed on that soil.

Water can be seen sheeting off these soils and collecting in various seasonal watercourses during the Winter and Spring. The entire NE 1/2 of the property drains through the Tooby Memorial Park and into the South Fork Eel just immediately upstream of the Garberville Sanitary District fresh water intake. Garberville SD has expressed concern (at LAFCO) about additional leach fields in this area. The applicant proposes new leach fields for the multi-unit housing project and two new public bathrooms serving public assembly, one at Tooby Memorial Park and the other in the vicinity of the ranch buildings.

These issues relate directly to questions on the environmental checklist and are potentially significant impacts.

VII. HAZARDS AND HAZARDOUS MATERIALS

Please see the 9/8/2010 letter from Lt. Jager of the CHP regarding traffic impacts of proposed events on this property.

The risk of fire is increased both by public assembly and casual recreational use, particularly with large *expanses of unmanaged dry grasslands. There have already been a couple of accidental fires.*

The location of a skateboard facility at the park has created an attractive nuisance and hazard. Young people are attracted to ride their skateboards down Sprowel Creek Road to reach this facility.

The barn being used for community meetings and events does not begin to meet earthquake standards and is not fire protected. Although the barn is not generally available for agricultural use, occasional hay storage increases *elevated weight within the structure and fire hazard during public gatherings.*

The public assembly aspects of the project have the potential to impair emergency response to neighborhoods and the airport which are also served by Sprowel Creek Road. The alternative access to the airport, for example, takes nearly an hour through Briceland and over mountainous and narrow Old Briceland Road.

These issues appear to be potentially significant impacts under item (b) skateboard facility, (g) impair emergency access during events and (h) earthquake and fire hazard to barn and unmanaged grasslands.

VIII. HYDROLOGY AND WATER QUALITY

The entire north half of the flat drains into the Eel River through Tooby Memorial Park just immediately upstream of the GSD fresh water intake. Even if Garberville's fresh water source were in a different location the soils in this area are unlikely to support additional leachfields. GSD has already expressed concern about new leach fields. These soils become saturated during Winter and remain wet well into the Spring due to runoff, springs and artesian water. The applicant proposes new leach fields for the multi-unit housing project and two new public bathrooms serving public assembly, one at Tooby Memorial Park and the other in the vicinity of the ranch buildings. The purpose of the "field house" in the proposed athletic complex is not explained however at nearly an acre footprint it is far larger than needed for a basketball court. Indoor public assembly, for athletic events or other venue, would likely require another large leach field. There would have to be bathrooms and showers associated with the swimming pool. The use and wastewater requirements of the "pavilion" are also not explained.

As mentioned in the Geology and Soils section, the flat was created by a major landslide and soils are now in stable repose. However new cut banks or embankments could be unstable during wet conditions and result in slides or mud flow.

Although SHCP's efforts to halt soil erosion are all to the good, the effect of this action on groundwater levels and drainage in the meadow is unsupported and speculative.

This may be the appropriate place to address water quantity issues since the South Fork Eel River is considered to be fully allocated and additional water withdrawal could effect water quality in the river. Early on SHCP obtained a permit from Fish & Game claiming they needed 40-50 gallon per minute "for agricultural purposes". Well managed use of that quantity water with a variety of irrigation techniques could support orchards, vineyards, row crops and some field crops on much greater acreage than is currently utilized for agriculture. However SHCP installed a high capacity in stream collection system estimated to be capable of several hundred gallons per minute. The purpose of all this additional capacity has never been fully explained. This use would be cumulative with GSD, Redway and other water withdrawals in this section of the river. Steve Dazey installed a separate in stream collection system on the subject property and plumbed that water to his property prior to the lot line adjustment.

It has been suggested that filter backwash water from the new GSD water treatment plant might be used for irrigation of ball fields or crops. However water taken from the river by GSD has less turbidity during summer months requiring less cleaning of the filters. Mark Bryant of GSD estimates that during the summer filter cleaning would produce about 700 gallons of water every 2-3 weeks. This is a negligible amount of water for irrigating ball fields or crops. Thus most of the irrigation water will still come from the river. Reference to pages 7-8 of the Soils of Western Humboldt County provides information about the amount of water needed for irrigation during the dry season in Humboldt County. In southern Humboldt approximately 13 inches of supplemental irrigation (rainfall equivalent) is required. The amount of water needed to irrigate ball fields, field crops or pasture can thus be calculated. The backwash water from GSD is insignificant for this use.

The project may substantially degrade water quality at the GSD intake through increased leach fields. It may substantially degrade water quality in the river if SHCP operates its water intake at installed capacity.

IX. LAND USE AND PLANNING

The project property contains about 100 acres of prime agricultural land not including prime soils which are forested. The property has been in continuous agricultural use since 1865. There is a history of diverse agricultural production including, in addition to sheep and cattle ranching, orchards, row crops and field crops. In addition to some soils which support dry farming, the property is irrigated from a well which SHCP installed for agricultural purposes. There is an irrigation mainline and aluminum sprinkler pipe. The location of these prime agricultural lands in proximity to an urbanized area increases their food production value, in the model of European agriculture, and similar to Blue Lake in relation to Arcata.

These prime agricultural soils are correctly zoned Agriculture Exclusive and should never have been planned for even low density residential development (Garberville-Redway Community Plan) and such subdivision has never occurred. Garberville's sphere of influence and properties appropriate for growth will be discussed in public meetings in coming months. The applicant seems to misinterpret the purpose of a community plan, citing a specific justification for residential development on the subject and surrounding properties, rather than a framework for planning community growth.

It light of 4-5 existing public assembly venues in the Garberville area, it is difficult to understand the need for still another event site and prime agricultural land should not be converted for this use. It is unfortunate that

the southern Humboldt community is so factionally divided that every group wants to have their own event site. Most of the 4-5 sites are used for only a single event each year.

There is a public need for athletic fields. Currently the only ball fields are at Redway School (short outfield) and South Fork High School. There are two full size ball fields on private property in Phillipsville but the current owner will not allow their use. Other possible locations include multi-use of the river field at Dimmick Ranch, the fill area near "Toph's House" adjacent the Benbow golf course, Steve Dazey's property north of Dean Creek, and the large field between the disposal site and the Eel River Conservation Camp. This last would be an excellent site on state land if cooperative use could be arranged. Additionally there seems to be no reason why all athletic facilities need to be clustered together on the project property. A public swimming pool or gym might be well sited in the industrial park.

An agricultural conversion will inevitably occur if athletic fields are located at the Community Park ..... all the open land is prime agricultural soil. However a different location toward the south end of the property would not require excavation, and is better drained. SHCP has not been open to this suggestion perhaps because the "ball fields" provide a rationalization and opportunity for additional parking near the proposed large event site.

Within the 400 acres there are lands which are not suited for agricultural use like the Tooby Memorial Park. It would be desirable to identify and plan recreational development for individuals, families and small groups within these non-productive areas in order to integrate recreation with the continued agricultural use of the approximately 100 acres of prime agricultural soils. This planning concept is not evident in the proposed project. No one on the SHCP board has agricultural experience and their approach seems more opportunistic, like turning the ranch compound into an events site and visitor center. Likewise a foremost concept in modern park planning is to place visitor facilities and especially parking away from resource lands. Again the Tooby Memorial Park demonstrates this concept while new proposed developments impact core resource lands. Perhaps one of the alternatives considered through this EIR might be based upon an inventory and planning, with input from the agricultural community, of lands NOT suited for agriculture.

X. MINERAL RESOURCES

XI. NOISE

There appear to be multiple reasons to not permit large scale public assembly on this property. However if a CUP is seriously considered a third party sound study is needed. That study should not be performed by the same firm that did the motocross sound study which was seriously flawed. The sound distribution circles were mapped at only about half their true size.

XII. POPULATION AND HOUSING

Applicant believes up to 38 units of housing might be possible on the property under the current Community Plan. Adjacent landowners (Steve Dazey and Sanford Goldeen) have also indicated they want to develop housing. While none of these properties currently have sewer or water, development of housing on the subject property might well induce development on the adjacent properties. In light of the LAFCO decision to not allow new hook-ups to the Kimtu water line, how could the Community Park be allowed to connect without also allowing the adjacent properties? This is a potentially significant impact. The total number of units is unknown. In fact, a semi-circle of development with the Community Park as its centerpiece and playground may be what these developers always had in mind.

Again the applicant seems to misinterpret the purpose of a community plan, citing a specific justification for residential development on the subject and surrounding properties rather than a framework for planning community growth. Garberville's sphere of influence and area best suited from growth are to be discussed in community meetings in coming months.

The ranch historically had 3-4 housing units and the current water service is sized for than number.

XIII. PUBLIC SERVICES

Applicant provides no information what so ever regarding demand for public services, police, fire, medical or public water which logically will be needed in connection with public assembly and general public use of the property.

XIV. RECREATION

Any large or moderate scale public assembly during summer months may result in large numbers of people trying to utilize the Tooby Memorial Park beach and swimming hole. The Memorial Park beach has been a popular site used by local families for decades. The subject property has additional river frontage but none of it as attractive or accessible as the deep pool and beach at the Tooby Memorial Park. Large numbers of people in the river at this location will raise the same water quality questions as Reggae on the River. The GSD fresh water intake is just immediately downstream of this location.

Where will people stay during overnight events? Camping on site will certainly have physical and environmental impacts on the subject property including on biological and agricultural resources. If camping is off site the impacts on local state parks would be similar to other assembly events currently held in the Garberville area. Additionally there would be traffic issues, certainly on Sprowel Creek Road and in town Garberville as people travel from local parks to the event site and return.

As described in other sections construction of the athletic complex, parking lots, public restrooms, large scale event site and conversion of the ranch compound to a visitor center and secondary event site, will have an adverse physical impact on land form and scenic vistas, soils, hydrology and water quality, public safety, noise, biological resources and agriculture.

XV. TRANSPORTATION AND TRAFFIC

In addition to the two potentially significant impacts identified in the draft check list, questions (e) and (f) are also potentially significant impacts.

Emergency access to neighborhoods and the airport beyond the project site is completely dependent on Sprowel Creek Road. There is no other realistic or practical access for emergency response to these neighborhoods. Sprowel Creek Road will be heavily trafficked and congested for ingress, egress and during assembly events slowing emergency response. A higher probability of accidents, or just gridlock at intersections, can reasonably be foreseen. This would completely block emergency access to areas beyond the project site. (Or even just down to Leno Lane.)

California Department of Transportation has made it clear they will not allow freeway access at the location where Tooby Ranch Road passes under the freeway through a livestock tunnel. Cal Trans has placed concrete barriers at this location to prevent cars entering or leaving the freeway from the illegal subdivisions on the former Tooby ranch.

Because the project site is within walking distance of Garberville, some attendees can be expected to park in town resulting in reduction of already limited parking in town. This is likely to occur even if remote parking and shuttles are available. There is very limited space for on-site parking except by converting prime agricultural lands.

XVI. UTILITIES AND SERVICE SYSTEMS

(b) The construction of new leach fields to serve housing development and/or public restrooms may impact water quality in the South Fork Eel River. (See HYDROLOGY AND WATER QUALITY) It can be reasonably foreseen that there will be surges of wastewater from the public restrooms during assembly events in addition to generally increased leaching from housing and daily recreational use. Without consideration of the soils, hydrology and proximity of the river, will the septic tanks and leach fields of the public restrooms be engineered for peak assembly use?

(d) Potable water service to the property is currently limited to 3-4 residences through a 3/4 inch pipe. (Verbal information from Mark Bryant of GSD.) There is no additional capacity to provide potable water for public assembly. The SHCP's "abundant" additional water sources are untreated water from the river or upland springs.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE.

While SHCP has made some environmental improvements in erosion control and limited forest fuel load reduction the environment of the property has also been degraded. (See BIOLOGICAL RESOURCES and LAND USE AND PLANNING) Some of the forest fuel load reduction was done on property which was later transferred to Steve Dazey through lot line adjustment.

The opportunistic development of recreational uses by this 501(c)(3) organization over the last ten years has resulted in cumulative negative impacts to AGRICULTURAL RESOURCES and prime agricultural soils. In most cases these impacts might have been avoided through a more thoughtful and informed planning process which integrated recreational uses for individuals, families and small groups on non-productive areas of the property. For

the most part SHCP has discontinued agricultural use of the property.

The proposed project has potentially significant impacts in the following categories.

(1) AESTHETICS -- a large land form change and structures, new roadway, light sources, housing, and inducement of development on adjoining properties which will degrade the existing visual character of the site and an existing scenic vista.

(2) AGRICULTURAL RESOURCES -- direct conversions and severe limitations to prime agricultural soil farmlands and existing agricultural infrastructure through:

1. Construction of facilities and conflicting uses of lands associated with the large event site, parking, athletic complex, new access road and housing development.

2. Use of the ranch headquarters area and structures for conflicting uses associated with the "community events" site and conversion of the ranch house to a visitor center.

3. Existing conflicting use of lands on which SHCP has sited recreational development without regard to the agricultural impacts.

4. Legally binding restriction of lands which have been historically used for farming or ranching to create wildlife habitat.

(3) AIR QUALITY -- (see text)

(4) BIOLOGICAL RESOURCES -- no information is provided about the impacts of recreational activities, land form conversions, parking, large groups of people, camping, noise or bright lights on species of concern or any other wildlife. Applicant proposes no remedy for biological degradations which have occurred since SHCP took over management of the property.

(5) CULTURAL RESOURCES -- (see text)

(6) GEOLOGY AND SOILS -- the land form change may cause instability or mud flow. Soils (Hk-3) may be unsuitable for intended uses. Saturated soils with springs and artesian water may not support leach fields leading to possible contamination of a public water source.

(7) HAZARDS AND HAZARDOUS MATERIALS -- in addition to traffic hazards as outlined by the CHP, there is an increased risk of fire from unmanaged grasslands and public assembly/increased visitation. The barn is not a safe structure for community meetings or events. Locating the skateboard facility on this property creates an attractive nuisance and hazard. Traffic associated with public assembly at this location may delay or prevent emergency services from reaching neighborhoods or the airport located further out Sprowel Creek Road.

(8) HYDROLOGY AND WATER QUALITY -- the project may degrade water quality at the GSD fresh water intake through increased leach fields. Land form changes may result in mud flows of saturated soils. Water quality in this fully allocated section of the South Fork Eel may be degraded if SHCP operates their in stream collector system at design capacity.

(9) LAND USE AND PLANNING -- the conversion or impairment of prime agricultural soils directly conflicts with the agricultural lands protection policies of the framework plan. The individual and cumulative impacts of public assembly, including agricultural lands conversion, cannot be mitigated on this property. There are at least four existing public assembly sites in the Garberville area. The applicant continues to pursue public assembly events as a primary goal of this project. Additionally the applicant has not followed an informed or systematic planning process which would minimize conversion of prime farmlands by placing other recreational development on non-productive soils.

(10) MINERAL RESOURCES

(11) NOISE -- (see text)

(12) POPULATION AND HOUSING -- Development of up to 38 units of housisng on the subject property may induce additional development of adjacent properties. See expanded discussion in text.

(13) PUBLIC SERVICES -- applicant provides no information what so ever regarding demand for public

services, police, fire, medical and public water which logically will be needed in connection with public assembly and general public use of the property.

(14) RECREATION -- public assembly will displace local use of the Tooby Memorial Park beach. Multi day events will impact local camp grounds similar to other assembly events held in the Garberville area with the addition "commuter" traffic to and from the site.

(15) TRANSPORTATION AND TRAFFIC -- emergency access to neighborhoods and the airport beyond the subject property will be impaired and/or blocked by a traffic jam or accident. Parking in town Garberville will be negatively impacted.

(16) UTILITIES AND SERVICE SYSTEMS -- potable water service to the property is insufficient to support public assembly. On site water is not treated. It can be reasonably foreseen that there will be surges of wastewater from the public restrooms during assembly events in addition to generally increased leaching from housing and daily recreational use. This may impact a public water source, see HYDROLOGY AND WATER QUALITY.

These impacts are all individually and cumulatively significant.

John La Bogteeer

Camp Grant Ranch
3345 Dyerville Loop Rd.
Redcrest, CA. 95569
November 3, 2009

Humboldt County Board of Supervisors
825th St.
Eureka, CA. 95501

RE: GPP-08-02, Southern Humboldt Community Park

Dear Supervisors:

This letter addresses a list (attached) of claimed agricultural uses which the Community Park submitted to the GPP file last summer. I intend to hold my comments, written and verbal, on the amendment petition and proposed zoning until the staff report is available and and there is time to study it.

Although the Community Park is approximately 400 acres in size, the property includes river bar, County road easements, ranch structures and curtilage, the Tooby Memorial Park and a large area of steep hillside. There are about 150 acres of mapped agricultural soils on the flat, of which about 60 acres are forested, leaving about 90 acres of open fields. Most of these lands are prime agricultural soils.

With the exception of the 10-15 acre CSA and market garden in the lower field along Kimtu Road, the Park has for the most part discontinued agricultural use of the property. The fields have become overgrown and weedy. As a result of the changed grassland habitat, new species have moved onto the property while others have moved away. Your Board needs to seek independent biological opinion from the Department of Fish & Game or the local chapter of the Audubon Society regarding these changes and the Grasshopper Sparrow in particular. Star-thistle has been introduced into the lower field through the dumping of waste from the Randal Sand and Gravel Plant.

Attached are my item by item notes regarding the Park's claimed agricultural uses. Please review them carefully. There has never been a member of the Community Park Board who had agricultural experience. The Park's assumptions, expressed in file documents and web site, notably that they are creating a greater diversity of agricultural use and productivity than would be possible under unified management is highly unrealistic and historically untrue on this property.

Lastly, an undated document submitted to the file this summer states, "nor is it likely that the park can operate with income from farming operations alone." This may be true but without financial accounting of annual/monthly income and expense it is impossible to know. The Park is believed to have continuing royalties from the sand and gravel operation. However I estimate that the Park has turned its back on at least $10,000 annually by failing to do a competent job of the haying. Most years there has been no haying at all. Further, several individuals in this County make a good portion of their income on an annual Pumpkin Patch. There are no Pumpkin Patches in southern Humboldt and the Park would be an excellent place for one, but it doesn't seem to be able to happen ..... no serious commercial motivation.

Sincerely,

John LaBoyteaux

Notes: Agricultural Uses Community Park

1. Organic Crop Farming

The 10-15 acre CSA and market garden in the lower field is certified organic by CCOF. The farmers have not received the support they need in terms of additional lands to rotate their crops or a functioning irrigation system. They (John Finley and Lisa Solaris) have done a good job but are in a difficult political position because of year to year tenancy.

2. California Certified Organic Farm (CCOF) certification on 50 acres.

This refers to lands along the upper portion of the flat which were certified and hayed in 2009. Actual acreage where haying was attempted in 2009 was 40.7 acres. (See notes on hay production.) There was some controversy regarding parking of cars in these upper fields and the compatibility with the organic certification. My understanding is that CCOF will not continue the certification if these fields are used for parking. There has been some consideration of dropping this organic certification because it may not be necessary for sale of the hay.

3. Significant results with dry farming.

Certain bottomland soils in Humboldt County will hold sufficient winter moisture to raise commercial crops through summer without irrigation. Some areas of the lower field along Kimtu Rd. demonstrate this capability, while other areas or different crops require irrigation. This is within the 10-15 acre CSA and market garden area.

4. Community Supported Agriculture program.

The CSA has about 60 clients and is the same as referenced in #1 & #3 above.

5. College of the Redwoods agriculture projects.

This needs clarification. Keith Winegar, now retired, was the diesel mechanics instructor at College of the Redwoods and I believe this refers to tractor driving instruction for CR students.

6. Grazing of Cattle on lease for three years.

This was also Mr. Winegar. Too many animals were placed on the 15-25 acres allotted to this lease and the pastures were overgrazed until nearly all mud. The cattle were not removed in a timely manner and they were not rotated to other pastures as had been the Tooby practice. When they were finally removed the damaged pasture was not replanted and has been largely overtaken by Harding Grass (a weed).

7. Hay Production and sales on 80 acres.

Hay production was attempted in 2002, 2003 and then again in 2009. The acreage hayed has never approached 80 acres in any single year although the cumulative acreage for all three years may be 80 acres or a bit more. In 2009, 40.7 acres were mowed for hay according to USDA scaling of 2009 air photos.

The Community Park and/or Steve Dazey personally has had a continuing relationship with Keith Winegar of Fortuna. Each year that haying has been attempted the outcome has been less than professional. Hay mowed late has been left for weeks in the swath and bales have been left in the field

most of the summer. While sales figures are not available it has often fallen to the Park caretaker or the CSA farmers to pick up and dispose this lesser quality hay. With a good effort, John Finley seems to have sold most of the hay this year but some has gone for traffic barriers, straw bale construction, Cal-Trans erosion control and compost.

8. Commercial bamboo operation on 2 acres.

The bamboo plantings are composed of eight 10x20 foot beds and one 10x30 foot bed. This is 1900 square feet or .087 acre. It is unclear how the bamboo is harvested or sold since no harvested product or packing materials were present during my visit.

9. Alfalfa production on 16 acres.

There has never been any alfalfa production. In 2002 Mr. Winegar tilled under an existing healthy stand of clover and rye in an apparent attempt to plant oats with alfalfa. Both were unsuccessful. In August 2002 I wrote the Park Board, "I could not understand tilling under a healthy stand of clover and rye, a perennial higher value hay or pasture crop, in favor of oats, an annual lower value crop. This endeavor looked to me like showmanship ...." In fact it was reported with photographs in the local papers under the title, "Farming in the Park".

Again in 2002, "If the intent was to establish alfalfa, I couldn't understand the practices employed." The alfalfa was not planted correctly, came up extremely sparse, and never produced any crop. ".....the use of the road grader may have been counterproductive because it exposed subsoils and buried topsoil."

And in a June 14, 2003 letter, "The common failing I see with the alfalfa, with the hay operation and with the garden project is the apparent lack of serious commercial motivation."

10. Small plot agricultural lease projects.

This needs clarification but I believe there may be a couple of small gardeners in the same general area as the CSA market garden.

11. Beekeeping - 2 years.

12. Draft horse plowing class.

13. Farm animals including chickens, goats and horses.

There are about a dozen chickens and a few goats. Horses are not an agricultural use because no food or fibre is produced.

From: Dana and Kyle [mailto:owlsperch@asis.com]
Sent: Monday, September 13, 2010 10:28 PM
To: Richardson, Michael
Subject: Southern Humboldt Community Park /EIR

Dear Michael,

I wanted to send you some thoughts as a concerned citizen regarding the EIR report and the possible proposed Community Park zoning issues. I am in support of some of the changes being implemented to the current park status but have serious concerns regarding the proposed once a year 5,000 person event that may take place on park grounds. My concerns are the inevitable compaction of soils due to the large number of people and vehicles that will be allowed on the site if this proposal goes forward. Soil compaction may seem like a petty concern upon first thought of the possible impacts of such an event but the compaction will undoubtedly diminish the lands ability to infiltrate water into the water table, have a direct negative effect on the soil biology, thus favoring non-native invasive species, and will result in increased run-off and erosion. The health of the soil dictates the diversity and health of the surrounding landscape and the parks unique grasslands , wetlands and woodlands may be seriously compromised by such a high impact event.

Please consider this in your EIR evaluations.

Thank you,

Kyle Keegan (Wildlife Biologist,
restorationist, teacher and park user)

Kyle Keegan
P.o box 565
Miranda CA
95553 (707) 943-1504

P.O. Box 394
Miranda, CA 95553
707-943-9786
e-mail: jvchristianson@asis.com

October 11th, 2010

Michael Richardson
County of Humboldt Community Development Services
Planning Division
3015 H Street
Eureka, CA 95501

Dear Michael:

After studying a copy of the Southern Humboldt Community Park General Plan Amendment, I would like to see some additions in the Draft EIR.

First of all, the park's General Plan Amendment application states on page 11 of the Environmental Checklist c) “There are no federally protected wetlands as defines by Section 404 of the Clean Water Act within this project”

I have observed Northern Harriers, previously called Marsh Hawks, foraging in an area slightly South of the park's barn. Henry David Thoreau wanted to re-name this bird Frog Hawk, because frogs were their favorite prey. Mallards have been seen entering and leaving this marshland area and have been documented as breeding there in 2003 and 2004 by our local Audubon Society Group of which I am a member. The marshes are also used by Marsh Wrens and Wilson's snipes. This area is not currently recognized in the Park's application or its maps.

Clearly a certified wetlands consultant needs to be hired, so that this wetlands area can be fully evaluated in the draft EIR.

Another area that has not been addressed in this application is the impacts on birds and other wildlife by lighting and sound volumes from the proposed athletic fields and swimming pool, not to mention the added vehicle traffic that comes with them.

Three species of birds that immediately come to mind that would be adversely affected are the White-tailed Kites, Western Meadowlarks, and Grasshopper Sparrows. Lighting up the park with amplified PA systems for athletic activities will leave these and many other birds and other wildlife, with no alternative but to move on, but to where when wildlife habitat is being encroached upon virtually everywhere?

The proposed large amplified music events would bring even more adverse impact upon the wildlife of the park as well as the human neighbors of the park. Why can't we just co-exist with the wildlife of the park instead of insisting upon the right to ignore and overlook all the other creatures and neighbors of the park and destroy the beautiful, natural, open space ambience that the park presently provides?
Respectfully yours,

John Christianson

-----Original Message-----
From: Margaret Lewis [mailto:emell@wavecable.com]
Sent: Sunday, September 12, 2010 5:40 PM
To: Richardson, Michael
Subject: Southern Humboldt Community Park

Greetings
I attended the scoping meeting at the Southern Humboldt Community Park Friday afternoon. Thank you for coming down to Garberville and listening to the concerns of residents and inviting additional comments from others.
I did not speak at the meeting. Often, others speak to my concerns and are more articulate, so I defer. Some of my concerns were touched on at the meeting, but the main problem, as I see it, was not.
I am a resident of the Kimtu neighborhood, and generally see the park as a wonderful addition to the entire region. I have long enjoyed the playground and made use of it in many different ways, from spending time there with my children and grandchildren to meeting there with friends, picnicking, accessing the river, and more. I have enjoyed various non-profit events at the barn and attended other events such as weddings and memorials. I was a member of the CSA (Consumer Supported Agriculture) the first year it was available.
I was not disturbed by the amplified music event that triggered most of the controversy about the use of the park. The sound apparently was directed more to the north due to the geography of the park. But the objections raised by those who were disturbed by it caused me to look at the history of the organization and become more involved in the ongoing interface between the community and the park's board.
My main concern is the park's apparent desire to host large events (such as the Summer Arts Festival mentioned on Friday) of up to 5,000 people and the traffic that would be generated by such an event.
The upper part of Sprowel Cr. Rd. (closest to Garberville) is extremely fragile. The hill across from Leino Ln. (470 Sprowel Cr. Rd.) has slid onto the road several times since I've lived here (4 yrs.) and many times before that. Since the property changed hands last year and some new ditches put in, the situation has worsened, not improved. Apparently, the ditching was not done properly - this information derived from a conversation with Marty Messenger, the CalTrans project manager for our area. As late as the end of June, water was still issuing from the hill and flowing across the road and down to the lower part of the hill. A few years ago the portion of the hill below the road slid out and caused a gap several feet deep and about 20 feet long that took a long time to repair. The road is not even sufficient for the existing traffic, especially the concrete mixers and gravel trucks, which travel up and down the road every day, and other large commercial vehicles, let alone the increased traffic a large event would generate. I'm thinking of trucks, campers, trailers, shuttle buses and other large vehicles, not just passenger cars. Additionally, the road is not safe for pedestrians or cyclists. There is no shoulder for them to walk or ride on and there are several blind curves along that section of the road. I've noticed that, with the opening of the park, the foot traffic has increased. I think that's a good thing, but would like to see a safer route for them.
There is also the proposed traffic diversion along Kimtu road, around the loop and back as people wait for parking. I don't know if you have looked at that section of road, but it bears careful examination. There are two sections that are one lane. There is another fragile hill that has water issuing most of the year and a low point that has been impassable during the flooding of winter storms. My main concern, though, is one of safety. With traffic backed up along Kimtu Rd. I'm having difficulty imagining how emergency vehicles would enter in the case of fire, accident or medical emergencies. This is my most serious concern.
Thank you for inviting these comments and considering the many facets of this project.

Sincerely,
Margaret Lewis
Note: I sent you a composite photo of the several areas mentioned under separate cover

From: Susan Gardner [mailto:sgardner@redwoodtimes.com]
Sent: Tuesday, September 07, 2010 4:18 PM
To: Richardson, Michael
Subject: SHCP

Good Afternoon Mr. Richardson,

My husband and I would like to comment on the rezoning of the Southern Humboldt Community Park in Garberville. We live on Kimtu Road right next door to Steve Dazey's 70+ acres. We are extremely concerned about increased traffic down the already treacherous Sprowel Creek Road and Kimtu Road, which is also very narrow with very few turnouts. The park has expressed possible plans to reroute excessive traffic down to the Kimtu subdivision cul-de-sac at the end of the road, which is a dead end. This is totally unacceptable. If both lanes are blocked, residents of Kimtu would be blocked in and unable to get out or have emergency vehicles/personnel reach us. Neither of these roads are equipped to handle this amount of increased traffic for these kinds of events and should not be allowed.

Also, addressing the noise issue. The location of the park is in a natural bowl. The sound travels for miles around the Garberville area up to four miles in all directions. People in Benbow, way out Sprowel Creek and Old Briceland Roads, up the hill to the east in the town of Garberville, and even further east in the Meadows Subdivision way above Garberville can hear every foul word coming out of large speakers used for these events. Even if curfews are instituted, the park board has proven they are unable to control the crowds and/or the promoters of these events and should not make promises they cannot keep. And, then there is the problem of 1,000 campers at the park, who will undoubtedly run generators late into the nights/early mornings at these events.

The thought of 1,000+ vehicles parked down on the river bar is disgusting. This is where many people get their water and the thought of the river bar being graded and cars leaking fluids onto the ground and into the river is unfathomable and should not be allowed. This is a Wild and Scenic River and should not be desecrated in this fashion.

We are looking forward to the scoping meeting on Thurs., Sept. 9. It is unfortunate it is being held at the park instead of a more neutral location.

Thank you,

Mike and Susan Gardner
890 Kimtu Road
P.O. Box 545
Garberville, CA 95542

October 27, 2010

Attn: Michael Richardson, Senior Planner
Humboldt County Community Development Services
3015 H St. Eureka, CA. 95501
707.268.3723
mrichardson@co.humboldt.ca.us

Re: Southern Humboldt Community Park General Plan Amendment Application
SCH # 2010092037 CEQA EIR Notice of Preparation Public Comment

To: Humboldt County Board of Supervisors, Planning Commissioners, Community Development Services & Senior Planner Michael Richardson:

We the Voice Family, neighboring home and property owners since 1966 do not approve of this General Plan Amendment in any form. We oppose the staff report, application and all three proposed project(s) completely.

This CEQA NOP EIR Initial Study Checklist (IS) is not only incomplete and insufficient in all supporting referenced studies and reports that the public requested and could not obtain from the Park Board or lead agency, but are non-related to this project and used from a Lot Line Adjustment on the Park property (CEQA MND LLA-04-02M SCH # 2006022098).

It fails to address any aspect of direct, indirect and cumulative effects to the environment below significant levels, including, mitigation from professional studies or any alternatives what so ever.

The Voice Family feels that without sufficient documentation contained within the IS, it would make better sense to make our public comments to a real Draft EIR. That detailed public comments would only help the Planning Department further its own fishing expedition, gathering information for the Draft EIR via public comments, instead of from the Park Boards consultant.

We feel this CEQA process is completely bass-ackwards, when the NOP was filed with the State Clearinghouse and sent to agencies, a Draft EIR should have been written and submitted at that time, including updated information and amendments to appendix “G” effective March 18, 2010, which are not included in this IS. We also strongly urge you to hold another EIR Scoping Session in Southern Humboldt (public facility) before the Draft EIR is released for public comment.

To make matters worse, in the last 6 weeks since the Scoping Session on September 9, 2010, the Park Board has made 4 different attempts in the local newspapers to change wording and information within their current NOP IS. In other words they keep changing the NOP. We would rather wait until we can read and study a document that doesn’t keep moving about.

Our final comment would be to support the comments submitted by the local CHP office for this proposed project(s) and events. Now given the fact that the CHP does *not* and will *not* support this project (even after a meeting with the Park Board on 10/18/10), we do not know how this project can continue on its present course and direction as submitted by the Park Board.

Thank you very much for your time, consideration and service to this County,

Ed Voice & Voice Family, Mrs. PJ Voice & Mr. MJ Voice
33 River Crest Drive
PO Box 580
Garberville, Ca. 95542
707.349.1069 evoice@mchsi.com

Virginia Graziani
PO Box 2213
Redway, CA 95560
(707) 923-1205
vgraz44@gmail.com

RE: Application for General Plan Amendment
Southern Humboldt Community Park
APN 222-091-06 et seq.
Comments on CEQA environmental checklist

October 5, 2010

OVERVIEW

Before addressing individual items on the checklist, I would like to make some general comments.

One of the speakers at the 9/8/10 scoping session undoubtedly expressed the feelings of many when he said, "We want a park run by the people, not by the government." Unfortunately, since the Southern Humboldt Community Park is a non-membership non-profit corporation with a self-appointed board governed by self-written by-laws, the only legally effective input community members have is through the county planning process and the state CEQA process. While the SHCP board holds public meetings from time to time, it is in no way required to consider seriously, let alone act upon, the input it receives unless that input is also part of a state or county government process. In short, this park is not "run by the people"; however flawed, government provides the only resource for persons wishing to participate meaningfully in shaping the park's future. SHCP is in exactly the same category as any other private development group, except that it does not pay taxes on its land.

The outstanding flaw in SHCP's application for a General Plan Amendment is that it provides a "Plan of Operation" only for events and not for the multiplicity of other activities proposed. Likewise, it offers no discussion of how the various uses might overlap or impact each other. In other words, there is no overall Plan of Operation. Without a comprehensive Plan of Operations, assessing the impacts becomes an exercise in speculation. There are, however, impacts that seem likely when one applies common sense and a knowledge of the area to the draft environmental checklist.

The most controversial of the proposed uses are events and housing; obviously these are the most likely to have multiple impacts on the neighboring community and the environment. Next most controversial is the scope of the planned athletic complex. The fact that the southern Humboldt area needs housing and recreational facilities, and that many people enjoy large events that may also be economically beneficial, does not mean that this site is the best place to put them, or even a good site for them.

Regarding multi-family housing, SHCP admits they don't have a plan and don't even know how many units they will build. At a meeting with park neighbors last November board member Peter Ryce cautioned the public that the board is not sure the housing will be "affordable," although the application cites the need for affordable housing as a reason for allowing the zone change. Other SHCP directors, as well as the executive director, have frequently said that SHCP sees the housing project as a way of creating an "endowment" to keep the park financially viable in perpetuity; it is unlikely that "affordable" housing can provide an "endowment"; to generate adequate revenue, SHCP may well have to raise rents/unit prices beyond the "affordable" level. Furthermore, land for housing is already available and unused in the Redway-Garberville area (most notably approximately 200 acres along Redwood Drive that was annexed to Redway CSD in 1997 but never developed). The problem with affordable housing in this area is how to create it and keep it affordable in a depressed legal economy, not lack of sites.

Regarding events, SHCP fails to consider the fact that several other event sites are available nearby -- including Benbow State Recreation Area, French's Camp, and the Dimmick Ranch, where large, multi-day events have been held successfully for years. Squabbling among local organizations is the main reason these sites are not used more often; if community groups worked together more cooperatively, there would be no need for an additional large event site.

Regarding athletic facilities, there is a real need for adequate facilities for youth and adult sports teams. Local school fields are too small and too few to provide enough opportunities for everyone who wants to play baseball, soccer, and basketball. Unfortunately, since the entire portion of the park that is flat enough to make ball fields feasible is also prime agricultural soil (see discussion under II., Agricultural Resources), any sizeable sports area would result in a conversion of agricultural land. Some facilities, such as the swimming pool would in be better sited in other locations, where infrastructure is already available.

Several people at the scoping meeting urged the community to think of Central Park in New York, Stanley Park in

Vancouver BC, Golden Gate Park in San Francisco, etc. as they envision SHCP's future. In the first place, all those parks are owned and managed by municipalities with municipal resources, and whose elected officials are responsible to the people. But more importantly, we should remember that Southern Humboldt is not New York, Vancouver, or San Francisco, where people live in crowded urban conditions and look to their city park as a haven of greenery, "nature," and a rare opportunity for outdoor recreation close to their neighborhood. Our community park needs to be in scale with our population and the character of our community, not an imitation of a big city park.

I am including a copy of my letter to the Planning Department dated February 27, 2001, in response to a preliminary application by the Mateel Community Center for a CUP to permit the Summer Arts Fair on this property, which had recently been acquired by Southern Humboldt Working Together on behalf of an as-yet unformed non-profit corporation that would own and manage the community park. Although some of the information is outdated, overall the comments made nearly 10 years ago still apply. Please note that while SHCP has finally applied for a General Plan Amendment, as recommended in my 2001 letter, it has not yet presented a detailed plan for the park as a whole that describes how the various uses will be integrated with each other, nor has it addressed the integrated cumulative impacts and mitigations thereof of all proposed uses.

Finally, creating an entirely new land use designation ("Public Recreation") as part of an application by a private party for a General Plan Amendment is clearly backwards, putting the cart before the horse, allowing the tail to wag the dog. My comments under Section IX, Land Use and Planning, elaborate on this.

COMMENTS ON ENVIRONMENTAL CHECKLIST

I. AESTHETICS

a), b), c) The applicant proposes to change the character of most of the north side of the property, with potential impacts to views from the parts of Garberville closest to the park and those homes sited on the hillside north of town. The athletic complex and housing project will require excavation and leveling of land, as well as adding buildings and parking to an area currently open. This is potentially significant without mitigation.

d) Night lighting for sports events, music events and festivals on a temporary basis, and security lighting for housing and its associated parking areas, which would be permanent, will have significant impacts unless mitigated.

The applicant makes assertions such as, "it is determined that it would not have a significant impact" without citing back-up studies or methods used to make this determination.

II. AGRICULTURAL RESOURCES

Other commenters with more agricultural knowledge than I are addressing this extremely critical issue in detail. I concur with them that the impact to agricultural resources is one of the most significant impacts this project has under both CEQA law and county land use policies. Loss of productive agricultural lands, especially in flat riparian areas where fruit, vegetables, grains, and high-quality animal feed can be grown is particularly significant in southern Humboldt. Much lip service is paid to the idea of local food self-sufficiency without reaching the logical conclusion that other worthy land uses, such as housing and recreation, should be placed elsewhere in order to protect the food-growing soil resource.

a) Reference to maps under the California Farmland Mapping and Monitoring Program is not relevant because Humboldt County is not included in that program. Instead, Humboldt County uses Public Resource Code PRC 51201c 1-5 to identify prime ag soils. Under these standards approximately 150-160 acres of this property would qualify as prime ag soil.

Much of that area would be converted to use for the athletic complex, parking, and smaller events; and much of the remainder of that seems to be proposed as dedicated habitat for the Grasshopper Sparrow, which is neither an endangered or threatened species (see comments on Section IV, Biological Resources), effectively limiting agricultural production to the the approximately 18 acres bordering Kimtu Road that now comprise the Community Farm. Approximately 13 acres of that area were used this year, 2010, including the community garden and a wheat project. Incidentally, this is the most acreage ever used for farming so far. While the farm appears to have been successful, other agriculture use has consisted of only some desultory cattle grazing several years ago and one cutting of hay per year on less than 40 acres, far below the capability of 80 acres of prime soil.

Citing the previous "conversion" of the Tooby Memorial Park area as a precedent dodges the issue.The site of the Memorial Park is dominated by a redwood grove and a gravel bar. Furthermore, county land use policy includes minor areas of non-agricultural land within agricultural land use designations when a significant majority of the area is productive ag land.

The applicant states that its goal is to "maximize the agricultural production of the properties [sic], while at the same time allowing public access for recreation," but does not state a plan for how this will be done. Even the "soft" recreational uses already established have had some impacts, largely because of SHCP's desire to "improve" the property in various ways; for example, rocking the trail instead of using biodegradable material, placing a frisbee golf goal square in the middle of a productive field, dumping debris from the gravel operation on a portion of the community farm fields, and effectively converting the barn, where equipment and hay could be stored, into an event and meeting center.

While many of these changes seem minor for now, they indicate a lack of knowledge of agricultural management on the applicant's part and a lack of imagination or will to find ways to achieve even modest recreational goals without damaging agricultural resources.

Add to this the proposed plans for numerous events, the athletic complex, and a multi-family housing development, all of which will have impacts on the land far beyond their nominal footprints, and the potential for significant impact is unavoidable and must be addressed with extensive, well-planned mitigation, or these uses will not be in compliance with CEQA requirements.

c) Comments under "a" suffice for now. A detailed mitigation plan is required. Please note that the applicant has fielded a number of "mitigations" in public discussion that are close to nonsense. Allowing one cutting of hay and then using a potentially highly productive field as a parking lot for the rest of the growing season is a travesty. Gardens in the housing area do not qualify as "agriculture" (defined as "the commercial production of food and fiber") and do not mitigate for loss of productive soil on other portions of the property. Intensity of production in one area does not mitigate loss of production in another. Allowing grazing, even of cattle, sheep, or goats, is a very weak mitigation for loss of production on soil that could produce food crops or higher-quality animal feed. Grazing horses is not agriculture because it does not produce either food or fiber; arguably, the grazing of draft horses would be mitigation if those horses made a significant contribution to food production, but this seems more like a hobby than a serious alternative to much more efficient and cost-effective motorized equipment. Finally, while creation of wildlife habitat is desirable in many ways, it is still a conversion where agriculture has been the historic use of the land and must be mitigated.

III. AIR QUALITY

b) (and possibly others) The applicant does not address dust during events. Environmental impact reviews for other large events in the area, such as Reggae Rising on the Dimmick Ranch, required mitigation for dust control when large numbers of vehicles and persons were using the site. The applicant must address this issue.

IV. BIOLOGICAL RESOURCES

a) The Grasshopper Sparrow and Western Meadowlark are neither endangered nor threatened species, although the Grasshopper Sparrow is considered a California Species of Special Concern. I do not wish to treat any species lightly, but as far as I know this status cannot be used to restrict agricultural activity, as SHCP has frequently stated.

If these two species appeared on the property only after it was acquired by SHCP and left ungrazed and unmowed, where did these birds come from? Without a survey of the entire area, it is impossible to determine what other habitat exists in the area and how likely such alternative habitats would be to support a viable population. It may well be that plenty of habitat currently exists on large privately-held ranches in the area, so that if these birds were unable to nest at SHCP, they could still maintain robust populations.

On the other hand, while justifying restriction of agriculture by citing protection of the nesting grounds, SHCP has never addressed the question of the impact of increased and more varied use of the park, particularly of events, on the birds' habitat. The potential impact of recreational use and events must be addressed in detail in order to reach "less than significant impact with mitigation" status.

Increased recreational use and events in particular lead to increased water use and sanitary waste disposal. Incorporating housing adds to further need for water and wastewater treatment.(See comments in Sections VIII, Hydrology and Water Quality.) This in turn poses potentially serious impacts to endangered salmonid species in the South Fork Eel River. No mention is made of these species in the applicant's comments. Impacts to these species must be addressed in the EIR.

V. CULTURAL RESOURCES

a) I am uncertain as to whether the existing houses, barn, and other structures on the property are considered historical resources. They certainly seem like good candidates. Use of the barn has already changed as it has become an informal event/meeting center, and SHCP proposes turning the old farmhouse into a visitor center. More information is needed to determine if this creates "a substantial adverse change in the significance of a historic resource…" and if so, what would constitute appropriate mitigation.

b) and c) Regarding Native cultural resources, a speaker at the 9/8 scoping meeting pointed out that traditional basketmaking and ceremonial materials have been found on site and are still being used for those purposes. This requires a consultation with local Wailaki groups to determine impacts and proper mitigation. Unlike human remains or artifacts like tools, biological cultural resources are likely to be overlooked during construction and further human activities, and then be inadvertantly damaged or destroyed unless measures are taken ahead of time to identify and protect them.

VI. GEOLOGY AND SOILS
I don't have the expertise to comment on this subject, although I understand there is an earthquake fault on the property. In general, it is well known that this part of the county is extremely unstable geologically.

VII. HAZARDS AND HAZARDOUS MATERIALS

h) Increased activity and use of the park increases the risk of fire. This is particularly true at events where participants, even though told not to do so, may smoke, build campfires, drive vehicles across tall grass, or set off fireworks. The larger the crowd, the more likely a careless act could start a fire, the less likely that event managers will be able to detect a potential problem before it occurs, the more likely that serious injuries and property damage would occur.

This is particularly significant under this CEQA category because the park is specifically "adjacent to urbanized areas" (Garberville) "or where residences are intermixed with wildlands" (the Kimtu and Rivercrest subdivisions, homes along Sprowel Creek Road and Leino Lane).

In the past the barn has been used as the center of many events, including as a "haunted house" for the annual kids' Halloween party. It is neither fire- nor earthquake-safe. It would be much less hazardous to continue the barn's historic use as an agricultural structure and hold such events somewhere else.

Furthermore, many activities and increased use in general means more people walking along Sprowel Creek Road and more cars in the area, increasing the likelihood for accidents. Additionally, Sprowel Creek Road might be seen as a long, thrilling introduction to the proposed skateboard park.

Alternative emergency access has not been well thought out and may be impossible. (See comments under Section XV, Transportation and Traffic.)

VIII. HYDROLOGY AND WATER QUALITY

a) Simply stating that the project will not violate water quality standards or waste discharge requirements is a completely inadequate response to this question.

In fact, the project includes adding quantities of human waste without specifying how this will be handled. Currently there are small septics serving the two houses on the property, and the public uses two barely adequate portapotties.

Soils in this area may not support leachfields because of modern standards, and possibly even the existing septic systems would not be allowed if they were proposed today.

The project is immediately upstream of Garberville Sanitary District's water intake that serves the entire town of Garberville. GSD has indicated concerns about leach fields in areas that are likely to remain saturated from mid-winter well into spring. Please also see comments under XVI, Utilities and Service Systems for more details re GSD.

Water withdrawals from the river to serve the project can also result in decline of water quality (see b, below).

Before SHCP can state with certainty that the project will not affect water quality, they need to detail their wastewater treatment plan and it needs to be reviewed by a disinterested, competent third party. Certainly the North Coast Water Quality Control Board will be weighing in on this.

b) Again, an unsubstantiated assertion of no depletion of groundwater supplies and recharge. This brings up the question of where water to serve the property will come from. See XVI, Utilities and Service Systems, for a full discussion of water availability. If the project relies upon wells and springs, then review of the impacts of those water sources must be included.

c, d, e) I do not have enough technical understanding of drainage to address this.

f) See a, above. Without a plan from SHCP, I would rate this as "potentially significant."

IX. LAND USE AND PLANNING
b) The applicant acknowledges that there is potentially significant impact on land use policy on the checklist and then defends it evasively and disingenuously by referring to selected statements in the GRBA Community Plan.

To begin with, the applicant requests that the county create an entirely new land use designation for the whole property, described as "Public Recreation (PR), which would allow Natural Resources uses, Resource Production uses, Recreation uses, and Education and Research uses." For an applicant to propose this and fold it into a request for a GPA is the tail wagging the dog.

First, the county must develop standards for the new designation, and those standards must be reviewed and approved by the Planning Commission and Board of Supervisors so the suitability of this or any piece of land for the new designation can be evaluated in a way that is standard-based, objective, accurate, and fair to this and any future applicant and the applicants' communities. Only when this process is complete and the designation is included in the General Plan, should SHCP or any property owner be permitted to apply for a GPA to change the designation.

In short, I believe there is no way this applicant (or any applicant) can avoid significant impact to land use policies when applying for a non-existent land use designation; therefore, in my opinion, this application fails on this point alone.

Even if the new designation is added to the General Plan, an applicant for a GPA will still need to demonstrate why the change does not constitute a conversion of agricultural land, if the property includes productive agricultural land as defined in the Public Resources Code.

Please note that contrary to SHCP's assertions the proposed housing project is sited in an area historically used as an orchard, so it is a potentially productive agricultural site. (Other categories of impacts of housing are discussed under the relevant sections of the checklist.)

The land use impact is conversion of productive agricultural land to other proposed uses. There are approximately 150-160 acres of productive and potentially productive agricultural areas, as determined by PRC 51201c 1-5, the standard used in Humboldt County; SHCP proposes to keep approximately 13-18 acres, the area used by the community farm, in agricultural production, and convert the remaining 80 acres of prime soil to athletic fields, a field house, a visitor center, sites for smaller events, "wildlife habitat" (see comments in Section IV, Biological Resources), and parking for large events. Mitigation proposed for this is one cutting of native grass hay per year in the parking, which would need to be done in any case for fire safety and a single rotational cutting of no more than 40 acres at a time on the balance of the open fields. Some of the area currently being cut once yearly will be converted to ball fields. Additionally, SHCP proposes several other token measures, such as a minimal amount of grazing and encouraging vegetable gardens in the residential area. (See Section II, Agricultural Resources, for more details.)

Applicant also refers to a statement within that the GRBA plan referring specifically to the "Tooby Flat area" that says, "Subdivision design should also consider incorporation of agriculturally related recreational amenities such as horse stables and trails in order to mitigate agricultural/residential use conflicts by making agriculturally related uses a continued part of subdivision design." This hardly justifies the scope of recreation SHCP is proposing for the entire flat. As I read this, the GRBA is recommending a kind of buffer zone comprised of "soft" outdoor recreation such as hiking and riding facilities between the residences and the agricultural area, which would reduce the impacts of farming -- noise, dust, smells, etc. -- on the residences as well as keeping residents away from the agricultural activity. SCHP's plan is an entirely different one: replacing a productive field below the residential area with an athletic complex and parking, routing the majority of the trails away from the residential area, and developing several types of recreation that are clearly not "agriculturally related" either on the perimeter of the agricultural area or directly in other productive areas.

As for the Public Facilities designation, while the GRBA plan does call for more land set aside for public facilities, Section 2761 of the current (1984) General Plan states, "The Public Facilities designation is utilized to classify land appropriate for use by a governmental agency or public agency…." Parks are listed as a compatible use within this designation, but clearly this means parks owned by a public agency such as the county or a public services district.

No such thing as a "PF" zone currently exists. In the General Plan, lands designated PF are permitted a wide range of zoning to allow for such potential uses as public housing, but again, the intention appears to be that the land and projects on the land are owned by a public entity.

As an example of land owned by a non-profit corporation and frequently used by the public, the Mateel Community Center in Redway, which is open to the public for a wide range of events including meetings, concerts, festivals, weddings, memorials, conferences, classes, a "community meal," etc., is within land use designation CS, Commercial Services. The zoning on the MCC property is CH, a commercial type of zoning.

X. MINERAL RESOURCES
I do not have the expertise to comment on this section.

XI. NOISE
a, b, d) Clearly, noise is of great concern to the neighbors. Residential areas of Garberville are at the top of the hill above the park. Several small residential clusters are nearby: the homes on Leino Lane, and the Rivercrest and Kimtu subdivisions. Because the site is in a "bowl" a disturbing amount of noise from past unpermitted concerts has been heard by residents on Sprowel Creek and Old Briceland Road miles from the site.

Furthermore, the impact of noise from events on wildlife needs to be assessed as well. Most wild animals are more sensitive to noise than humans are. As far as I know, this has not been addressed by the applicant or the county.

An additional factor is the number and size of noise-creating events. While one event per year might not be tolerable to humans and wildlife, frequent events, even if they are smaller, could create a serious ongoing problem. The cumulative impact of loudness, frequency, and distribution of noise-producing events needs to be assessed over the course of a year -- not simply on a one-at-a-time basis.

A thorough sound study by a third party capable of complete objectivity is necessary to determine potential noise levels.

Monitoring of sound levels to be sure they are in compliance is necessary, but it is not the only mitigation measure needed. The applicant needs to develop a pro-active plan to keep noise at tolerable levels throughout the event season.

I would rate items a and d as "potentially significant" impacts.

XII. POPULATION AND HOUSING
While the applicant points to their proposed multi-family, senior, or workforce housing as beneficial in a community short of housing, other more problematic aspects of the impact of the project as a whole have not been addressed.

One can only speculate on the effect of a fully-built-out recreational complex with frequent events and their attendant impacts will have on the desirability of living in the Garberville area. On the one hand, the abundance of recreational opportunities may well be attractive. On the other, owners of property close to the site may find it less than desirable to live in proximity to an recreational/event complex that generates large amounts of traffic, noise and lights at night, and so on. In many ways, all impact categories influence this item.

More specifically, residential development tends to create a domino effect: rezoning one parcel of land to permit residences puts the next parcel in line for re-zoning, and so on. By gradual steps, a rural area is urbanized. This may be inevitable with a growing population, but at least in the last decades growth in Humboldt County, and particularly in southern Humboldt, has been quite slow. Problems of affordability should be addressed with infill development, incentives to developers, searching out new funding possibilities, and general economic development before more land is opened to development in the name of "affordability." As stated in my Overview, I think the problem in the Garberville-Redway area is primarily due to economic conditions, not to scarcity of land legally capable of development.

XIII. PUBLIC SERVICES
The applicant's statement, "This project is not expected to have a negative impact on public services" is egregious nonsense.

The addition of possibly as many as 38 new households in the proposed housing complex, plus six "medium" to "large" events of 500 people or more, plus "unlimited" numbers of smaller events throughout the year, plus increased use of the park due to the development of many new facilities including an athletic complex that already has people dreaming of hosting regional tournaments, clearly will have an impact on the already greatly strained fire, police (sheriff), and medical services within the community.

SHCP frequently points to the economic benefits of attracting more visitors with concerts, conferences, and sports events in the park, but in fact motels and campgrounds in the area are nearly always full on weekends during the warm season, so if indeed the project does significantly increase numbers and stay lengths of visitors, more facilities will need to be built for them in the area, requiring more services.

Of course, all this will not happen overnight but in increments, if it happens at all. But such impacts need to be considered in the planning process, not brushed off as "no impact," especially since SHCP appears to see complete build-out of all proposed uses including the housing as necessary to provide adequate revenue ("an endowment") to maintain the park.

Garberville Sanitary District supplies water to two existing homes on the property with a 3/4" line "inherited" from the privately owned Garberville Water Company. SHCP's property is within GSD's sphere of influence, not its annexed

boundaries. GSD is planning review of its SOI with Humboldt LAFCo and has promised to schedule a series of community planning meetings this fall. GSD's current sphere of influence is extremely large relative to the size and capacity of the district, so it is quite possible that LAFCo may recommend reduction of GSD's SOI, as they have in some other jurisdictions in Humboldt County.

Furthermore, GSD staff has stated that it is approaching the limit of water availability in the South Fork Eel (see comments under Section VIII, Hydrology and Water Quality, and XVI, Utilities and Service Systems).

Ratings for fire protection, police protection, parks (by which I mean Humboldt Redwoods State Park and Benbow State Recreation Area, which will be impacted by SHCP event attendees looking for campsites during the state parks' busiest seasons) and other facilities as "potentially significant," until SHCP develops a detailed plan of operation that accounts for impacts to these local facilities, in which case these might be rated as "less than significant with mitigation."

XIV. RECREATION

a and b) See my comments in Section XIII, Public Services, above. There is a potential for significant impact by increasing demand for campsites within the new nearby state facilities. Opening new campgrounds within these parks would certainly have environmental impacts and would require thorough review. On the other hand, the state of California is not likely to be investing in new development of any kind in its park system until the state economy greatly improves. Potentially, eventgoers who are unable to find legal campsites might camp illegally in the parks, causing some damage. This needs to be taken into consideration.

Camping on the property creates an increase in many of the impact categories that must be accounted for if camping, even for staff and vendors only, is to be permitted. SHCP should also clarify what it means by "specialty camping," listed as one proposed use. If they are looking at holding overnight workshops or conferences and plan to have attendees camping at the park, they need to plan for a dedicated camping area and include assessment of its impacts in this study.

Not yet under consideration is the impact of one kind of use within SHCP on others, most particularly, the impact of events drawing large numbers of people on the "soft" recreational uses of the park, like walking, biking, horse riding, picnics, and the quiet, informal enjoyment of a beautiful natural area now cherished by many of the park's most frequent users. Likewise, what is the impact of large events, including sports tournaments, on the residences of the multi-family housing and vice versa? While many people enjoy such events, few people want to live next door to them. Without sound advance planning, the viability of one aspect of SHCP's plans for "endowment" may be at odds with another.

Regarding environmental impacts, a comparison between impacts resulting from everyday "soft" uses and those resulting from events, including athletic tournaments, should be analyzed in order to present a more accurate picture of the impacts of recreation.

As I stated in my 2001 comments, SHCP needs to develop an overall plan of operation that integrates all uses of the park, assumes that people walking and biking for exercise or pleasure, or kids playing outdoors, or families and friends picnicking on the property, have the right to peaceful enjoyment of those activities even though large, complex events drawing hundreds of people are going on simultaneously. The impacts of an event, especially a festival type of event, always exceed their footprint, and the rights and interests of all park users must be accommodated unless SHCP is willing to give up all pretense of a "public" park.

XV. TRANSPORTATION AND TRAFFIC

a and b) The applicant acknowledges potential significant impact. In the response to b), the applicant compares Sprowel Creek Road to the Briceland-Shelter Cove Road, noting that the latter has greater traffic loads, sharper curves, etc. The Briceland-Shelter Cove Road is the scene of many serious accidents every year. (Nonetheless, Briceland Road is wider than Sprowel Creek Road and clearly marked with center lines and edge lines in most places.) The slightly better condition of Sprowel Creek Road in comparison does not justify increasing traffic without serious mitigation. (Furthermore, note that "Dazey and Son Enterprises," authors of the February 2004 traffic study, is comprised of SHCP's founder, Steven Dazey and his son; a conflict of interest is apparent. I would also question their qualifications as traffic analysts.)

Off-site parking as a mitigation for increased traffic to events leads to the question of where that parking will be located.

e) There is NO adequate alternative emergency access to and from the park or to and from property other properties along Sprowel Creek and Kimtu Roads if Sprowel Creek becomes blocked or critically congested. The event Plan of Operation cites a detour via Old Briceland and the Briceland-Shelter Cove Road. On a clear day with little traffic, driving a small passenger car at prudent speeds, it took me 37 minutes to travel the 17 miles from the Sprowel Creek Bridge near the SHCP entrance to the emergency entrance of the hospital in Garberville. The approximately 7 miles of Old Briceland Road took 21 of those minutes: it is in abysmal condition, uneven, full of holes, with several unpaved stretches, many places where it is only one lane wide, and with many, many curves much sharper than the curves on the other two roads.

Residents on Kimtu Road past SHCP have no alternative way of getting out, or allowing emergency vehicles in, if Kimtu Road or the Kimtu/Sprowel Creek intersection is blocked. There is no other road, not even a bad road.

f) The parking issue needs to be studied further because of potential impacts in other categories. Off-site parking for events will be competing with ordinary parking use in Garberville, where parking is already difficult. Garberville is the service and shopping hub for the entire southern Humboldt region and is heavily used, especially Friday through Sunday, by local residents and during the warm season by tourists coming to visit the redwood parks. SHCP must have a plan for off-site parking that does not conflict with normal levels of parking in the area.

XVI. UTILITIES AND SERVICE SYSTEMS

a b, and e) With a multi-family housing project, new public bathrooms, and the field house that probably will include bathrooms, SHCP will certainly need to expand its waste treatment capabilities.

While SHCP is within Garberville Sanitary District's sphere of influence, it is not within GSD boundaries and it is unknown if GSD will, in fact, ever annex and serve this property. (See comments under XIII, Public Services). Furthermore, although GSD is currently rebuilding its wastewater treatment plant, with completion expected in early 2011, GSD's capacity to serve new growth in the area will not be known until the new plant is up and running for at least two years, according to GSD General Manager Mark Bryant. Furthermore, connecting to GSD's wastewater treatment system will require pumping sewage uphill to the collection main near the intersection of Sprowel Creek Road and Highway 101.

Developing an on-site system at SHCP is problematic because of soil conditions and high groundwater levels, particularly in the wet season, and the proximity to GSD's drinking water intake. (See comments under VIII, Hydrology and Water Quality.)

This is quandary that cannot be resolved simply by checking the "no impact" box.

c) Common sense suggests that new buildings, particularly a housing complex, will alter drainage patterns, so this needs to be looked at more closely.

d) Exactly what are these "abundant water sources"? GSD inherited responsibility for water service to existing ranch buildings when it purchased the privately-owned Garberville Water Company and currently serves those buildings with a 3/4" pipe. It has no existing obligation to expand service on the property, and in fact is restricted by the county to using the line to serve only existing houses.

The Humboldt Local Agency Formation Commission recently approved extension of GSD water service to the Kimtu subdivision at the end of Sprowel Creek Road only because of health and safety risks to existing households, and with the provision that the new line to be laid down Sprowel Creek Road must be used to supply water only to those existing 20 homes.

Furthermore, the state considers the South Fork Eel "fully allocated." While on paper GSD has enough to spare in its allocation to serve this project, GSD General Manager Mark Bryant personally told me, "This river is done," meaning that regardless of the amount of the allocation, there is simply not enough water in the river for any more withdrawal. GSD staff and board of directors have essentially taken this position publicly and appear to be bending their efforts toward encouraging water conservation and recycling to maintain adequate water for their current customers.

River conditions preclude SHCP from relying on their riparian rights as well. Riparian rights under law cannot be exercised if the result is harm to downstream users, such as the towns of Garberville and Redway; the Department of Fish and Game also has increasing ability to curtail use of water rights when doing so is harmful to salmonids. Significant water withdrawal all by itself can be damaging to water quality (see a, above).

Water currently drawn from the riparian well would also have to be treated for human consumption, so a treatment plan would be required.

A 55,000-gallon storage tank will not be adequate to see the completed project, including the housing complex, through the dry months, particularly since water storage for fire flow will be required to protect the residences. The capacity of the upland springs and well on the property has not been stated.

e) see comments above under a and b.

f) and g) I don't have the expertise to comment.

In summary, I feel there are potentially significant impacts in items a, b, d, and e, and that more information is needed to determine the potential impact in items c, f, and g.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE

a) I have noted potentially significant impacts to wildlife in Sections IV, Biological Resources, a; XI, and Noise, a, b, d.

Impacts requiring mitigation to pre-historic and historic resources were noted by the applicant in Section V, Cultural Resources, c; and I have noted potential impacts in Section V, a, b, and c.

b) In my opinion, the project has potentially significant impacts in almost every category, although some may be reduced to less than significant with mitigation. Following is a summary of my comments:

I. Aesthetics -- a, b, c) change in visual character; requires mitigation; d) lighting, will require mitigation.

II. Agricultural Resources -- a) conversion with inadequate mitigation proposed. c) likewise; the applicant rates this as "potentially significant." Proposed mitigation is inadequate.

III. Air Quality -- b) mitigation needed for dust during events.

IV. Biological Resources -- a) potential impact of noise from events on species; need to address impact of water withdrawals/quality on endangered salmonids in South Fork Eel.

V. Cultural Resources -- a) if the existing structures are historical resources, then mitigation must be addressed; b and c), need to address impacts/mitigation for plants used as Native cultural resources.

VII. Hazards and Hazardous Materials -- h) need to address increased risk of fire and vehicular and pedestrian accidents.

VIII. Hydrology and Water Quality -- a) need full discussion of human waste disposal plan and how contamination will be kept out of the river and groundwater; b) if groundwater sources (well, springs) are significant water sources for the project, what are the actual impacts on groundwater supplies/recharge; f) potentially significant -- requires detailed human waste/wastewater disposal plan.

IX. Land Use and Planning -- creation of new land use designation should be approved by county government as a General Plan Amendment before applicant is able to apply for change to this designation; inadequately mitigated conversion of agricultural land; "Public Facilities" refers to publicly-owned facilities, and "PF" zone does not exist.

XI. Noise -- a, b, d) Inadequate mitigation of noise from events; need to address noise impacts on wildlife; need for third-party sound study.

XII. Population and Housing -- a, b, c) Needs more fact-based consideration of demographic trends and local property values.

XIII. Public Services -- a) Potential significant impact on fire, police, and medical facilities, as well as impacts on public water and wastewater systems, must be fully discussed and adequate mitigation developed.

XIV. Recreation -- a) Possible impact on camping facilities in area state parks during large events; b) need for discussion of how recreational uses of the park impact other proposed uses, including other recreational uses; need for an integrated management plan; need environmental analysis of "soft" recreation v. large events.

XV. Transportation and Traffic -- a and b) Potential significant impact of increased traffic on substandard road; "off-site parking" as mitigation must be more thoroughly detailed; e) alternative emergency access cited is unsuitable.

XVI. Utilities and Service Systems -- a, b, and e) Needs detailed and realistic human waste/wastewater disposal plan; c) Needs more detail on drainage plan for housing; d) Define water sources and plan for water service for all uses.

Thank you for your consideration,

Virginia Graziani

Humboldt County Planning Department
Michael Richardson

Dear Michael,

Please consider these scoping comments for the EIR on the Southern Humboldt Community Park application for a Conditional Use Permit. I refer below to the July 2010 document titled "General Plan Amendment" and the document titled "Environmental Checklist", both submitted by Southern Humboldt Community Park.

The Southern Humboldt Community Park has been engaged in a vegetation management program to correct a gully that bisects the main meadow of the park and a part of the forested area also. This program is to reduce erosion and raise the water table. If this program reaches completion, it will restore two natural marshes and benefit wildlife, as well as benefit agriculture also. The County encourages this kind of program (General Plan 4.5.3 AG-P11). The Checklist at page 11 apparently errs in stating that there are no wetlands subject to the Clean Water Act. According to the definition used by both the federal EPA and the Army Corps of Engineers (51 Fed Reg 41217), these marshes qualify for Section 404 status. For example, the Audubon Society group that regularly visits the park has on numerous occasions seen Mallards entering or leaving these marshes, and they bred there in 2003 and apparently one later year. The marshes are used by migrant and wintering Wilson's Snipes, which are sometimes numerous, and another marsh migrant and winterer, the Marsh Wren, also regularly uses these marshes. These marshes are nowhere clearly shown in the Application and Checklist documents and maps. They are treated as part of the main meadow and inappropriately included in its acreage as if they have no significance.

The park board has dedicated much of the main meadow to the preservation of grassland habitat and the conservation of open space. The major concern for this grassland focuses on two Department of Fish and Game Species of Special Concern, the Grasshopper Sparrow and the Western Meadowlark, both of which nest there (Checklist at page 11). There are several other unmentioned species using the meadow that have garnered some level or other of conservation concern. These include raptors such as the White-tailed Kite (forages over the meadow and nests on its periphery), Cooper's Hawk (nests on its periphery), Northern Harrier (forages over the meadow and winters), and Peregrine Falcon (forages over the meadow); Lesser Sandhill Crane, which has foraged in the meadow; and other passerines including the Vesper Sparrow and the Yellow-breasted Chat, which regularly forages in the meadow. The meadow is exceptionally rich as wildlife habitat because it has lain fallow for a good number of years, because it has moist soils, that promote high net primary production, including abundant food for wildlife, and because it lies along an established wildlife corridor, the South Fork Eel River.

A major problem not discussed in the documents is that the park is owned and managed privately, beyond public oversight. Public and environmental values may be subject to the whims of changing management, and the public has little or no recourse. A case in point represents a present and actual controversy that is only hinted at on page 12, in the paragraph labeled "Comment", of the "General Plan Amendment" document. As noted above, the board dedicated much of the main meadow to wildlife. However, the composition of the board has since changed, and now a new board member, Dennis Huber, is actively promoting a project to transform the main meadow into a wheat farm for a friend. This proposal is not legitimate agriculture but a hobby farm basically under public subsidy to raise what is, for our area, only an amenity crop of dubious value, but it subtly underlies that paragraph. There is irony here, because the two Species of Special Concern have both declined radically nationwide exactly because of agriculture, and,

for the Grasshopper Sparrow, especially because of wheat farming. Many thousands of acres of its former habitat across the midwest is now wheat fields devoid of the species, and yet here we have what is apparently the largest remaining known colony of Grasshopper Sparrows in northern California again threatened by wheat farming. Neither of the documents shed any light on this specific problem or the generic problem of how public and environmental values enjoy a process for proper protection in a long-term private project. Requiring the dedication of enforceable conservation easements may be the best idea; alternatively, perhaps the park should become a public entity before documents may issue. But in any case, the law is clear. CEQA requires that the environmentally least damaging alternative to the project be selected (Public Resources Code 21002). But the project proponent does not yet propose to have even a full and fair discussion. This needs a remedy. It seems doubtful the park should have any lands zoned for agriculture. For example, according to documents I've read and conversations I've had, it is only permitted to have no more than one-third of an agriculturally zoned parcel fallow, and only for a short period of time. Such restrictions foreclose the maintenance of wildlife populations or habitats over time. On the other hand, agriculture remains a permitted use in many other types of zoning, and one or more of these other types may be more reasonable for the diversity and flexibility the park envisions.

So you may infer that I perceive major problems with the Checklist. For example, on Checklist page 10 (Biological Resources) a, c, and d are mis-checked in light of the foregoing discussions. Item b I believe also is mis-checked, for I find no mention of the designation pursuant to the federal Wild and Scenic Rivers Act, not to mention other legal authorities, none of which, I doubt, welcomes large numbers of cars parked on river bars, as the project proposes. Checklist at page 28 (Recreation) contains similar errors. The large scale events, such as the Summer Arts Fair, surely will cause major deterioration of the landscape, individually and cumulatively, through trampling, compaction, increased access to sensitive habitats, and uncontrollable animals, among others. To say there will be "no impact" is patently absurd. By the way, there needs to be discussion of the established and growing failure to control dogs on the property. These are significantly adverse to wildlife and there recently has been a serious dog attack on a person in the park. Finally, Checklist at page 32 (Mandatory Findings of Significance) is also seriously in error. Surely the project has the strong potential to significantly degrade the quality of the environment, and surely some of the impacts are likely to be cumulatively considerable. The contrary claims are surprisingly disingenuous, suggesting naivety.

Thank you for this opportunity to comment! I support the project even though it needs some significant modifications, and I hope these can be productively accomplished. These comments are major criticisms, and I have refrained here from addressing a host of other issues. Perhaps I will bring them forth on another occasion.

Best regards,

Robert Sutherland
PO Box 996, Redway CA 95560
(707) 986-1112
8 September 2010

APPENDIX B
AGRICULTURAL REPORT

CALIFORNIA AGRICULTURAL LAND EVALUATION AND SITE ASSESSMENT

SOUTHERN HUMBOLDT COMMUNITY PARK PROJECT

PREPARED FOR:

SOUTHERN HUMBOLDT Community Park
PO Box 185
Garberville, CA 95542
707-923-2287

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SUBMITTED :
October 2011

EXECUTIVE SUMMARY

The purpose of this analysis was to evaluate the agricultural value of the project site for the proposed Southern Humboldt Community Park General Plan Amendment (Project). This analysis was conducted using the California Agricultural Land Evaluation and Site Assessment Model (LESA) developed by the California Department of Conservation in 1997.

The proposed Project is located within southern Humboldt County. The Southern Humboldt Community Park (Park) site comprises approximately 405.6 acres on Sprowel Creek Road, of Garberville and west of State Route 101. The Project study area is primarily agricultural and forested land. The primary activity on agricultural land within the study area is the production of hay. No portion of the Park site is subject to the Williamson Act.

The proposed Project seeks to change the zoning and land use designation of the Park. The proposal is to change the zoning and land use designation to allow for public access, recreation, and public assembly compatible with the Park's vision and goals.

Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The LESA model is composed of six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. Weighting of Factors and Final LESA model Scoring

The LESA model is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors and 50 percent from the Site Assessment factors. For the Project, the final LESA score was determined as shown in the table below. Each factor's score is multiplied by its respective factor weight to determine a weighted factor score. The weighted factor scores are then summed to yield a Total LESA Score for the Project.

The Final LESA score for Project is 45, the Land Evaluation subscore is 27.9 and the Site Assessment Subscore is 17.1. According to the California Agricultural LESA Model Threshold for Significance (Table 8), a total score of 45 shows that a conversion of agricultural land to non-agricultural use resulting from the Project is considered significant "only if Land Evaluation and Site Assessment subscores are each greater than or equal to 20 points". Since the Site Assessment subscore less than 20 for the subject property, pursuant to the LESA model, the proposed conversion of the site would not be considered significant. Furthermore, the majority of the Project, approximately 300+ acres will remain as Agricultural Exclusive with a Public Recreation land use designation combined with a Qualified combining zone designation to allow for low-impact related recreational use.

LESA Model Total Scores for the Project

	Factor Scores	Factor Weight	Weighted Factor Scores
Land Evaluation Factors			
Land Capability Classification	55.83	0.50	27.9
Land Evaluation Subtotal		*0.50*	*27.9*
Site Assessment Factors			
Project Size	100	0.15	15.0
Water Resource Availability	14.1	0.15	2.1
Surrounding Agricultural Land	0	0.15	0
Protected Resource Land	0	0.05	0
Site Assessment Subtotal		*0.50*	*17.1*
Final LESA Score			**45**

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1. INTRODUCTION

1.1. PURPOSE AND NEED

The purpose of this analysis is to evaluate the agricultural value of the project site for the proposed Southern Humboldt Community Park General Plan Amendment (Project). This analysis was conducted using the California Agricultural Land Evaluation and Site Assessment Model (LESA) developed by the California Department of Conservation in 1997.

Appendix G of the 2009 California Environmental Quality Act (CEQA) Statute and Guidelines includes the provision that, "*In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.*" The LESA model is useful because it utilizes several factors to determine the relative value of agricultural land.

The formulation of a LESA model is the result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, with developing an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines concerning agricultural lands. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095).

1.2. PROJECT SUMMARY

The proposed Project is located within southern Humboldt County. The Southern Humboldt Community Park (Park) site comprises approximately 405.7 acres on Sprowel Creek Road, of Garberville and west of State Route 101. The South Fork of the Eel River borders the site to the west. (Figure 1)

The Project study area is primarily agricultural and forested land. The primary activity on agricultural land within the study area is the production of hay. No portion of the Park site is subject to the Williamson Act.

The proposed Project seeks to change the zoning and land use designation of the Park. The current zoning designation is Agricultural Exclusive on all 405.7 acres. The current land use designation is a combination of Agricultural Lands with a 20 acre minimum on 150 acres and Agricultural Rural with a 5-20 acre minimum on 256 acres. The proposal is to change the zoning and land use designation to allow for public access, recreation, and public assembly compatible with the Park's vision and goals. The majority of the Park, approximately 300+ acres will remain Agricultural Exclusive with a Public Recreation land use designation combined with a Qualified combining zone designations to allow for low-impact related recreational use (e.g., hiking, biking, horseback riding, picnic areas, and visitor amenities such as parking and restrooms).

2. CALIFORNIA LESA MODEL

Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The LESA model is composed of six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100 point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds.

2.1. LAND EVALUATION FACTORS

The California LESA model includes two Land Evaluation factors that are separately rated:

1. The Land Capability Classification (LCC) Rating
2. The Storie Index Rating

The information needed to make these ratings is typically available from soil surveys that have been conducted by the federal Natural Resource Conservation Service (NRCS). The data used here was obtained from the NRCS Humboldt/Del Norte Counties Soils Survey located in Arcata, California in November 2009 and July/August 2011. According to the most recent soil map for the area around the Park there are thirteen soil types (Figure 2, Table 1).

Table 1: Soil Types on the Southern Humboldt Community Park Site*

Soil Map Unit	Name	Slope	Landscape
100	Riverwash-Fluvents	0-2%	River valleys
144	Garberville-Parkland	0-2%	River valleys
151	Parkland-Garberville	2-5%	River valleys
153	Conklin	0-2%	River valleys
159	Grannycreek-Parkland	2-5%	River valleys
182	Gschwend-Frenchman	0-9%	River valleys
183	TBD		
187	Pepperwood-Shivleyflat	0-2%	River valleys
410	TBD		
451	Burgsblock-Coolyork-Tannin	15-30%	Mountains
452	Burgsblock-Coolyork-Tannin	30-50%	Mountains
574	Sproulish-Canoecreek-Redwohly	30-50%	Mountains
655	Yorknorth-Witherell	15-30%	Mountains

*USDA NRCS Humboldt County Soil Survey, 2011

2.1.1. LAND CAPABILITY CLASSIFICATION (LCC) RATING

The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I, soils having the fewest limitations, to Class VIII, soils having the most limitations that preclude their use for commercial plant production. Specific subclasses are also utilized to further characterize soils. LESA LCC point ratings are summarized in Table 2. Detailed information describing classes and definitions can be found at http://soils.usda.gov/technical/handbook/contents/part622.html. LCC Ratings for each soil type at the Project site are summarized in Table 3. LCC scores are obtained by multiplying the areal proportion of each soil type by the weighted LCC rating.

Table 2: Land Capability Classification Rating Summary

LCC	LCC Point Rating
I	100
IIe	90
IIs,w	80
IIIe	70
IIIs,w	60
IVe	50
IVs,w	40
V	30
VI	20
VII	10
VIII	0

Table 3: Land Capability Classification Rating for Southern Humboldt Park (Weighted by Map Unit Composition of Major Components)

Soil Map Unit	Soil Type		Map Unit Composition		LCC	LCC Rating	Weighted LCC Rating	LCC Score
	Acreage	Proportion						
100	47.48	0.12	Riverwash	0.5	VII non-irrigated	10	21	2.49
			Fluvents	0.3	IVs irrigated	40		
144	24.71	0.06	Garberville	0.5	IIc non-irrigated	85	85	5.18
			Parkland	0.35	IIc non-irrigated	85		
151	40.98	0.10	Parkland	0.45	IIe-1 non-irrigated	90	90	9.09
			Garberville	0.4	IIe-1 non-irrigated	90		
153	28.48	0.07	Conklin	0.85	IIc non-irrigated	85	85	5.97
159	53.48	0.13	Grannycreek	0.5	IIIw non-irrigated	60	72	9.54
			Parkland	0.35	IIe non-irrigated	90		
182	34.20	0.08	Gschwend	0.5	IIe non-irrigated	90	71	6.01
			Frenchman	0.3	IVs non-irrigated	40		
183	0.35	0.001	Battery	0.9	IIIe non-irrigated	70	70	0.06
187	41.31	0.10	Pepperwood	0.6	IIc-2 non-irrigated	85	85	8.65
			Shivelyflat	0.3	IIc-2 non-irrigated	85		
410	9.61	0.02	Rockyglen	0.45	VIIe non-irrigated	10	10	0.24
			Hollowtree	0.25	VIIe non-irrigated	10		
			Rock Outcrop	0.15	None given	--		
451	33.52	0.08	Burgsblock	0.35	IVe non-irrigated	50	50	4.13
			Coolyork	0.3	IVe non-irrigated	50		
			Tannin	0.2	IVe non-irrigated	50		
452	78.40	0.19	Burgsblock	0.35	VIe non-irrigated	20	20	3.87
			Coolyork	0.3	VIe non-irrigated	20		
			Tannin	0.2	VIe non-irrigated	20		
574	4.54	0.01	Sproulish	0.5	VIe non-irrigated	20	20	0.22
			Canoecreek	0.2	VIe non-irrigated	20		
			Redwohly	0.15	VIe non-irrigated	20		
655	8.64	0.02	Yorknorth	0.7	IVe non-irrigated	20	18	0.39
			Witherell	0.15	VIIe non-irrigated	10		
Total	**405.7**	**1.0**					**LCC Total Score**	**55.83**

2.1.2. STORIE INDEX RATING

The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon soil characteristics only. Four factors that represent the inherent characteristics and qualities of the soil are considered in the index rating: profile characteristics, texture of the surface layer, slope, and other factors (e.g. drainage, salinity).

As of the date of this report, the Storie Index rating was not available from the NRCS Humboldt Soil Survey. When the Storie Index rating is not available, the LCC rating is used and accounts for 50 percent of the overall LESA factor rating for this analysis.

2.2. SITE ASSESSMENT FACTORS

The California LESA model includes four Site Assessment factors that are separately rated:

1. The Project Size Rating
2. The Water Resources Availability Rating
3. The Surrounding Agricultural Land Rating
4. The Surrounding Protected Resource Land Rating

2.2.1. PROJECT SIZE RATING

The inclusion of the measure of a project's size in the LESA model is the recognition of the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility farm management and marketing decisions. Certain economies of scale for equipment and infrastructure can also be more favorable for larger operations. In addition, larger operations tend to have greater impacts upon the local economy through direct employment, as well as impacts upon support industries (e.g., fertilizers, farm equipment, and shipping) and food processing industries.

In terms of agricultural productivity, the size of a farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide a greater economic return per unit acre. For a given project, instead of relying upon a single acreage figure in the Project Size rating, the project is divided into three acreage groupings based upon the LCC ratings determined above. This is done by grouping the LCC classes according to their suitability, adding the acreages of each up, and assigning a point score to the total acreage for that LCC class. The LCC class with the highest point score is used in the final project LESA model score. The results are summarized in Table 4.

Table 4: Project Size Rating for Southern Humboldt Park

Soil Map Unit	LCC Class (acres)		
	I or II Soils	III Soils	IV or Lower
100			47.48
144	24.71		
151	40.98		
153	28.48		
159		53.48	
182	34.20		
183			0.35
187	41.31		
410			9.61
451			33.52
452			78.40
574			4.54
655			8.64
Totals	169.7	53.5	182.5
Project Size Scores	100	60	60
Highest Project Size Score			**100**

2.2.2. WATER RESOURCES AVAILABILITY RATING

The Water Resources Availability Rating, used to determine agricultural viability if a site, is based upon identifying the various water sources that my supply the property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought. During the development of the LESA model it was determined that conditions unique to California should be represented in the model. Three factors are incorporated into the LESA model. First, water reliability is classified based upon the effects on agricultural production rather than on the actually type of limitation. Second, the rating is tied to an interrelation between water availability and cost – a more reliable water supply can sometimes be obtained, but at a greater cost. Water restrictions are classified into two categories; physical and economic. The greater impact of physical restrictions of water on agriculture is accounted for in the LESA model. Third, the factor includes the effects of the drought cycle in California. A project site that experiences restrictions during a drought year is not scored as high as a similar project site that does not.

Historically the Project site was used mainly for grazing cattle. There were no functioning irrigation lines to the existing farm fields when the Southern Humboldt Park purchased the site. Southern Humboldt Park has since (in 2002) installed irrigation systems to Fields #1 and #2 (Figure 3). The current uses on the project site include domestic water from the Garberville Sanitary District (GSD) and water used for irrigation from two riparian sources. Due to cost, domestic water from the GSD is **not** used for irrigation. The two **riparian** sources used for irrigation are:

1. Water Source #1: South Fork of the Eel River

   This water source is permitted (Department of Fish and Game Streambed Alteration Permit R1-2009-0238) for agricultural use, residential and fire suppression. The permit limits the rate of diversion from the infiltration gallery to 108 gallons per minute or 10% of the streamflow, whichever isles. There is no seasonal drought limit. This water source is currently used solely for irrigation purposes. This source supplies Field #1, approximately 17 acres (Figure 3). There is no charge associated with this water, other than maintenance of the irrigation system.

2. Water Source #2: Unnamed Tributary

   This water source is permitted by the same permit as water Source #1. The source is a spring located on a neighboring property that serves the Project site through a legal easement. The source supplies water, via gravity flow, to a ranch house, bunk house, and irrigation for both Field #1 and Field #2. Field #2 is approximately 31 acres (Figure 3). Under the permit, the rate of diversion is 2000 gallons per day. This source is used to fill a 55,000 gallon water storage tank that between November 1 and July 1. The permit prohibits filling the tank from July 2 through October 31 each year. There is no charge associated with this water, other than maintenance of the irrigation system.

Table 5: Water Resource Availability Rating Southern Humboldt Park

Project Location	Water Source	Project Area		Water Availability	
		Total Acres	Proportion	Score	Weighted Score
Field #1 & #2	Riparian	48	0.118	85*	10.0
Non-Irrigation Production**	None	87	0.214	20	4.3
Forested Areas	None	270.7	0.668	0***	0
Total		405.7	1.0	**Total Water Resource Score**	**14.3**

*Potential for physical restriction (no-availability during a drought year)
**Non-Irrigation production feasible in non-drought years on Fields 3 through 5
***Assume no irrigated nor dry-land production feasible

2.2.3. SURROUNDING AGRICULTURAL LAND RATING

The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands in close proximity to a subject project. The LESA model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production. The definition of a “Zone of Influence” (ZOI) that accounts for surrounding lands up to a minimum of one quarter mile from the project boundary is the result of several iterations during model development for assessing an area that will generally be a representative sample of surrounding land use.

The Agricultural Land Rating is based upon the identification of the project's ZOI, which is defined as that land near a given project, both directly adjoining and within a defined distance away, that is likely to influence, and be influenced by, the agricultural land use of the subject project site. The Zone of Influence around the Project site is illustrated in Figure 4. The Agricultural Land score is determined based on the *percent* of the project's ZOI in agricultural use as given in the LESA Surrounding Agricultural Land Scoring Table.

Humboldt County is not included on the California Department of Conservation's Important Farmland Maps in California. No Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, or Grazing Land is identified in Humboldt County on these maps. No Agricultural Land Use was identified on the California State University, Chico California Agricultural Map (http://www.gic.csuchico.edu/Spec_calag.html). According to the Humboldt County 2025 General Update Agricultural Resources and Policies, prepared by the Humboldt County Department of Community Services, August 2003, the area around Garberville is valued for open space and grazing lands and no specific Agricultural Use was identified in the vicinity of the Project area.

Currently, the Southern Humboldt Park site is the main agricultural producer in the area and intends to remain in agricultural production. Grazing, at low densities, occurs to the south and east of the project site. Those parcels attributed to grazing activities were considered as agricultural lands for the calculations presented here; approximately 808 acres. The Agricultural Land Rating results are summarized in Table 6.

2.2.4. SURROUNDING PROTECTED RESOURCE LAND RATING

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating, and is scored in a similar manner. Protected resource lands are those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

1. Williamson Act contracted lands
   There are no Williamson Act contracted lands within the ZOI.
2. Publicly owned lands maintained as a park, forest, or watershed resources
   There are no publically owned lands maintained as a par, forest or watershed resources within the ZOI.
3. Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses.
   There is no agricultural, wildlife habitat, or open space easements that restrict the conversion of land within the ZOI.

Since there is no protected resource land in the ZOI, the Surrounding Protected Resource Land Score is zero (Table 6).

Table 6: Surrounding Agricultural Land and Surrounding Protected Resource Land Rating for Southern Humboldt Park

Zone of Influence					Surrounding Agricultural Land Score*	Surrounding Protected Resource Land Score
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture	Percent Protected Resource Land		
3008.65	808	0	27%	0	**0**	**0**
*based on the LESA surrounding land scoring table and percent of ZOI in agriculture						

2.3. WEIGHTING OF FACTORS AND FINAL LESA MODEL SCORING

The LESA model is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors and 50 percent from the Site Assessment factors. Individual factor weights are listed in Table 7, with a total factor sum equal to 100 percent. For the Project, the final LESA score was determined as shown in Table 7. Each factor's score is multiplied by its respective factor weight to determine a weighted factor score. The weighted factor scores are then summed to yield a Total LESA Score for the Project.

Table 7: LESA Model Total Scores for the Project

	Factor Scores	Factor Weight	Weighted Factor Scores
Land Evaluation Factors			
Land Capability Classification	55.83	0.50	27.9
Land Evaluation Subtotal		*0.50*	*27.9*
Site Assessment Factors			
Project Size	100	0.15	15.0
Water Resource Availability	14.3	0.15	2.1
Surrounding Agricultural Land	0	0.15	0
Protected Resource Land	0	0.05	0
Site Assessment Subtotal		*0.50*	*17.1*
Final LESA Score			**45**

3. DETERMINATION OF SIGNIFICANCE UNDER CEQA

The LESA model is designed to make determinations of the potential significance of a project's conversion of agricultural lands during CEQA review. Scoring thresholds are based upon the total LESA score as well as the individual Land Evaluation and Site Assessment subscores. This is so scoring thresholds are independent upon the attainment of a minimum score for the Land Evaluation and Site Assessment subscores so that a single threshold is not the result of heavily skewed subscores (i.e., a site with a very high Land Evaluation subscore, but a very low Site Assessment subscore, or vice versa). The LESA scoring thresholds are summarized in Table 8.

Table 8: California LESA Model scoring thresholds of significance

Total LESA Score	Scoring Decision
0 to 39 Points	Not Considered Significant
40 to 59 Points	Considered Significant only if Land Evaluation and Site Assessment subscores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either Land Evaluation or Site Assessment subscores is less than 20 points
80 to 100 Points	Considered Significant

The Final LESA score for Project is 45, the Land Evaluation subscore is 27.9 and the Site Assessment Subscore is 17.1. According to the California Agricultural LESA Model Threshold for Significance (Table 8), a total score of 45 shows that a conversion of agricultural land to non-agricultural use resulting from the Project is considered significant "only if Land Evaluation and Site Assessment subscores are each greater than or equal to 20 points". Since the Site Assessment subscore less than 20 for the subject property, pursuant to the LESA model, the proposed conversion of the site would not be considered significant. Furthermore, the majority of the Project, approximately 300+ acres will remain as Agricultural Exclusive with a Public Recreation land use designation combined with a Qualified combining zone designation to allow for low-impact related recreational use.

4. REFERENCES

California Department of Conservation. *California Agricultural Land Evaluation and Site Assessment Model*. 1997.

California Department of Conservation, Farmland Mapping & Monitoring Program, Important Farmland Maps in California, Accessed June 2011.
http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx

California State University, Chico California Agricultural Map, Accessed June 2011.
http://www.gic.csuchico.edu/Spec_calag.html

Humboldt County Department of Community Services, Humboldt County 2025 General Updated Agricultural Resources and Policies, August 2003.

U.S. Department of Agricultural, Natural Resources Conservation Service, Humboldt Counties Soil Survey, Draft Data, dated 11/02/2009 and June and July 2011.

Appendix A:
Figures

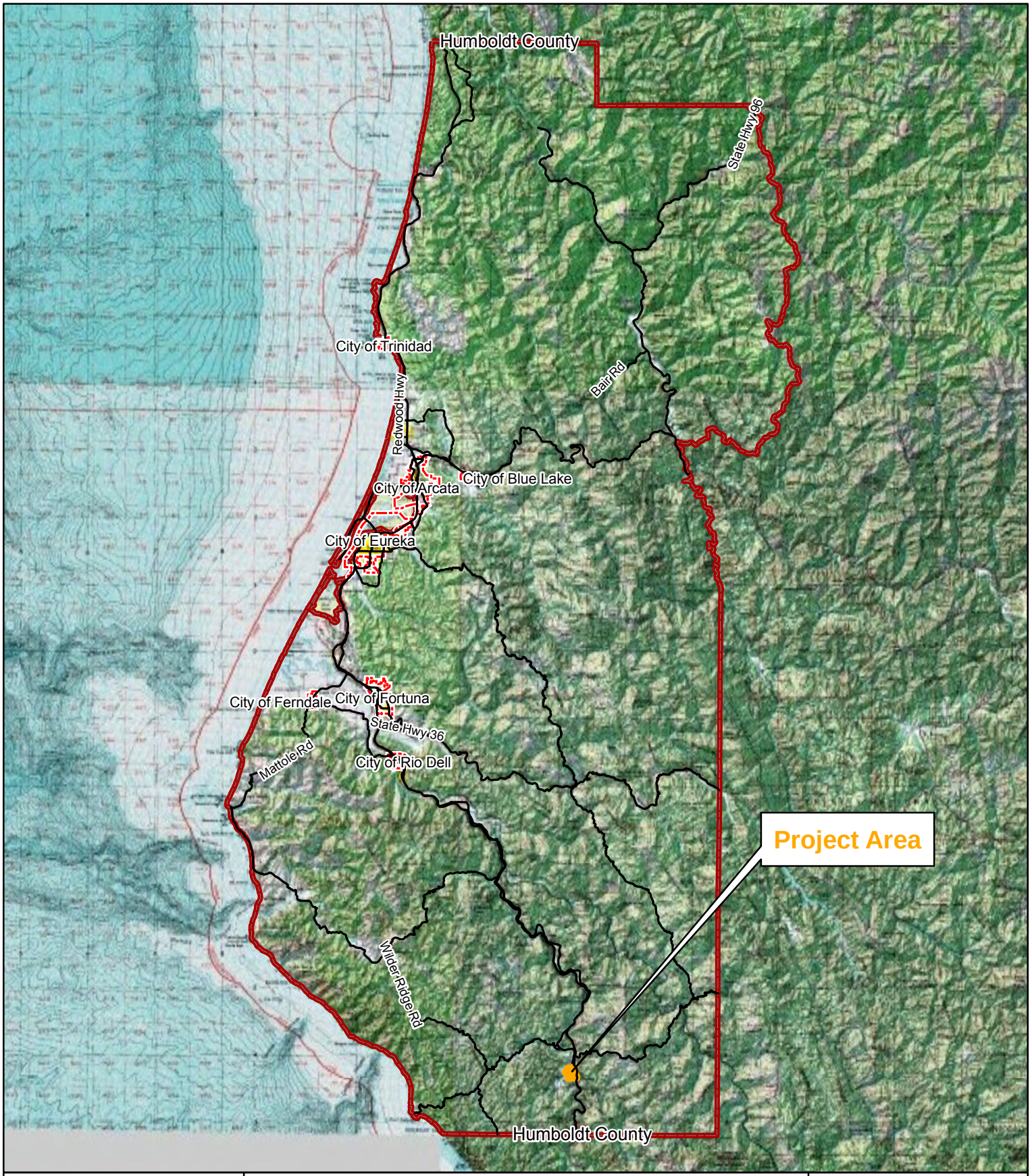

FIGURE 1
LOCATION MAP

Southern Humboldt Community Park

Humboldt County, CA

Legend

- Major Roads
- Project Boundary
- County_Boundary
- City

N
W E
S

12 6 0 12 Miles

Manhard CONSULTING

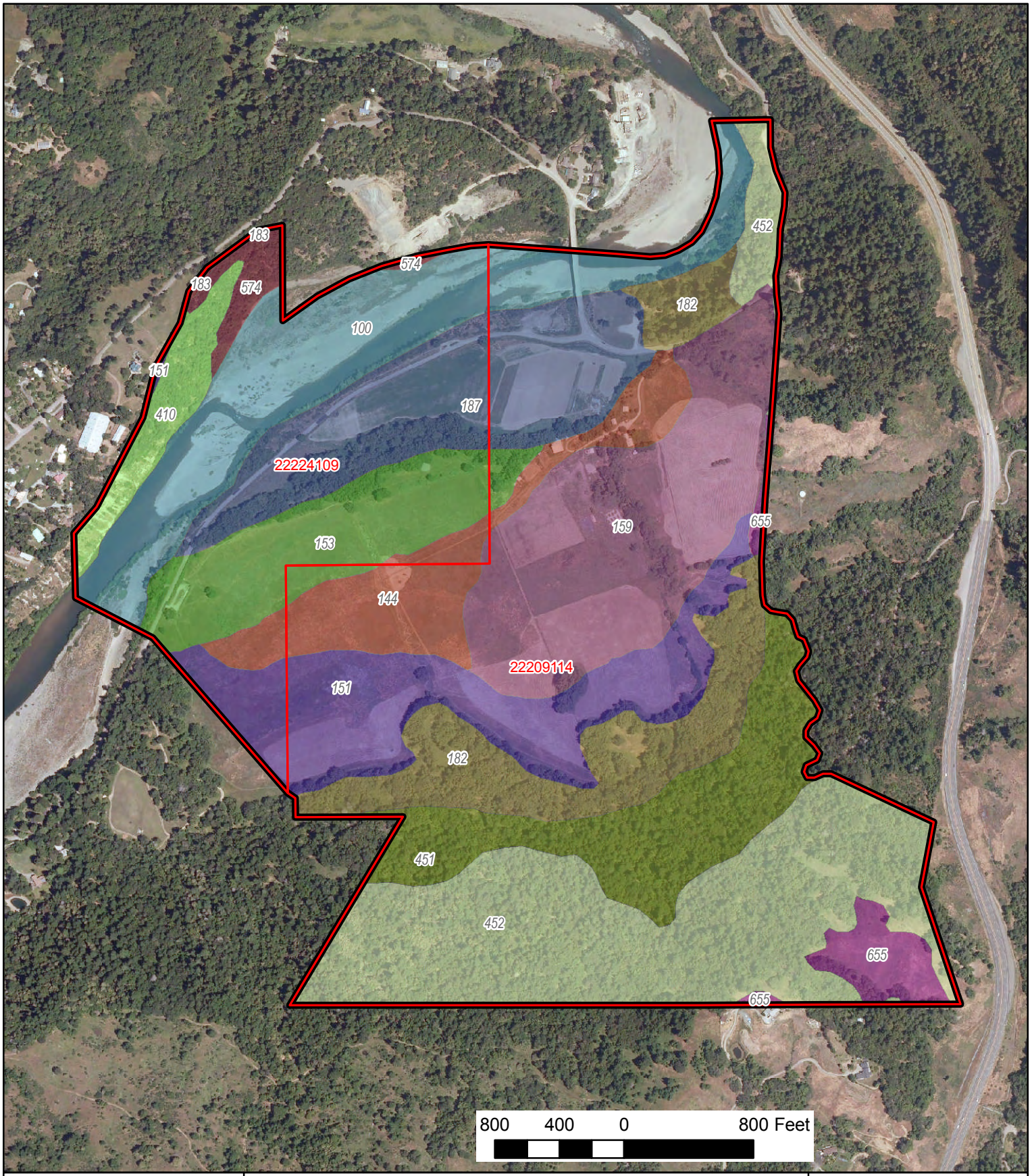

FIGURE 2
SOILS MAP

Southern Humboldt Community Park

Humboldt County, CA

Legend

- Parcels
- Project Boundary

SSURGO Soils

- 100
- 144
- 151
- 153
- 159
- 182
- 183
- 187
- 410
- 451
- 452
- 574
- 655

N
W E
S

Manhard CONSULTING

CPA 16-02 Southern Humboldt Community Park 6111 March 28, 2017

August 2017

FIGURE 3
WATER SOURCE SERVICE AREA MAP

Southern Humboldt Community Park

Humboldt County, CA

Legend

Fields

N
W E
S

600 300 0 600 Feet

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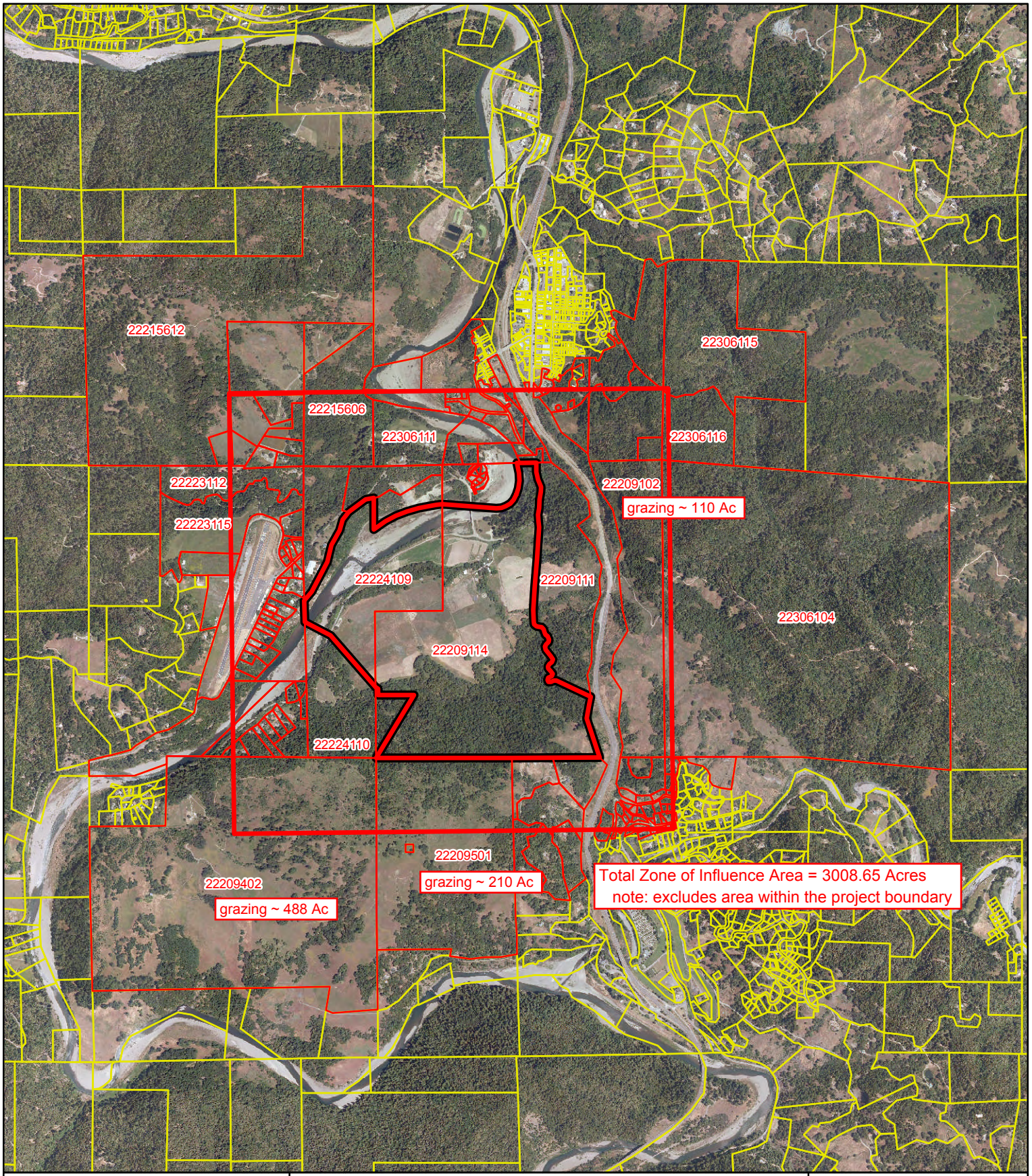


FIGURE 4
ZONE OF INFLUENCE MAP

Southern Humboldt Community Park

Humboldt County, CA

Legend

- Zone of Influence
- Project Boundary
- Parcels

N
W E
S

2,400 1,200 0 2,400 Feet

Manhard CONSULTING

Appendix B:
NRCS Soil Map Unit Summaries

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
1125 16th St. Room 219
Arcata CA 95521

HUMBOLDT/DEL NORTE COUNTIES SOIL SURVEY
• PHONE 707-822-7090 • FAX 707-822-7131

November 2, 2009

Steve Dazey
P.O. Box 168
Garberville, CA
95542

Jonathan W. Hooper
NRCS-Soil Survey
1125 16th St. Rm. 219
Arcata, CA 95519
707-822-7090 ex 105

Steve,

As requested, I am including copies of seven map units and a copy of the most recent soil map for the area around the Community Park. The lines are on our newest color photobase dated 2009 and the map is produced at a scale of 1:24000.

All the Best,

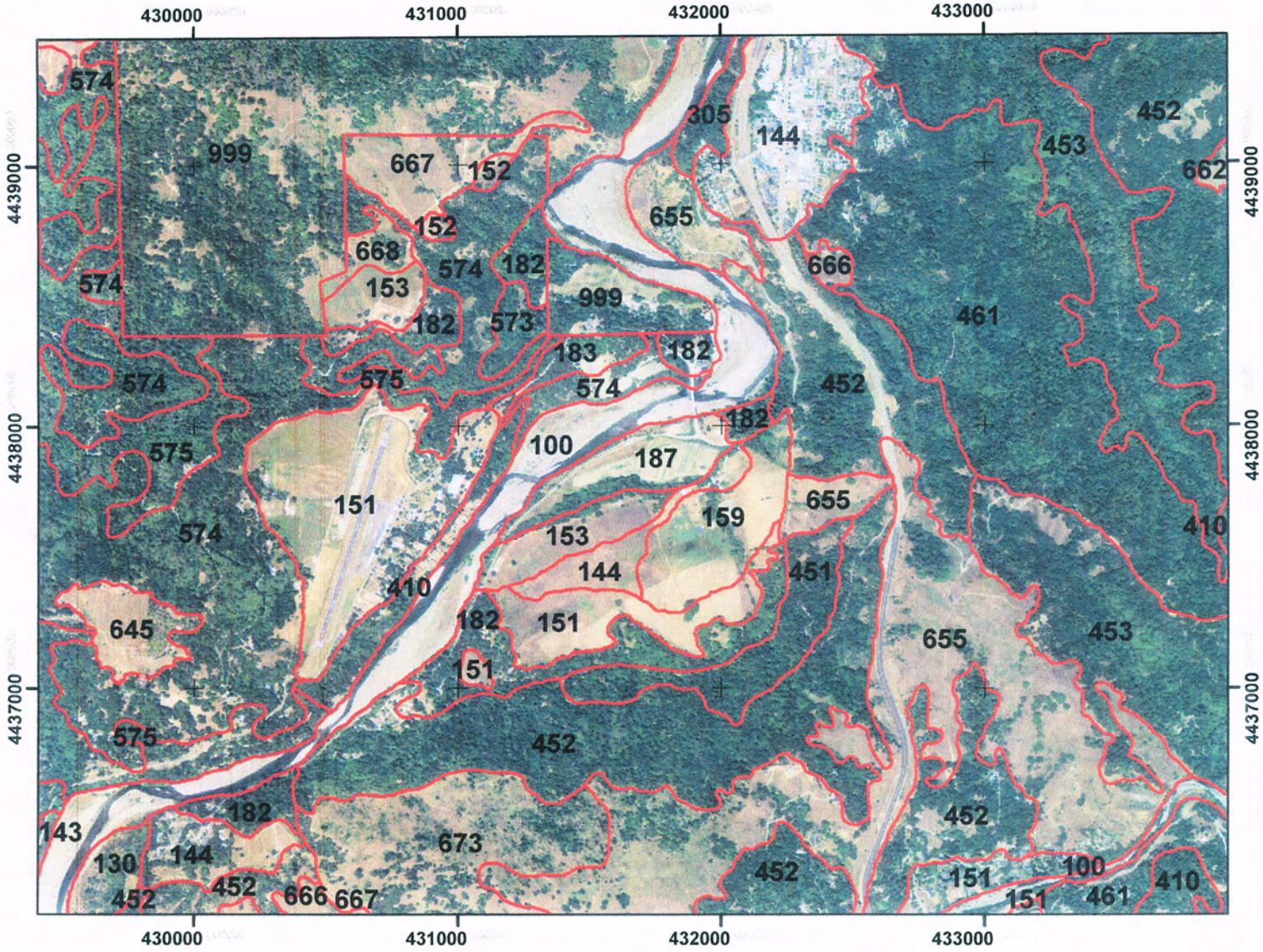
Jonathan W Hooper

Jonathan W. Hooper
SSPL SoHum Soil Survey

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

An Equal Opportunity Provider and Employer

Humboldt County Soil Survey
Draft Data - Subject to Change - 11/02/2009



Humboldt County Soil Survey
USDA-NRCS Arcata Soil Survey Office
1125 16th St, Arcata, CA 95521
Jonathan Hooper, Soil Survey Project Leader
707-822-7090x105
jonathan.hooper@ca.usda.gov

N
W E
S

Projection: UTM
Datum: NAD 83
Scale: 1:24,000

Kilometers
0 0.5 1 2

***182--Gschwend-Frenchman complex, 0 to 9 percent slopes

Map Unit Setting

General location: None noted.
Major uses:
MLRA: 4B - Coastal Redwood Belt
Map unit landscape: River valley
Landscape setting:
Elevation: 245 to 1695 feet (76 to 518 meters)
Mean annual precipitation: 40 to 80 inches (1016 to 2032 millimeters)
Mean annual air temperature: 43 to 64 degrees F. (6 to 18 degrees C.)
Frost-free period: 220 to 320 days

Map Unit Composition
**Gschwend--50 percent
**Frenchman--30 percent
Minor components: 20 percent

Major Component Description

*Gschwend and similar soils
Slope: 0 to 9 percent
Aspect: North to north aspects
Landform: Stream terrace
Parent material: Alluvium derived from sandstone
Typical vegetation: None assigned

Selected Properties and Qualities of Gschwend

Surface area covered by coarse fragments: None noted.
Depth to restrictive feature: None noted
Slowest permeability class: Moderate
Slowest rate of saturated hydraulic conductivity: Moderately high
Available water capacity to 60 inches: About 7.3 inches (Moderate)

Selected Hydrologic Properties of Gschwend

Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: None noted.
Natural drainage class: Well drained
Hydrologic Soil Group: B

California Land Use Interpretive Groups
Land capability nonirrigated: 2e
Ecological site: Not Assigned

Typical Profile
**0 to 12 in (0 to 30 cm); loam
**12 to 19 in (30 to 48 cm); stratified sandy loam to loam
**19 to 35 in (48 to 89 cm); stratified sandy loam to sandy clay loam

**35 to 61 in (89 to 155 cm); stratified extremely gravelly loamy sand to gravelly sandy clay loam

*Frenchman and similar soils
Slope: 0 to 9 percent
Aspect: North to north aspects
Landform: Stream terrace
Parent material: Alluvium derived from sandstone
Typical vegetation: None assigned

Selected Properties and Qualities of Frenchman

Surface area covered by coarse fragments: None noted.
Depth to restrictive feature: None noted
Slowest permeability class: Moderate
Slowest rate of saturated hydraulic conductivity: Moderately high
Available water capacity to 60 inches: About 3.5 inches (Low)

Selected Hydrologic Properties of Frenchman

Present annual flooding: None
Present annual ponding: None
Surface runoff: Medium
Current water table: None noted.
Natural drainage class: Well drained
Hydrologic Soil Group: B

California Land Use Interpretive Groups
Land capability nonirrigated: 4s
Ecological site: Not Assigned

Typical Profile
**0 to 10 in (0 to 25 cm); very gravelly sandy loam
**10 to 30 in (25 to 76 cm); stratified very gravelly sandy loam to very gravelly sandy clay loam
**30 to 62 in (76 to 157 cm); stratified very gravelly sand to extremely cobbly sandy loam

---

Minor Components

****Unnamed, Steeper Slopes and similar soils
Composition: About 10 percent
Slope: ---
Landform: None assigned
Ecological site: Not Assigned

****Riverwash and similar soils
Composition: About 5 percent
Slope: ---
Landform: Channel
Ecological site: Not Assigned

****Unnamed and similar soils
Composition: About 5 percent
Slope: ---

Landform: Depression
Ecological site: Not Assigned

***187--Pepperwood-Shivelyflat complex, 0 to 2 percent slopes

Map Unit Setting

General location: Flood plains along the Eel, Van Duzen, and Mattole rivers and their tributaries.
Major uses: Pasture, hay, with small areas used for orchards, vinyards, and non-irrigated truck crops.
MLRA: 4B - Coastal Redwood Belt
Map unit landscape: River valley
Landscape setting: Flood-plain steps in mountain river valleys
Elevation: 55 to 555 feet (18 to 170 meters)
Mean annual precipitation: 40 to 98 inches (1015 to 2500 millimeters)
Mean annual air temperature: 54 to 57 degrees F. (12 to 14 degrees C.)
Frost-free period: 280 to 350 days

Map Unit Composition
**Pepperwood--60 percent
**Shivelyflat--30 percent
Minor components: 6 percent

Major Component Description

*Pepperwood and similar soils
Slope: 0 to 2 percent
Aspect: None noted
Landform: Flood-plain step
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Uncultivated vegetation includes wild oat, soft chess, ripgut brome, medusahead, dogtail grass, and various forbs. These soils once supported redwood.

Selected Properties and Qualities of Pepperwood

Surface area covered by coarse fragments: 0 to 2 percent fine subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Moderate
Slowest rate of saturated hydraulic conductivity: Moderately high
Available water capacity to 60 inches: About 10.3 inches (Very high)

Selected Hydrologic Properties of Pepperwood

Present annual flooding: Rare
Present annual ponding: Frequent
Surface runoff: High
Current water table: Present
Natural drainage class: Moderately well drained
Hydrologic Soil Group: C

California Land Use Interpretive Groups
Land capability nonirrigated: 2c-2
Ecological site: Not Assigned

Typical Profile

**Ap--0 to 8 in (0 to 20 cm); fine sandy loam
**C1--8 to 16 in (20 to 41 cm); fine sandy loam
**C2--16 to 28 in (41 to 70 cm); very fine sandy loam
**C3--28 to 31 in (70 to 79 cm); very fine sandy loam
**Ab1--31 to 50 in (79 to 128 cm); loam
**Ab2--50 to 55 in (128 to 140 cm); silt loam
**C4--55 to 79 in (140 to 200 cm); loam

*Shivelyflat and similar soils
Slope: 0 to 2 percent
Aspect: None noted
Landform: Flood-plain step
Parent material: Alluvium derived from mixed
Typical vegetation: Uncultivated vegetation includes wild oat, soft chess, ripgut brome, medusahead, dogtail grass, pennyroyal, and various other forbs. These soils once supported redwood.

Selected Properties and Qualities of Shivelyflat

Surface area covered by coarse fragments: 0 to 2 percent fine subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Moderate
Slowest rate of saturated hydraulic conductivity: Moderately high
Available water capacity to 60 inches: About 12.2 inches (Very high)

Selected Hydrologic Properties of Shivelyflat

Present annual flooding: Rare
Present annual ponding: Frequent
Surface runoff: Very high
Current water table: Present
Natural drainage class: Somewhat poorly drained
Hydrologic Soil Group: B/D

California Land Use Interpretive Groups
Land capability nonirrigated: 2c-2
Ecological site: Not Assigned

Typical Profile
**Ap--0 to 9 in (0 to 22 cm); silt loam
**A1--9 to 22 in (22 to 55 cm); silt loam
**A2--22 to 28 in (55 to 70 cm); silt loam
**C1--28 to 47 in (70 to 120 cm); very fine sandy loam
**C2--47 to 63 in (120 to 160 cm); very fine sandy loam
**C3--63 to 71 in (160 to 180 cm); silt loam

Minor Components

****Cottoneva and similar soils
Composition: About 4 percent
Slope: 0 to 2 percent
Landform: Flood-plain step
Ecological site: Not Assigned

****Xeropsamments and similar soils

Composition: About 2 percent
Slope: 0 to 2 percent
Landform: Natural levee
Ecological site: Not Assigned

***655--Yorknorth-Witherell complex, 15 to 30 percent slopes

Map Unit Setting

General location: Mountain slopes of the Northern Coast Range of California near Garberville
Major uses: Livestock grazing, watershed, and wildlife habitat.
MLRA: 5 - Siskiyou-Trinity Area
Map unit landscape: Mountains
Landscape setting: Mountain grassland slopes dominated by earthflows
Elevation: 325 to 3280 feet (100 to 1000 meters)
Mean annual precipitation: 49 to 120 inches (1250 to 3050 millimeters)
Mean annual air temperature: 55 to 59 degrees F. (13 to 15 degrees C.)
Frost-free period: 240 to 280 days

Map Unit Composition
**Yorknorth--70 percent
**Witherell--15 percent
Minor components: 15 percent

Major Component Description

*Yorknorth and similar soils
Slope: 15 to 30 percent
Aspect: None noted
Landform: Mountain slope
Parent material: Colluvium derived from sandstone and/or earthflow deposits derived from schist
Typical vegetation: oats, perrenial rye, dogtail, medusa head, soft chess, ripgut brome, smooth brome

Selected Properties and Qualities of Yorknorth

Surface area covered by coarse fragments: 0 to 10 percent medium subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Slow
Slowest rate of saturated hydraulic conductivity: Moderately low
Available water capacity to 60 inches: About 10.3 inches (Very high)

Selected Hydrologic Properties of Yorknorth

Present annual flooding: None
Present annual ponding: None
Surface runoff: Very high
Current water table: Present
Natural drainage class: Moderately well drained
Hydrologic Soil Group: D

California Land Use Interpretive Groups
Land capability nonirrigated: 4e
Ecological site: Not Assigned

Typical Profile

**A--0 to 3 in (0 to 7 cm); silt loam
**BAt--3 to 12 in (7 to 31 cm); silty clay loam
**Bt1--12 to 20 in (31 to 51 cm); silty clay
**Bt2--20 to 44 in (51 to 112 cm); silty clay loam
**C1--44 to 63 in (112 to 160 cm); clay loam
**C2--63 to 75 in (160 to 190 cm); gravelly loam

*Witherell and similar soils
Slope: 15 to 30 percent
Aspect: None noted
Landform: Mountain
Parent material: Residuum weathered from sandstone
Typical vegetation: oats, perrenial rye, dogtail, medusa head, soft chess, ripgut brome, smooth brome

Selected Properties and Qualities of Witherell

Surface area covered by coarse fragments: 0 to 15 percent subrounded ERROR-check if shape null.
Depth to restrictive feature: None noted
Slowest permeability class: Moderately slow
Slowest rate of saturated hydraulic conductivity: Moderately high
Available water capacity to 60 inches: About 2.4 inches (Very low)

Selected Hydrologic Properties of Witherell

Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: None noted.
Natural drainage class: Well drained
Hydrologic Soil Group: C

California Land Use Interpretive Groups
Land capability nonirrigated: 7e
Ecological site: Not Assigned

Typical Profile
**A--0 to 3 in (0 to 8 cm); loam
**Bw1--3 to 10 in (8 to 25 cm); loam
**Bw2--10 to 14 in (25 to 35 cm); loam
**C--14 to 79 in (35 to 200 cm); gravel

Minor Components

****Briceland and similar soils
Composition: About 10 percent
Slope: 15 to 30 percent
Landform: Mountain slope
Ecological site: Not Assigned

****Tankridge and similar soils
Composition: About 3 percent
Slope: 15 to 30 percent
Landform: Mountain slope

Ridge
Ecological site: Not Assigned

****Dryfield and similar soils
Composition: About 2 percent
Slope: 15 to 30 percent
Landform: Linear positions on mountain slope
Convex positions on ridge
Ecological site: Not Assigned

***151--Parkland-Garberville complex, 2 to 5 percent slopes

Map Unit Setting

General location: Areas along the Eel and Mattole Rivers and their tributaries
Major uses: Pasture, hay, truck crops, and orchards
MLRA: 4B,5 - Coastal Redwood Belt,Siskiyou-Trinity Area,Siskiyou-Trinity Area,Siskiyou-Trinity Area
4B,5 - Coastal Redwood Belt,Siskiyou-Trinity Area,Siskiyou-Trinity Area,Siskiyou-Trinity Area
4B,5 - Coastal Redwood Belt,Siskiyou-Trinity Area,Siskiyou-Trinity Area,Siskiyou-Trinity Area
4B,5 - Coastal Redwood Belt,Siskiyou-Trinity Area,Siskiyou-Trinity Area,Siskiyou-Trinity Area
Map unit landscape: River valley
Landscape setting: River valleys
Elevation: 110 to 455 feet (35 to 140 meters)
Mean annual precipitation: 49 to 100 inches (1250 to 2550 millimeters)
Mean annual air temperature: 55 to 59 degrees F. (13 to 15 degrees C.)
Frost-free period: 280 to 300 days

Map Unit Composition
**Parkland--45 percent
**Garberville--40 percent
Minor components: 15 percent

Major Component Description

*Parkland and similar soils
Slope: 2 to 5 percent
Aspect: None noted
Landform: Alluvial fan
Terrace
Parent material: Alluvium derived from sedimentary rock and/or slope alluvium derived from sedimentary rock
Typical vegetation: Annual and perennial pasture grasses, pennyroyal, and other forbs

Selected Properties and Qualities of Parkland

Surface area covered by coarse fragments: 0 to 5 percent coarse subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Slow
Slowest rate of saturated hydraulic conductivity: Moderately low
Available water capacity to 60 inches: About 10.7 inches (Very high)

Selected Hydrologic Properties of Parkland

Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Present
Natural drainage class: Moderately well drained

Hydrologic Soil Group: C

California Land Use Interpretive Groups
Land capability nonirrigated: 2e-1
Ecological site: Not Assigned

Typical Profile
**Ap--0 to 4 in (0 to 10 cm); loam
**Bt1--4 to 9 in (10 to 22 cm); silt loam
**Bt2--9 to 17 in (22 to 43 cm); clay loam
**Bt3--17 to 28 in (43 to 70 cm); silty clay loam
**Bt4--28 to 46 in (70 to 117 cm); silty clay loam
**2Bt--46 to 71 in (117 to 180 cm); clay

*Garberville and similar soils
Slope: 2 to 5 percent
Aspect: None noted
Landform: Alluvial fan
Terrace
Parent material: Alluvium derived from sedimentary rock and/or slope alluvium derived from sedimentary rock
Typical vegetation: Annual and perennial pasture grasses and forbs.

Selected Properties and Qualities of Garberville

Surface area covered by coarse fragments: 0 to 5 percent coarse subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Moderately slow
Slowest rate of saturated hydraulic conductivity: Moderately high
Available water capacity to 60 inches: About 9.3 inches (High)

Selected Hydrologic Properties of Garberville

Present annual flooding: None
Present annual ponding: None
Surface runoff: Low
Current water table: None noted.
Natural drainage class: Well drained
Hydrologic Soil Group: C

California Land Use Interpretive Groups
Land capability nonirrigated: 2e-1
Ecological site: Not Assigned

Typical Profile
**Ap--0 to 12 in (0 to 31 cm); gravelly loam
**A--12 to 19 in (31 to 47 cm); loam
**Bt1--19 to 28 in (47 to 70 cm); gravelly clay loam
**Bt2--28 to 39 in (70 to 99 cm); gravelly clay loam
**Bt3--39 to 50 in (99 to 127 cm); gravelly sandy clay loam
**BC--50 to 59 in (127 to 149 cm); gravelly sandy loam
**C--59 to 79 in (149 to 200 cm); very gravelly sandy loam

Minor Components

****Grannycreek and similar soils
Composition: About 5 percent
Slope: 2 to 5 percent
Landform: Depressional areas on alluvial fan
Depressional areas on terrace
Ecological site: Not Assigned

****Johnnyjack and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Landform: Linear to slightly concave positions on terrace
Ecological site: Not Assigned

****Conklin and similar soils
Composition: About 3 percent
Slope: 0 to 2 percent
Landform: Linear to slightly concave or convex positions on terrace
Ecological site: Not Assigned

****Benbow and similar soils
Composition: About 1 percent
Slope: 0 to 5 percent
Landform: Uplifted terrace
Ecological site: Not Assigned

****L-Sk Typic Haploxerept and similar soils
Composition: About 1 percent
Slope: 2 to 30 percent
Landform: Edges of terrace
Ecological site: Not Assigned

***159--Grannycreek-Parkland complex, 2 to 5 percent slopes

Map Unit Setting

General location: Areas along the Mattole River and its tributaries
Major uses: Pasture and hay.
MLRA: 4B - Coastal Redwood Belt
Map unit landscape: River valley
Landscape setting: Alluvial fans and and terraces at the base of mountain slopes with high clay soils.
Elevation: 95 to 490 feet (30 to 150 meters)
Mean annual precipitation: 49 to 100 inches (1250 to 2550 millimeters)
Mean annual air temperature: 54 to 59 degrees F. (12 to 15 degrees C.)
Frost-free period: 280 to 300 days

Map Unit Composition
**Grannycreek--50 percent
**Parkland--35 percent
Minor components: 16 percent

Major Component Description

*Grannycreek and similar soils
Slope: 2 to 5 percent
Aspect: None noted
Landform: Alluvial fan
Terrace
Parent material: Alluvium derived from sedimentary rock and/or slope alluvium derived from sedimentary rock
Typical vegetation: Annual and perennial pasture grasses, pennyroyal and other forbs, and rushes

Selected Properties and Qualities of Grannycreek

Surface area covered by coarse fragments: 0 to 2 percent medium subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Slow
Slowest rate of saturated hydraulic conductivity: Moderately low
Available water capacity to 60 inches: About 9.8 inches (High)

Selected Hydrologic Properties of Grannycreek

Present annual flooding: None
Present annual ponding: Frequent
Surface runoff: Very high
Current water table: Present
Natural drainage class: Poorly drained
Hydrologic Soil Group: D

California Land Use Interpretive Groups
Land capability nonirrigated: 3w
Ecological site: Not Assigned

Typical Profile
**A--0 to 4 in (0 to 10 cm); loam
**Btg1--4 to 15 in (10 to 38 cm); clay loam
**Btg2--15 to 30 in (38 to 75 cm); clay
**Btg3--30 to 43 in (75 to 110 cm); clay
**Btg4--43 to 53 in (110 to 135 cm); clay
**Btg5--53 to 67 in (135 to 170 cm); clay

*Parkland and similar soils
Slope: 2 to 5 percent
Aspect: None noted
Landform: Alluvial fan
Terrace
Parent material: Alluvium derived from sedimentary rock and/or slope alluvium derived from sedimentary rock
Typical vegetation: Annual and perennial pasture grasses, pennyroyal, and other forbs

Selected Properties and Qualities of Parkland

Surface area covered by coarse fragments: 0 to 5 percent medium subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Slow
Slowest rate of saturated hydraulic conductivity: Moderately low
Available water capacity to 60 inches: About 10.7 inches (Very high)

Selected Hydrologic Properties of Parkland

Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Present
Natural drainage class: Moderately well drained
Hydrologic Soil Group: C

California Land Use Interpretive Groups
Land capability nonirrigated: 2e
Ecological site: Not Assigned

Typical Profile
**Ap--0 to 4 in (0 to 10 cm); loam
**Bt1--4 to 9 in (10 to 22 cm); silt loam
**Bt2--9 to 17 in (22 to 43 cm); clay loam
**Bt3--17 to 28 in (43 to 70 cm); silty clay loam
**Bt4--28 to 46 in (70 to 117 cm); silty clay loam
**2Bt--46 to 71 in (117 to 180 cm); clay

Minor Components

****Garberville and similar soils
Composition: About 10 percent
Slope: 2 to 5 percent
Landform: Alluvial fan
Terrace

***153--Conklin, 0 to 2 percent slopes

Map Unit Setting

General location: Areas along the Mattole and Eel Rivers and their tributaries.
Major uses: Pasture, hay, truck crops, and orchards. Minor areas are wooded.
MLRA: 4B,5 - Coastal Redwood Belt,Siskiyou-Trinity Area
4B,5 - Coastal Redwood Belt,Siskiyou-Trinity Area
Map unit landscape: River valley
Landscape setting: River valley
Elevation: 55 to 325 feet (18 to 100 meters)
Mean annual precipitation: 49 to 98 inches (1250 to 2500 millimeters)
Mean annual air temperature: 55 to 59 degrees F. (13 to 15 degrees C.)
Frost-free period: 280 to 300 days

Map Unit Composition
**Conklin--85 percent
Minor components: 15 percent

Major Component Description

*Conklin and similar soils
Slope: 0 to 2 percent
Aspect: None noted
Landform: Linear to slightly concave or convex positions on terrace
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Annual and perennial grasses and forbs

Selected Properties and Qualities of Conklin

Surface area covered by coarse fragments: 0 to 5 percent coarse subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Moderate
Slowest rate of saturated hydraulic conductivity: Moderately high
Available water capacity to 60 inches: About 12.1 inches (Very high)

Selected Hydrologic Properties of Conklin

Present annual flooding: None
Present annual ponding: None
Surface runoff: Low
Current water table: None noted.
Natural drainage class: Well drained
Hydrologic Soil Group: B

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California Land Use Interpretive Groups
Land capability nonirrigated: 2c
Ecological site: Not Assigned

Typical Profile
**Ap--0 to 7 in (0 to 18 cm); loam
**A--7 to 20 in (18 to 52 cm); sandy clay loam
**Bw1--20 to 31 in (52 to 78 cm); sandy clay loam

**Bw2--31 to 49 in (78 to 125 cm); loam
**Bw3--49 to 63 in (125 to 160 cm); sandy clay loam
**2C--63 to 79 in (160 to 200 cm); extremely gravelly loamy coarse sand

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Minor Components

****Johnnyjack and similar soils
Composition: About 10 percent
Slope: 0 to 2 percent
Landform: Linear to slightly concave positions on terrace
Ecological site: Not Assigned

****Parkland and similar soils
Composition: About 3 percent
Slope: 0 to 2 percent
Landform: Concave areas on alluvial fan
Concave areas on terrace
Ecological site: Not Assigned

****Loamy-Skeletal Cumulic Ultic Haploxerolls and similar soils
Composition: About 2 percent
Slope: 2 to 50 percent
Landform: Edges of terrace
Ecological site: Not Assigned

***144--Garberville-Parkland complex, 0 to 2 percent slopes

Map Unit Setting

General location: Areas along the Eel River and its tributaries in the area of Garberville.
Major uses: Pasture, hay, and truck crops
MLRA: 4B,5 - Coastal Redwood Belt,Siskiyou-Trinity Area
4B,5 - Coastal Redwood Belt,Siskiyou-Trinity Area
Map unit landscape: River valley
Landscape setting: River valleys
Elevation: 110 to 455 feet (35 to 140 meters)
Mean annual precipitation: 49 to 100 inches (1250 to 2550 millimeters)
Mean annual air temperature: 55 to 59 degrees F. (13 to 15 degrees C.)
Frost-free period: 280 to 300 days

Map Unit Composition
**Garberville--50 percent
**Parkland--35 percent
Minor components: 15 percent

Major Component Description

*Garberville and similar soils
Slope: 0 to 2 percent
Aspect: None noted
Landform: Alluvial fan
Terrace
Parent material: Alluvium derived from sedimentary rock and/or slope alluvium derived from sedimentary rock
Typical vegetation: Annual and perennial pasture grasses and forbs.

Selected Properties and Qualities of Garberville

Surface area covered by coarse fragments: 0 to 5 percent coarse subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Moderately slow
Slowest rate of saturated hydraulic conductivity: Moderately high
Available water capacity to 60 inches: About 10.0 inches (Very high)

Selected Hydrologic Properties of Garberville

Present annual flooding: None
Present annual ponding: None
Surface runoff: Low
Current water table: None noted.
Natural drainage class: Well drained
Hydrologic Soil Group: C

California Land Use Interpretive Groups
Land capability nonirrigated: 2c
Ecological site: Not Assigned

ypical Profile
*Ap--0 to 2 in (0 to 5 cm); loam
*Bt1--2 to 12 in (5 to 31 cm); loam
*Bt2--12 to 18 in (31 to 46 cm); silty clay loam
*Bt3--18 to 35 in (46 to 88 cm); clay loam
*Bt4--35 to 51 in (88 to 129 cm); sandy clay loam
*Bt5--51 to 71 in (129 to 180 cm); sandy clay loam

Parkland and similar soils
Slope: 0 to 2 percent
Aspect: None noted
Landform: Alluvial fan
Terrace
Parent material: Alluvium derived from sedimentary rock and/or slope alluvium derived from sedimentary rock
Typical vegetation: Annual and perennial pasture grasses, pennyroyal, and other forbs

Selected Properties and Qualities of Parkland

Surface area covered by coarse fragments: 0 to 5 percent coarse subrounded gravel
Depth to restrictive feature: None noted
Slowest permeability class: Slow
Slowest rate of saturated hydraulic conductivity: Moderately low
Available water capacity to 60 inches: About 11.1 inches (Very high)

Selected Hydrologic Properties of Parkland

Present annual flooding: None
Present annual ponding: None
Surface runoff: High
Current water table: Present
Natural drainage class: Moderately well drained
Hydrologic Soil Group: C

California Land Use Interpretive Groups
Land capability nonirrigated: 2c
Ecological site: Not Assigned

Typical Profile
**Ap--0 to 8 in (0 to 20 cm); loam
**Bt1--8 to 20 in (20 to 50 cm); clay loam
**Bt2--20 to 28 in (50 to 70 cm); clay loam
**Bt3--28 to 35 in (70 to 89 cm); silty clay loam
**Bt4--35 to 44 in (89 to 113 cm); clay loam
**BCt--44 to 71 in (113 to 180 cm); clay loam

Minor Components

****Grannycreek and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Landform: Depressional areas on alluvial fan
Depressional areas on terrace

Ecological site: Not Assigned

****Johnnyjack and similar soils
Composition: About 5 percent
Slope: 0 to 2 percent
Landform: Linear to slightly concave positions on terrace
Ecological site: Not Assigned

****Conklin and similar soils
Composition: About 3 percent
Slope: 0 to 2 percent
Landform: Linear to slightly concave or convex positions on terrace
Ecological site: Not Assigned

****Benbow and similar soils
Composition: About 2 percent
Slope: 0 to 5 percent
Landform: Uplifted terrace
Ecological site: Not Assigned

100--Riverwash-Fluvents complex, 0 to 2 percent slopes

Map Unit Setting

Landscape: River valleys
Elevation: 0 to 660 feet
Mean annual precipitation: 35 to 80 inches
Mean annual air temperature: 50 to 59 degrees F
Frost-free period: 275 to 330 days

Map Unit Composition
Riverwash: 50 percent
Fluvents and similar soils: 30
Minor components: 20 percent

Description of Riverwash

Setting
Landform: Channels
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Properties and qualities
Slope: 0 to 2 percent
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High or very high (6.000 to 59.982 in/hr)
Depth to water table: About 0 to 39 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water capacity: Very low (about 1.1 inches)

Interpretive Groups
Land capability (non irrigated): 8

Typical Profile
C1 : 0 to 6 inches: extremely gravelly sand
C2 : 6 to 12 inches: extremely gravelly loamy sand
C3 : 12 to 18 inches: extremely gravelly coarse sand
C4 : 18 to 31 inches: extremely gravelly sand
C5 : 31 to 55 inches: extremely gravelly sand
C6 : 55 to 63 inches: very gravelly sand

Description of Fluvents

Setting
Landform: Flood-plain steps
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Alluvium derived from mixed sources

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.599 to 5.994 in/hr)
Depth to water table: About 39 to 79 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water capacity: Very low (about 2.5 inches)

Interpretive Groups
Land capability classification (irrigated): 4s
Land capability (non irrigated): 4s

Typical Profile
A1 : 0 to 6 inches: very fine sandy loam
A2 : 6 to 11 inches: sandy loam
A3 : 11 to 13 inches: gravelly very fine sandy loam
C1 : 13 to 26 inches: very gravelly sandy loam
C2 : 26 to 63 inches: extremely gravelly sandy loam

Minor Components

Water
Percent of map unit: 10 percent

Fluvents, occasionally flooded soils
Percent of map unit: 9 percent
Landform: Flood-plain steps
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Rock outcrop
Percent of map unit: 1 percent

451--Burgsblock-Coolyork-Tannin complex, 15 to 30 percent slopes

Map Unit Setting

Landscape: Mountains
Elevation: 200 to 4,000 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days

Map Unit Composition
Burgsblock and similar soils: 35 percent
Coolyork and similar soils: 30
Tannin and similar soils: 20
Minor components: 15 percent

Description of Burgsblock

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from sedimentary rock and/or residuum weathered from sedimentary rock

Properties and qualities
Slope: 15 to 30 percent
Surface area covered with stones and boulders: 0.0 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.200 to 1.999 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.1 inches)

Interpretive Groups
Land capability (non irrigated): 4e

Typical Profile
Oi : 0 to 2 inches: slightly decomposed plant material
A1 : 2 to 11 inches: gravelly loam
A2 : 11 to 16 inches: gravelly loam
Bt1 : 16 to 41 inches: very gravelly loam
Bt2 : 41 to 51 inches: very gravelly loam
Bt3 : 51 to 71 inches: very gravelly loam

Description of Coolyork

Setting
Landform: Mountain slopes

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from schist

Properties and qualities
Slope: 15 to 30 percent
Surface area covered with stones and boulders: 0.0 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.060 to 0.599 in/hr)
Depth to water table: About 20 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 1 percent
Available water capacity: Very high (about 12.2 inches)

Interpretive Groups
Land capability (non irrigated): 4e

Typical Profile
A : 0 to 4 inches: loam
BAt : 4 to 14 inches: clay loam
Bt1 : 14 to 23 inches: clay loam
Bt2 : 23 to 43 inches: clay loam
C1 : 43 to 55 inches: loam
C2 : 55 to 71 inches: gravelly silt loam

Description of Tannin

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone; colluvium derived from mudstone and/or colluvium derived from sandstone

Properties and qualities
Slope: 15 to 30 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.200 to 1.999 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 13.7 inches)

Interpretive Groups
Land capability (non irrigated): 4e

Typical Profile
Oi : 0 to 1 inches: slightly decomposed plant material
A : 1 to 3 inches: loam
Bt1 : 3 to 14 inches: loam
Bt2 : 14 to 26 inches: loam
Bt3 : 26 to 49 inches: loam
Bt4 : 49 to 62 inches: sandy clay loam
BCt : 62 to 79 inches: sandy clay loam

Minor Components

Rockyglen soils
Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope, shoulder
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex

Wohly soils
Percent of map unit: 4 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Convex

Chalkmountain soils
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, convex, concave

Yorknorth soils
Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

Rock outcrop
Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Convex
Across-slope shape: Concave

452--Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes

Map Unit Setting

Landscape: Mountains
Elevation: 200 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days

Map Unit Composition
Burgsblock and similar soils: 35 percent
Coolyork and similar soils: 30
Tannin and similar soils: 20
Minor components: 15 percent

Description of Burgsblock

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

Properties and qualities
Slope: 30 to 50 percent
Surface area covered with stones and boulders: 0.0 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.200 to 1.999 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.0 inches)

Interpretive Groups
Land capability (non irrigated): 6e

Typical Profile
Oi : 0 to 1 inches: slightly decomposed plant material
A : 1 to 4 inches: gravelly loam
Bt1 : 4 to 14 inches: very gravelly clay loam
Bt2 : 14 to 51 inches: very gravelly clay loam
Bt3 : 51 to 79 inches: very gravelly clay loam

Description of Coolyork

Setting
Landform: Mountain slopes

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from schist

Properties and qualities
Slope: 30 to 50 percent
Surface area covered with stones and boulders: 0.0 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.060 to 0.599 in/hr)
Depth to water table: About 20 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 1 percent
Available water capacity: High (about 10.6 inches)

Interpretive Groups
Land capability (non irrigated): 6e

Typical Profile
A1 : 0 to 8 inches: loam
A2 : 8 to 14 inches: loam
Bt1 : 14 to 23 inches: clay loam
Bt2 : 23 to 41 inches: clay
Bt3 : 41 to 57 inches: clay
Bt4 : 57 to 63 inches: clay

Description of Tannin

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Properties and qualities
Slope: 30 to 50 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.200 to 1.999 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 13.3 inches)

Interpretive Groups

Land capability (non irrigated): 6e

Typical Profile
Oi : 0 to 1 inches: slightly decomposed plant material
A : 1 to 7 inches: loam
ABt : 7 to 13 inches: loam
Bt1 : 13 to 26 inches: sandy clay loam
Bt2 : 26 to 38 inches: sandy clay loam
Bt3 : 38 to 79 inches: sandy clay loam

Minor Components

Rockyglen soils
Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope, shoulder
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex

Wohly soils
Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Concave, linear, convex

Chalkmountain soils
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, convex, concave

Yorknorth soils
Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

Rock outcrop
Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Convex
Across-slope shape: Concave

574--Sproulish-Canoecreek-Redwohly complex, 30 to 50 percent slopes, dry

Map Unit Setting

Landscape: Mountains
Elevation: 100 to 3,280 feet
Mean annual precipitation: 59 to 100 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 240 to 300 days

Map Unit Composition
Sproulish and similar soils: 50 percent
Canoecreek and similar soils: 20
Redwohly and similar soils: 15
Minor components: 15 percent

Description of Sproulish

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone

Properties and qualities
Slope: 30 to 50 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or high (0.060 to 1.999 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 13.2 inches)

Interpretive Groups
Land capability (non irrigated): 6e

Typical Profile
Oi : 0 to 2 inches: slightly decomposed plant material
A : 2 to 6 inches: gravelly silt loam
Bt1 : 6 to 13 inches: paragravelly clay loam
Bt2 : 13 to 21 inches: gravelly loam
Bt3 : 21 to 47 inches: clay loam
Bt4 : 47 to 63 inches: paragravelly silty clay loam
Bt5 : 63 to 79 inches: paragravelly silty clay loam

Description of Canoecreek

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Colluvium and residuum derived from sandstone and mudstone

Properties and qualities
Slope: 30 to 50 percent
Surface area covered with stones and boulders: 1.0 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.599 to 1.999 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.0 inches)

Interpretive Groups
Land capability (non irrigated): 6e

Typical Profile
Oi : 0 to 1 inches: slightly decomposed plant material
A : 1 to 9 inches: gravelly loam
Bw1 : 9 to 15 inches: very cobbly loam
Bw2 : 15 to 31 inches: extremely cobbly loam
Bw3 : 31 to 49 inches: very cobbly sandy loam
C : 49 to 71 inches: extremely stony loamy sand

Description of Redwohly

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and/or residuum weathered from mudstone

Properties and qualities
Slope: 30 to 50 percent
Depth to restrictive feature: 20 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.142 to 1.417 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.9 inches)

Interpretive Groups
Land capability (non irrigated): 6e

Typical Profile
Oi : 0 to 1 inches: slightly decomposed plant material
A : 1 to 5 inches: paragravelly loam
Bt1 : 5 to 16 inches: very paragravelly loam
Bt2 : 16 to 33 inches: extremely paragravelly loam
C : 33 to 63 inches: paragravel

Minor Components

Crazycoyote soils
Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear

Canoecreek soils
Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Convex

Caperidge, warm soils
Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Kingrange soils
Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex

Rock outcrop
Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Convex
Across-slope shape: Concave

Briceland soils
Percent of map unit: 1 percent

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

183--Battery, 2 to 15 percent slopes

Map Unit Setting

Landscape: Mountains
Elevation: 160 to 1,380 feet
Mean annual precipitation: 40 to 85 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 240 to 365 days

Map Unit Composition
Battery and similar soils: 90 percent
Minor components: 10 percent

Description of Battery

Setting
Landform: Strath terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sedimentary sources

Properties and qualities
Slope: 2 to 15 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.200 to 0.599 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.7 inches)

Interpretive Groups
Land capability classification (irrigated): 3e
Land capability (non irrigated): 3e

Typical Profile
Oi : 0 to 0 inches: slightly decomposed plant material
A : 0 to 13 inches: silt loam
Bt1 : 13 to 24 inches: silty clay loam
Bt2 : 24 to 51 inches: gravelly clay loam
BCt : 51 to 60 inches: very paragravelly clay loam

Minor Components

Scoutcamp soils
Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop
Down-slope shape: Linear
Across-slope shape: Linear

Redcrest soils
Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex
Across-slope shape: Linear

410--Rockyglen-Hollowtree-Rock outcrop complex, 50 to 100 percent slopes

Map Unit Setting

Landscape: Mountains
Elevation: 330 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 240 to 280 days

Map Unit Composition
Rockyglen and similar soils: 45 percent
Hollowtree and similar soils: 25
Rock outcrop: 15
Minor components: 15 percent

Description of Rockyglen

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Concave, linear, convex
Parent material: Colluvium derived from sandstone and/or residuum weathered from mudstone

Properties and qualities
Slope: 50 to 100 percent
Surface area covered with stones and boulders: 5.0 percent
Depth to restrictive feature: None within 60 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high or high (0.599 to 1.999 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive Groups
Land capability (non irrigated): 7e

Typical Profile
Oi : 0 to 1 inches: very gravelly slightly decomposed plant material
A : 1 to 7 inches: extremely gravelly sandy loam
Bw1 : 7 to 11 inches: extremely gravelly sandy loam
Bw2 : 11 to 28 inches: extremely gravelly sandy loam
C1 : 28 to 35 inches: extremely gravelly sandy loam
C2 : 35 to 41 inches: extremely gravelly sandy loam
C3 : 41 to 79 inches: extremely gravelly sandy loam

Description of Hollowtree

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Concave, linear, convex

Properties and qualities
Slope: 50 to 75 percent
Depth to restrictive feature: 20 to 39 inches to bedrock, lithic
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.142 to 1.417 in/hr)
Depth to water table: More than 6 feet
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.8 inches)

Interpretive Groups
Land capability (non irrigated): 7e

Typical Profile
Oi : 0 to 1 inches: slightly decomposed plant material
A : 1 to 4 inches: gravelly loam
ABt : 4 to 9 inches: gravelly loam
Bt : 9 to 19 inches: very gravelly loam
CBt : 19 to 27 inches: extremely gravelly loam
R : 27 to 79 inches: bedrock

Description of Rock outcrop

Setting
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex
Parent material: Residuum weathered from sandstone

Properties and qualities
Slope: 50 to 75 percent
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Burgsblock soils
Percent of map unit: 10 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex

Coolyork soils
Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, center third
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex

APPENDIX C
AIR QUALITY DATA

Southern Humboldt Community Park

Humboldt County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	405.70	Acre	405.70	17,672,292.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	103
Climate Zone	1			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	370	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2016 rate.

Land Use - Acreage from project description.

Vehicle Trips - Trip rate from project traffic report.

Energy Use - No change.

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CO2IntensityFactor	641.35	370
tblProjectCharacteristics	OperationalYear	2014	2016
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	1.59	2.28
tblVehicleTrips	SU_TR	1.59	2.28
tblVehicleTrips	WD_TR	1.59	2.28

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	89.4973	4.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.2500e-003	7.2500e-003	2.0000e-005	0.0000	7.6800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.0744	2.7133	10.3818	0.0127	0.8323	0.0314	0.8637	0.2242	0.0289	0.2531	0.0000	1,014.3057	1,014.3057	0.0588	0.0000	1,015.5407
Waste						0.0000	0.0000		0.0000	0.0000	7.0824	0.0000	7.0824	0.4186	0.0000	15.8720
Water						0.0000	0.0000		0.0000	0.0000	0.0000	283.9408	283.9408	0.0223	4.6000e-003	285.8355
Total	**90.5716**	**2.7134**	**10.3857**	**0.0127**	**0.8323**	**0.0314**	**0.8637**	**0.2242**	**0.0289**	**0.2531**	**7.0824**	**1,298.2537**	**1,305.3361**	**0.4996**	**4.6000e-003**	**1,317.2559**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	89.4973	4.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.2500e-003	7.2500e-003	2.0000e-005	0.0000	7.6800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.0744	2.7133	10.3818	0.0127	0.8323	0.0314	0.8637	0.2242	0.0289	0.2531	0.0000	1,014.3057	1,014.3057	0.0588	0.0000	1,015.5407

Waste						0.0000	0.0000		0.0000	0.0000	7.0824	0.0000	7.0824	0.4186	0.0000	15.8720
Water						0.0000	0.0000		0.0000	0.0000	0.0000	283.9408	283.9408	0.0223	4.6000e-003	285.8355
Total	**90.5716**	**2.7134**	**10.3857**	**0.0127**	**0.8323**	**0.0314**	**0.8637**	**0.2242**	**0.0289**	**0.2531**	**7.0824**	**1,298.2537**	**1,305.3361**	**0.4996**	**4.6000e-003**	**1,317.2559**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0744	2.7133	10.3818	0.0127	0.8323	0.0314	0.8637	0.2242	0.0289	0.2531	0.0000	1,014.3057	1,014.3057	0.0588	0.0000	1,015.5407
Unmitigated	1.0744	2.7133	10.3818	0.0127	0.8323	0.0314	0.8637	0.2242	0.0289	0.2531	0.0000	1,014.3057	1,014.3057	0.0588	0.0000	1,015.5407

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	925.00	925.00	925.00	2,281,230	2,281,230
Total	925.00	925.00	925.00	2,281,230	2,281,230

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.425675	0.106442	0.174438	0.131699	0.086003	0.009122	0.013797	0.036792	0.002239	0.001601	0.007858	0.001304	0.003030

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	89.4973	4.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.2500e-003	7.2500e-003	2.0000e-005	0.0000	7.6800e-003
Unmitigated	89.4973	4.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.2500e-003	7.2500e-003	2.0000e-005	0.0000	7.6800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating	20.4778					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	69.0191					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.7000e-004	4.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.2500e-003	7.2500e-003	2.0000e-005	0.0000	7.6800e-003
Total	**89.4973**	**4.0000e-005**	**3.8200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.2500e-003**	**7.2500e-003**	**2.0000e-005**	**0.0000**	**7.6800e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	20.4778					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	69.0191					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.7000e-004	4.0000e-005	3.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.2500e-003	7.2500e-003	2.0000e-005	0.0000	7.6800e-003
Total	**89.4973**	**4.0000e-005**	**3.8200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.2500e-003**	**7.2500e-003**	**2.0000e-005**	**0.0000**	**7.6800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	283.9408	0.0223	4.6000e-003	285.8355
Unmitigated	283.9408	0.0223	4.6000e-003	285.8355

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 483.384	283.9408	0.0223	4.6000e-003	285.8355
Total		**283.9408**	**0.0223**	**4.6000e-003**	**285.8355**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 483.384	283.9408	0.0223	4.6000e-003	285.8355
Total		**283.9408**	**0.0223**	**4.6000e-003**	**285.8355**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.0824	0.4186	0.0000	15.8720
Unmitigated	7.0824	0.4186	0.0000	15.8720

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	34.89	7.0824	0.4186	0.0000	15.8720
Total		**7.0824**	**0.4186**	**0.0000**	**15.8720**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

City Park	34.89	7.0824	0.4186	0.0000	15.8720
Total		**7.0824**	**0.4186**	**0.0000**	**15.8720**

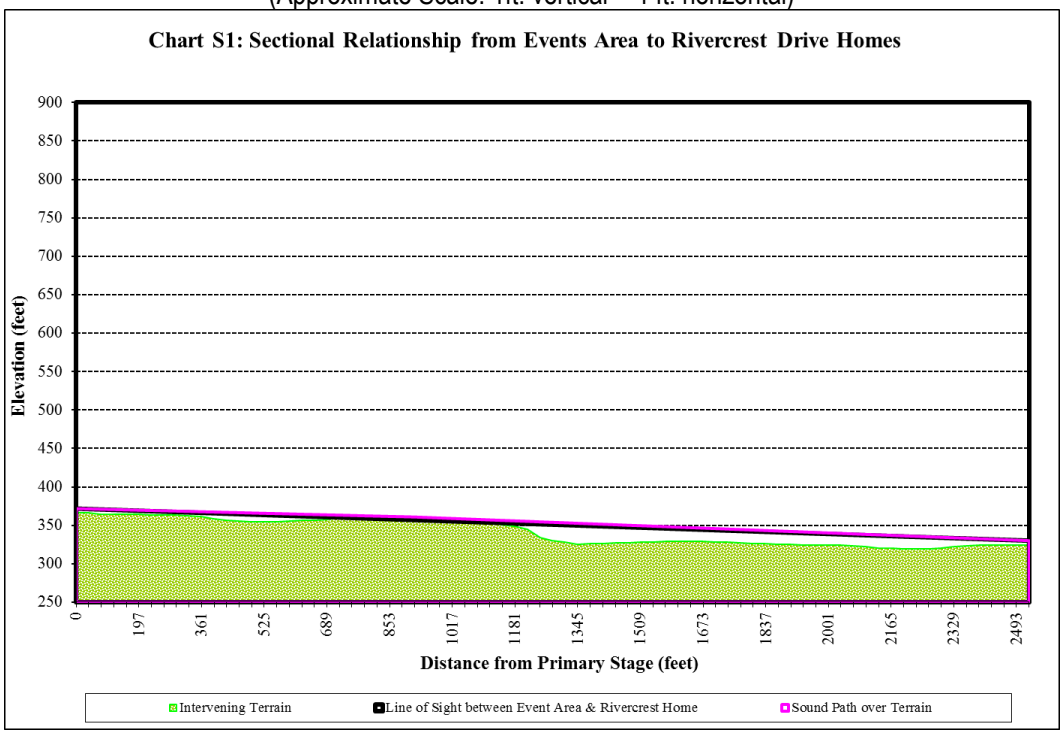
9.0 Operational Offroad

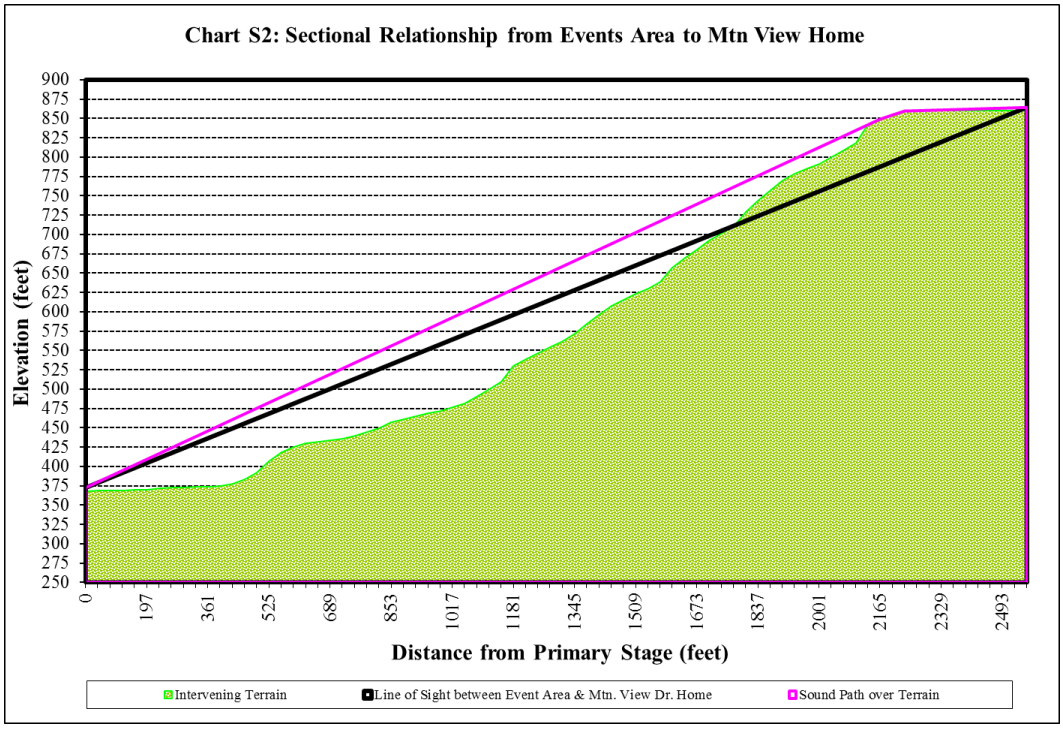
Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX D
NOISE DATA

APPENDIX D:
CROSS SECTIONAL LINE OF SIGHT ANALYSIS
(Approximate Scale: 1ft. vertical = 4 ft. horizontal)





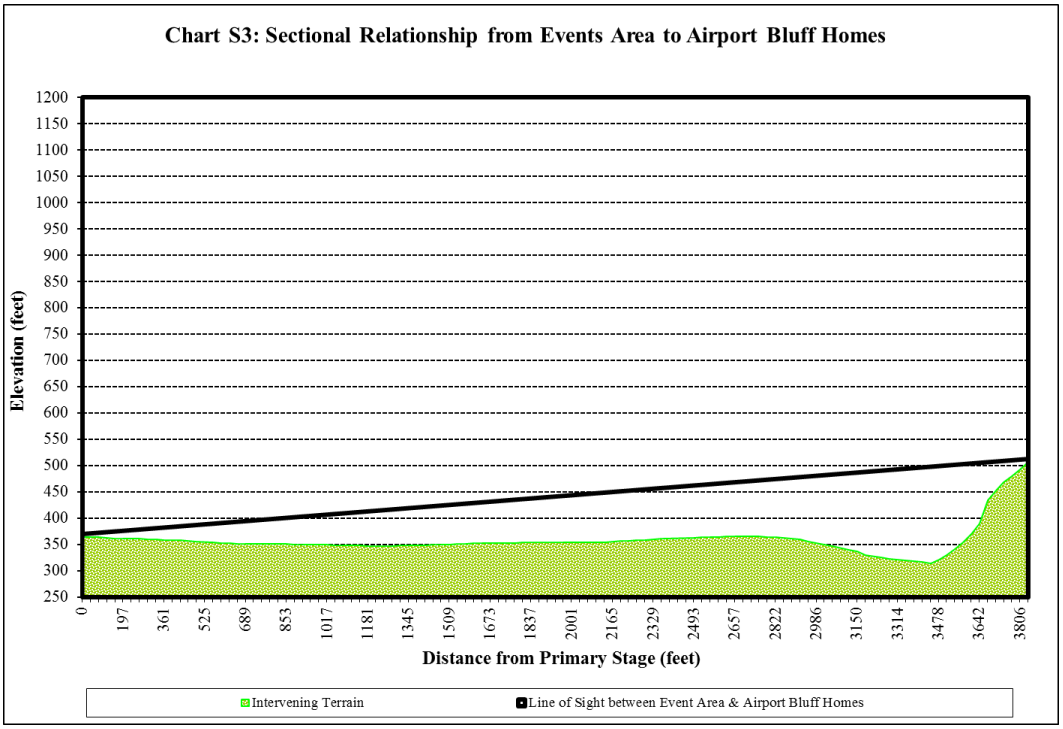


Chart S3: Sectional Relationship from Events Area to Airport Bluff Homes
Elevation (feet)
1200
1150
1100
1050
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
0
197
361
525
689
853
1017
1181
1345
1509
1673
1837
2001
2165
2329
2493
2657
2822
2986
3150
3314
3478
3642
3806
Distance from Primary Stage (feet)
Intervening Terrain
Line of Sight between Event Area & Airport Bluff Homes

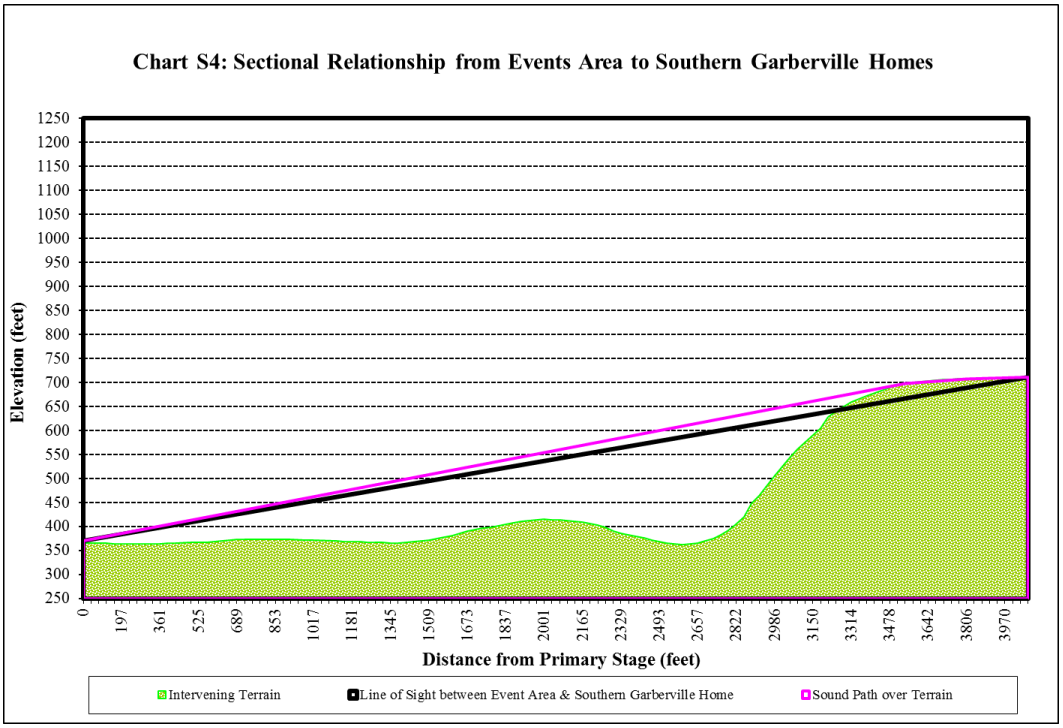


Chart S4: Sectional Relationship from Events Area to Southern Garberville Homes
Elevation (feet)
1250
1200
1150
1100
1050
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
0
197
361
525
689
853
1017
1181
1345
1509
1673
1837
2001
2165
2329
2493
2657
2822
2986
3150
3314
3478
3642
3806
3970
Distance from Primary Stage (feet)
Intervening Terrain
Line of Sight between Event Area & Southern Garberville Home
Sound Path over Terrain

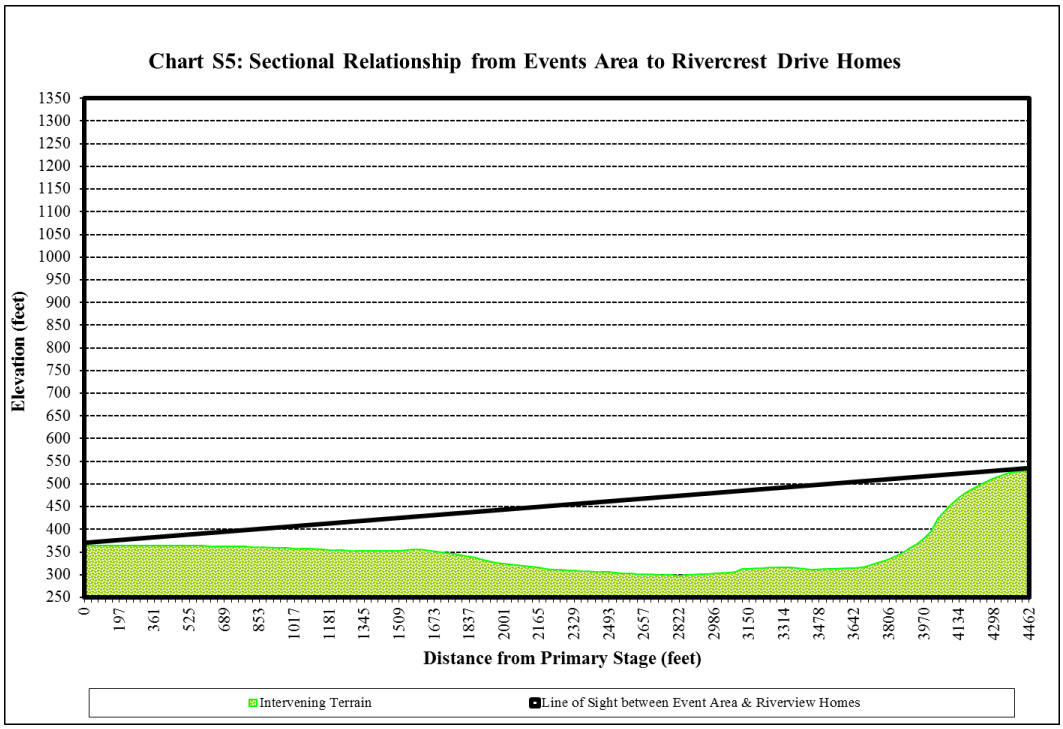


Chart S5: Sectional Relationship from Events Area to Rivercrest Drive Homes
Elevation (feet)
1350
1300
1250
1200
1150
1100
1050
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
0
197
361
525
689
853
1017
1181
1345
1509
1673
1837
2001
2165
2329
2493
2657
2822
2986
3150
3314
3478
3642
3806
3970
4134
4298
4462
Distance from Primary Stage (feet)
Intervening Terrain
Line of Sight between Event Area & Riverview Homes

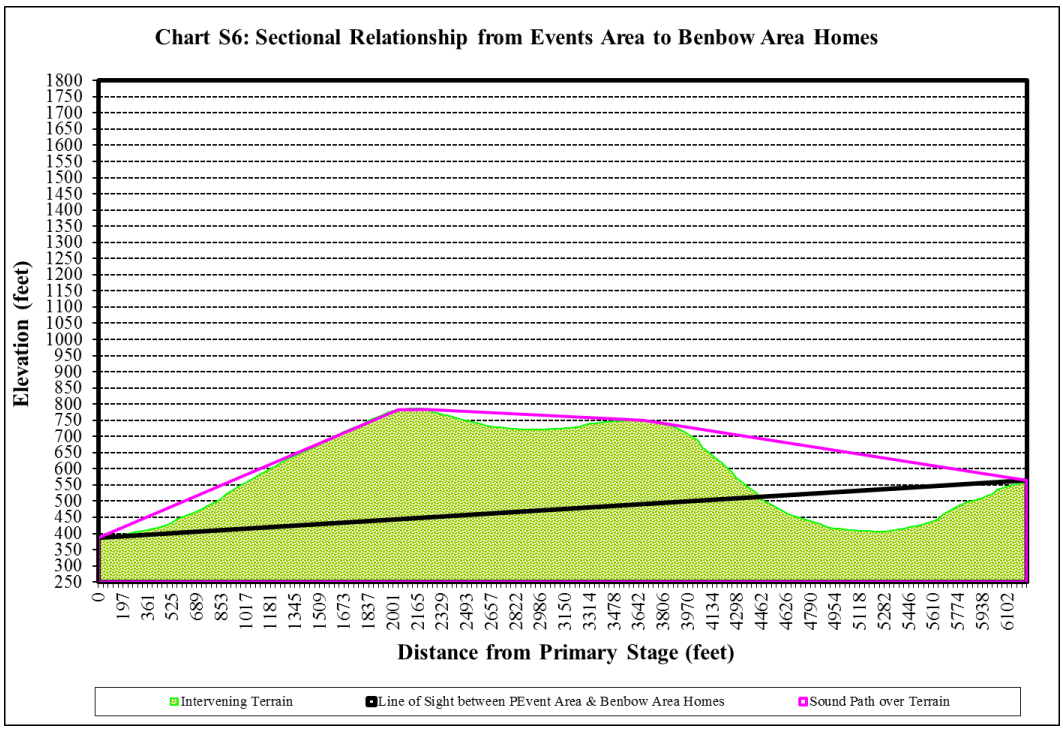


Chart S6: Sectional Relationship from Events Area to Benbow Area Homes
Elevation (feet)
1800
1750
1700
1650
1600
1550
1500
1450
1400
1350
1300
1250
1200
1150
1100
1050
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
0
197
361
525
689
853
1017
1181
1345
1509
1673
1837
2001
2165
2329
2493
2657
2822
2986
3150
3314
3478
3642
3806
3970
4134
4298
4462
4626
4790
4954
5118
5282
5446
5610
5774
5938
6102
Distance from Primary Stage (feet)
Intervening Terrain
Line of Sight between PEvent Area & Benbow Area Homes
Sound Path over Terrain

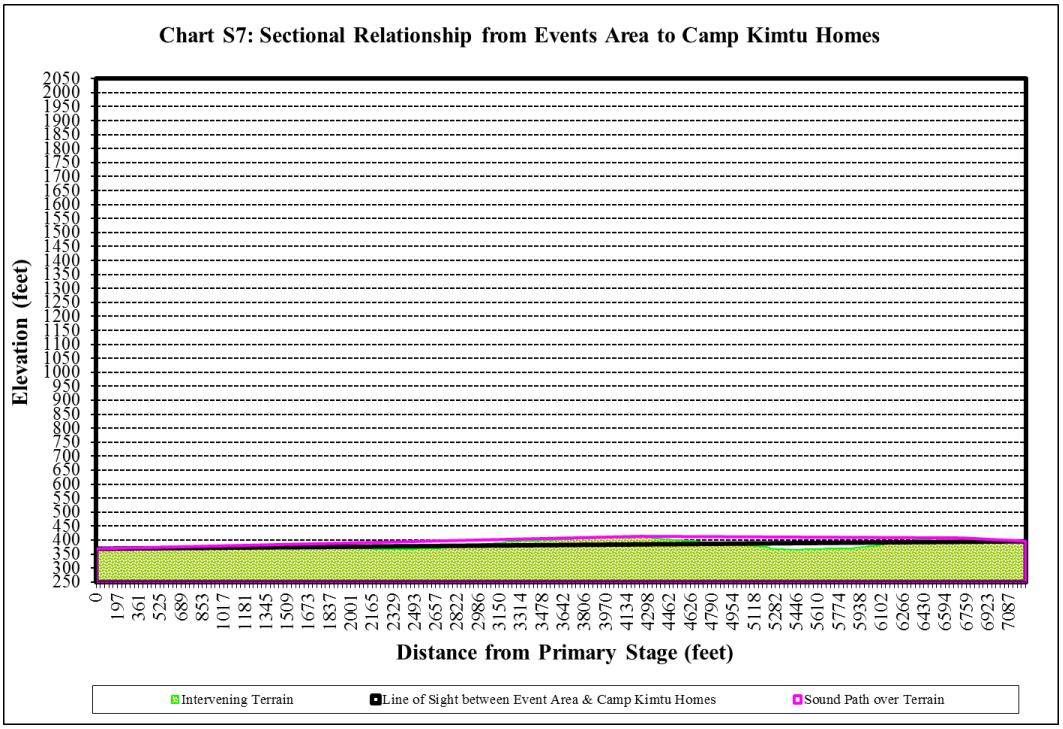


Chart S7: Sectional Relationship from Events Area to Camp Kimtu Homes
Elevation (feet)
Distance from Primary Stage (feet)
Intervening Terrain
Line of Sight between Event Area & Camp Kimtu Homes
Sound Path over Terrain

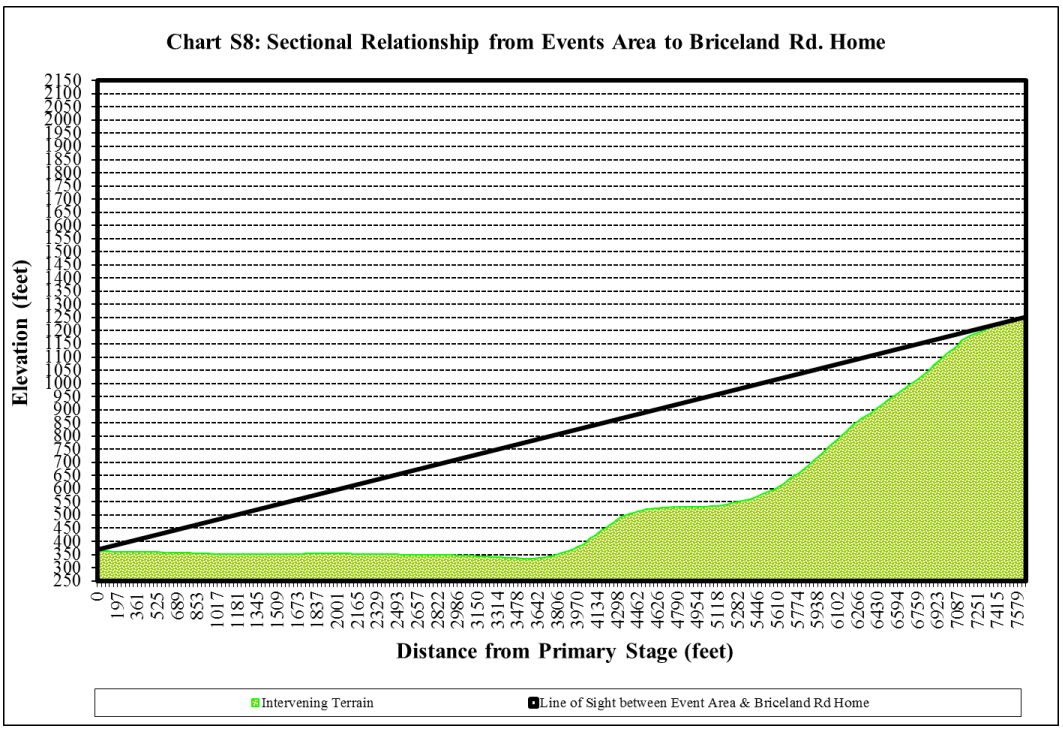


Chart S8: Sectional Relationship from Events Area to Briceland Rd. Home
Elevation (feet)
Distance from Primary Stage (feet)
Intervening Terrain
Line of Sight between Event Area & Briceland Rd Home

APPENDIX E
TRAFFIC ASSESSMENT MANAGEMENT CONTROL PLAN

TRAFFIC ASSESSMENT MANAGEMENT CONTROL PLAN
SOUTHERN HUMBOLDT COMMUNITY PARK

INTRODUCTION

This Traffic Plan was prepared in response to a number of recommendations made during the preparation of the traffic analysis as presented in the Transportation/Traffic Section of the Draft Southern Humboldt Community Park Environmental Impact Report prepared by W-Trans, a full-service traffic engineering and transportation planning company licensed by the State of California.

Consultations with the California Highway Patrol, the Department of Public Works and Caltrans and were held to identify traffic concerns. Recommendations from these agencies have been incorporated into this plan. Our intention is to provide a safe and efficient plan that will avoid and mitigate potential traffic impacts. Initially, it is proposed to postpone the Festival event until all two years of successful smaller events have occurred.

GENERAL OPERATIONS

The Community Park serves as a facility that is accessible to all segments of the population. Community groups and individuals can access the site for a variety of purposes. Projects may be implemented at the Park through a proposal process to the Board of Directors. Project Advocates provide information about the viability and benefit of the project. All projects must be compatible with the Park's Guiding Principles.

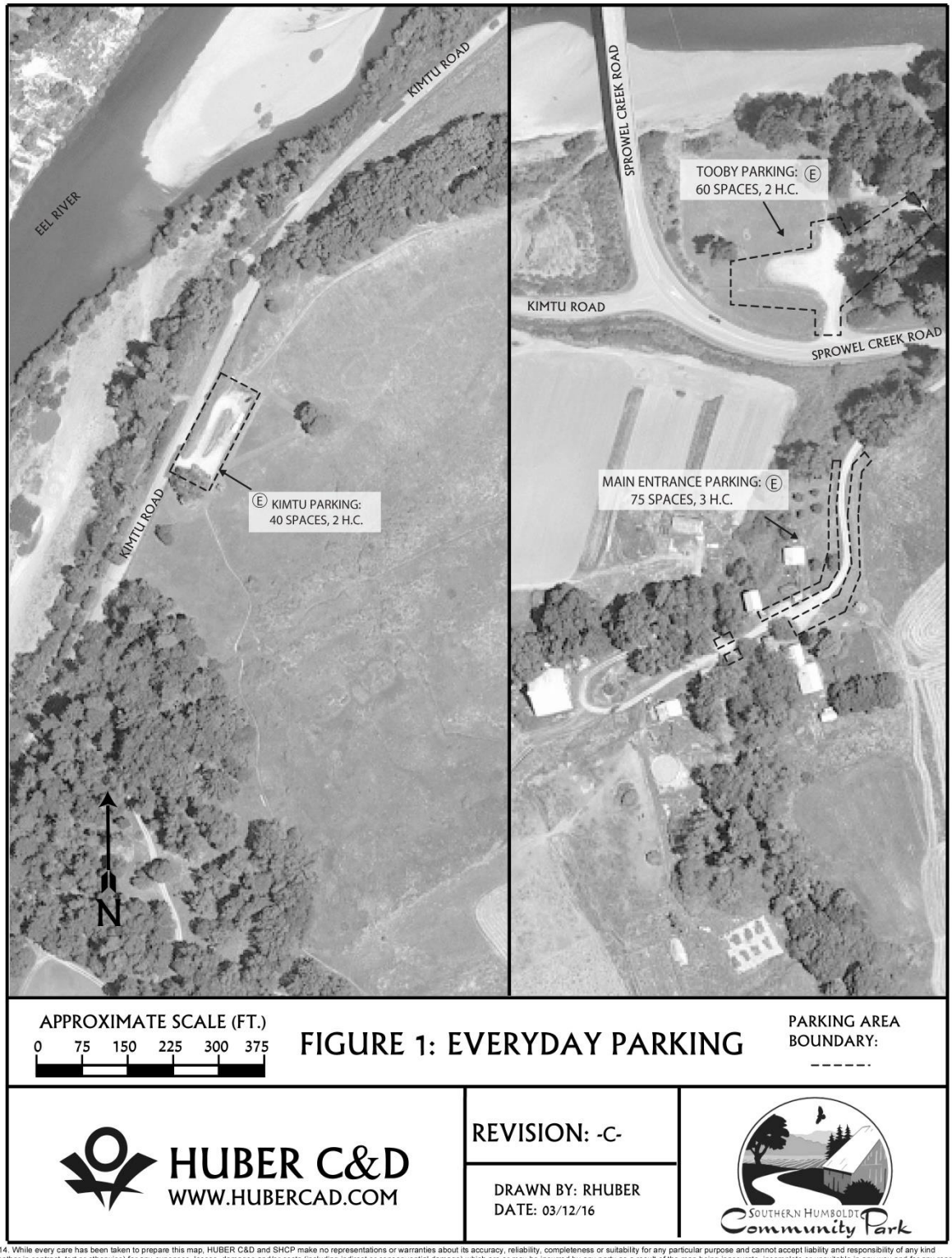
Daily Uses

The Park is and will continue to be open for a range of activities during daylight hours and by special arrangement in the evenings. These include hiking, bicycling, dog walking, nature study, small events, bird watching, Frisbee golf, horseback riding, skateboarding, swimming, picnicking and use of the playground. These activities include a variety of community-based agricultural projects, including a farm stand. When the sports fields are constructed organized sports groups will conduct activities in the Community Facilities area. This will include games, practices, jamborees, and tournaments.

Access and Parking

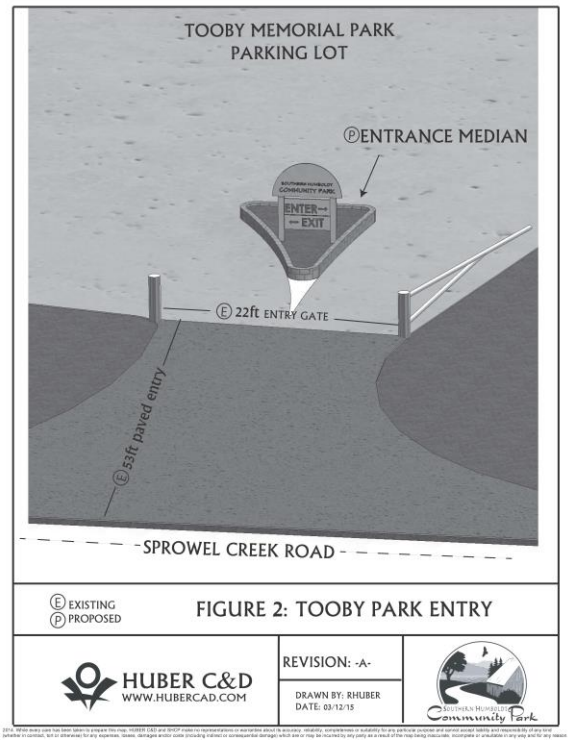
The Park is accessible via four entrances. Three of these locations have designated parking areas. All access roads serving parking areas from County roads shall have a durable dust free surface (either compacted gravel aggregate base or asphalt pavement), and shall be a minimum Class 3 Road (16 foot width) with two foot (2') gravel shoulders on each side. The first fifty feet (50') of any access road and the first twenty-five feet (25') of any driveway from the edge of pavement of any County road serving any parking area utilized by the event shall be surfaced with asphalt concrete. If it is necessary to improve any access road or driveway to meet this

requirement, a minimum of 0.2 foot of Class A asphalt concrete pavement shall be placed over a prepared subgrade consisting of a minimum 0.6 foot of Class 2 or Class 3 aggregate base compacted to 95% per California Test 216 specifications.



1. The Main Entrance to Park Headquarters is directly off Sprowel Creek Road approximately one-mile from Garberville. There is sufficient parking for everyday activities for 75 vehicles including three handicapped spaces will be available along the entrance road and near the existing Ranch structures.

2. The entrance to Tooby Memorial Park is off Sprowel Creek Road east of the Camp Kimtu Road intersection. The entry is paved for the first 50'. A traffic median will be installed to separate incoming and outgoing vehicles. (Figure 2) Parking is available for everyday uses within the Park. Currently there is parking for 65 cars and two handicapped spaces. Additional overflow parking areas are available that can be opened when necessary.



3. The Kimtu entrance on Camp Kimtu Road is approximately half a mile from the Camp Kimtu Road intersection with Sprowel Creek Road. An encroachment permit will be obtained for this entrance. The first 50' of this entry way will be paved. This parking area contains 40 parking spaces with two handicapped spaces. This parking area will be reconfigured at the time the sports fields are constructed to provide additional parking spaces.

4. The Lower Tooby Ranch Road entrance is not accessible to the general public for everyday use. It will be used mainly for park services and maintenance. It will also be some small and medium-sized events and the festival.

MEDIUM-SIZED EVENTS

Description

Five seasonal medium-sized events are proposed each year. These types of events often feature multiple performers and performances by well-known groups or individuals. These events could cover a wide-range of musical genres, theater, dance performances, and concerts. Events in this category will be located in Area 4—Community Commons Area.

General Attendees

Attendance levels for medium sized events are 800-2500.

Hours of Operation

The hours of operation will be dependent on the type of event. They may take place during regular hours of park general operations and may go into the evening hours. Amplified music will end at 11:00pm when scheduled on weekdays (Sunday-Thursday) and at 12:00pm when scheduled on Friday and Saturday nights.

1. OFF-SITE TRAFFIC
Highway 101

- **Southbound traffic** exiting at the second Garberville exit will turn right directly onto Sprowel Creek Road. Vehicles will follow Sprowel Creek Road to the event entrance approximately 3/4 mile on the left.

- **Northbound traffic:** Attendees traveling northbound on Highway 101 will exit at the first Garberville exit onto Redwood Drive, turn left at the stop sign onto Sprowel Creek Road, travel ¾ mile and make a left into the event entrance.

2. Sprowel Creek Road

- Cars will enter the on-site parking areas through the marked entry at Lower Tooby Ranch Road. A traffic control attendant with a radio will be stationed here.

- A secondary entrance at the main gate can be used temporarily at peak entry times if there is a need to get vehicles off Sprowel Creek Road very quickly. A traffic control attendant with an orange vest will be stationed here.

3. Signage

- **Advanced Warning Signs**

  Advanced warning signs shall be placed at locations as have been determined by the project engineer. Signs shall consist of retro reflective fabric signs on collapsible flag stands with a retro reflectorized cone placed adjacent to each flag stand.

  The project traffic engineer has determined the following locations shall be signed as follows:

- On Sprowel Creek Road, west of US 101 (facing west bound traffic): "Special event ahead" (SC5). Signs shall be placed so as not to confuse motorists exiting US 101 south and turning right.

- On Sprowel Creek Road, at the large turnout previous to Lower Tooby Ranch Road (facing west bound traffic) "Flagger Ahead" (C9A).

- On Sprowel Creek Road, 500 feet before event entrance at Lower Tooby Ranch Road (facing west bound traffic): "Be prepared to stop" (W3-4).

- On Camp Kimtu Road (facing eastbound traffic) 500' before junction with Sprowel Creek Road: "Special event ahead" (SC5).

- On Sprowel Creek Road, just east of the junction with Camp Kimtu Road (facing eastbound traffic) "Special event ahead" (SC5).
- On Sprowel Creek Road, 500 feet before event entrance at Lower Tooby Ranch Road (facing eastbound traffic) "Be prepared to stop" (W3-4).

Signage is not determined to be necessary, and may confuse motorists if placed along US 101 off-ramp northerly of the Sprowel Creek Road. There are no milepost markers on these rural roads.

- **Parking Restriction Signs**

  Parking restriction signs will be placed along Sprowel Creek Road and Camp Kimtu Road. Event parking on all County roads west of the intersection of Sprowel Creek Road shall be prohibited and signed in accordance with California Vehicle Code Sections 22651.(m) or 22651.05.(3).

  Parking is prohibited by law on freeway off-ramps. Due to the distance to the event site and the steep hill on the return, it is unlikely that attendees would park on off-ramps to walk to the event.

  The applicant shall furnish and erect signage as directed by the Public Works Department that includes the telephone number of the local traffic law enforcement agency.

4. Traffic Control Personnel

- Traffic Control and parking personnel will be properly trained and fully knowledgeable of established procedures as detailed in the Caltrans document entitled: "Flagging Instruction Handbook".

- In addition, all personnel assigned to traffic control shall be briefed and fully understand the procedures specified under the heading “Emergency Access” below.

- Traffic control personnel assigned to public street intersections for the purpose of traffic control shall adhere to the requirements of California Vehicle Code Section 21100.(e).

- Traffic Control personnel shall display proper insignia as required by California Vehicle Code Section 21100.(g)(3).

- Traffic control personnel will wear standard safety vests, and carry a flag and a two-way radio with sufficient extra batteries to allow communications over the time assigned. They will carry a standard Stop/Slow paddle in addition to the flag and operable radio.

- Traffic personnel working on Sprowel Creek Road or Camp Kimtu Road shall wear either a white hardhat or white baseball cap to increase visibility and awareness by drivers.

- Traffic control measures and personnel in place and working beyond on-half hour before sunset shall adhere to the procedures as outlined within the procedures as outlined within the Caltrans document entitled “North Region Construction Nightwork Guide.”

5. Minimum Number of Traffic Control Personnel

- For medium sized events, one (1) flagger shall be stationed at the intersection of Redwood Drive/Sprowel Creek Road at the conclusion of the event to direct traffic and reduce delays.

- One (1) traffic control person stationed on Sprowel Creek Road at the intersection with the Route US 101 southbound off / on ramps

- One (1) traffic control person stationed at the intersection of Sprowel Creek Road with Riverview Lane approximately four hundred (400’) west of the Sprowel Creek Road intersection with the Route US 101 southbound off / on ramps.

- For all medium-sized events one (1) traffic control person shall be stationed on Sprowel Creek Road at each incoming entrance to the event.

- Two traffic control personnel will be assigned within the parking area for each access point to the event, with one flagger directing traffic from Lower Tooby Road into the parking area and one directing each vehicle into designated parking spaces.

- One traffic control person will be assigned to facilitate vehicles exiting at the main gate.
- In addition to the minimum required number of personnel specified, sufficient additional traffic control personnel shall be furnished to relieve personnel for mandatory break periods.
- Adequate public street-side parking is available in the towns of Garberville and Redway. No off-site private parking lots are planned.

6. Facilities for Non-Motorized Modes

Garberville and Redway are the business centers of Southern Humboldt County, with a greater concentration of businesses in Garberville. While Garberville is a busy business hub for the Southern Humboldt community, the population living within the town of Garberville is 193 persons based on 2010 Census data.

The most commonly cited industry standard for the acceptable walking distance is ¼ mile. Barriers to walkability include weather, time, distance, steep grade, lack of shelter, safety, or loud traffic noise. The walk to the project site from the town of Garberville is 1.23 miles and has few of the characteristics that would classify it as highly walkable. There is open exposure to the elements, loud traffic noise, and a long, steep grade. The walk from Garberville to the Community Park would be characterized as having a low-walkability ranking by these standards. The steep grade and lack of shoulders alone makes this a difficult walk that would deter even hardy walkers, particularly on the return.

Acceptable walking distances will vary depending on geography, climate conditions, age, health, time availability, quality of surroundings, safety, climate, land use, trip purpose, and many other factors.

The low-resident population of the town of Garberville and the neighboring areas within a half-mile walking range from the project site would not be expected to produce a significant number of new non-motorized trips for events at the Park.

Attendees shall be encouraged though various media outlets to carpool to the event site. It is unlikely that event attendees from outlying areas would drive to Garberville and choose to walk more than a mile to the event when there is parking on-site and a free shuttle service in town. It is not projected that significant numbers of pedestrians or bicyclists will travel to the site.

It has been determined by project traffic engineer Dalene Whitlock of W-Trans that this project would not require the improvement of shoulder widths along Sprowel Creek Road for non-motorized traffic. None of the activities at their proposed levels (small, mid and festival sized events) will trigger the need for improved shoulder widths along Sprowel Creek Road.

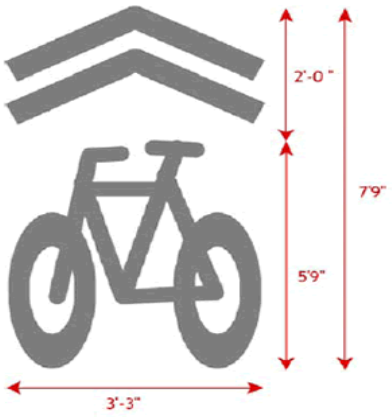
7. *Non-Motorized Transportation*

The numbers of pedestrians and non-motorized vehicles generated by this event are expected to be low due to the low resident population of 193 persons in the town of Garberville. The distance of 1.23 miles from the center of Garberville, the steep grade, the absence of roadside shoulders and the lack of shade along of Sprowel Creek Road are among the numerous contributing factors that give this stretch of roadway poor scores for walkability. It is unlikely that Park attendees would drive to Garberville, park and walk over a mile to the Park, particularly when there are shuttle buses with bike racks and onsite parking available. Traffic personnel shall direct pedestrians to utilize the shuttle buses.

- For medium sized events a temporary marked crosswalk would be created connecting the Tooby Memorial Playground to the central Community Park area. The crossing would be temporarily marked with a sign Pedestrian Crosswalk (R9-8) and temporary marked lines indicating the walkway. The crossing should be placed to maximize sight lines, and during periods of peak usage, there will be a crossing guard or flagger available to assist pedestrians and control traffic.

- "Share the Road" signs should be placed along Sprowel Creek Road to alert motorists of the presence of bicycles. Bicycles can easily travel at the same speed as vehicular traffic downhill from Garberville to the event.

- "Sharrows" should be installed to indicate the potential presence of cyclists.



8. *Shuttle Service*

This plan utilizes an existing model of shuttle bus operations that have been in place for decades in the Southern Humboldt community. These events include the Summer Arts and Music Festival (now in its 40th year) and Reggae on the River (now in its 32nd year). The community is well-accustomed to this shuttle system and these shuttle locations for events larger than the proposed project. Several of these temporary shuttle stops may be located within the County right-of-way and have operated successfully and few (if any) problems have been reported in the past.

- Shuttle service will be utilized for all events anticipating 2000 or more attendees to reduce the total number of vehicles leaving the site to a maximum of 700 outbound vehicles in a single hour.

- Medium-sized events having more than 1,800 attendees arriving during a single hour or 1,200 leaving during a single hour will utilize shuttle buses.

- Shuttle buses heading to the event will pick up passengers in Redway along Redwood Drive approximately 150' east of the junction with Rusk Lane (near the Majestic Center). The bus will continue east on Redwood Drive and pick up passengers at the corner of Redwood Drive and Sprowel Creek Road at the Chevron Station. The bus will turn left on Sprowel Creek road and proceed to the event site and turn-around on site.

- For passenger return from the site, the shuttle bus will travel west on Sprowel Creek toward Garberville. The bus will turn right at the intersection of Sprowel Creek Road and Redwood Drive. The bus will proceed to the circle at the south of Redwood Drive in Garberville and turn left at the stop sign heading north on Redwood Drive.

- The shuttle bus will drop off passengers along in Garberville on Redwood Drive across from the intersection with Sprowel Creek Road at the long curbside in front of Getti-up Coffee. The shuttle bus will continue north along Redwood Drive to drop off passengers in Redway along Redwood Drive approximately 500' east of the junction with Rusk Lane (near the Majestic Center). (Figure 4)

- Temporary shelter and shade for attendees will be provided in proximity to the shuttle stops and on Park property and outside of the County right-of-way. Shade canopies will not obstruct the traveled way for both vehicular and non-motorized traffic.

- Shuttle buses will be outfitted with bicycle racks

9. Parking Requirements On-Site

Parking requirements for three examples of medium-sized events: the minimum medium sized event, the average medium-sized event and the maximum medium-sized events are included.

Minimum Medium-Sized Event: The minimum medium-sized event with 800 in attendance would require 280 parking spaces which would be provided onsite.

Average Medium-Sized Event: An average medium-sized event with 1650 people onsite would require a total of 673 parking spaces: 630 parking spaces for 1575 attendees (1 car per 2.5 persons), 40 staff (require 20 spaces, 2 staff per car), 20 vendors (require 10 spaces, 1 per vendor, 2 persons per car) and 15 performers require 5 spaces. Events of this size occur over a several hour period with vehicles arriving and departing hourly. The demand for parking at peak attendance would be lower than the maximum number of spaces needed for the total daily numbers of persons in attendance. Assuming peak demand during an event this size would have 75% of attendee's onsite at one time, with a total parking demand of 472 spaces. Staff would also utilize everyday parking spaces. There would be adequate parking onsite for an event this size. These exceed standards

as required by Humboldt County Code (HCC) Section 109.1.3.3.4.: one parking space per every four seats, 2 spaces per staff member and 1 space per vendor. There would be 15 accessible spaces. Carpooling will be encouraged in all media releases.

Maximum Medium-Sized Events: The maximum medium-sized event with a total of 2500 on-site utilizing shuttles would need approximately 1000 parking spaces.

The event would consist of 2300 attendees, 100 staff, 35 vendor booths with 2 workers each, and 30 performers. Attendees would require 920 spaces at 2.5 per vehicle. There are 500 spaces on the site for available for attendees with the remaining 420 spaces would be public parking the towns of Garberville and Redway. Attendees will utilize the shuttle buses to arrive at the event location.

Staff would require 50 spaces at 2 per vehicle, vendors would require 35 spaces at 2 per vehicle, and performers would require 10 spaces for a total of 95 spaces. The site has 200 spaces for event support services which would be more than adequate. Traffic Flow through event is the same as for the festival. (See Figure 5-Traffic Flow)

This exceeds the requirements specified in Humboldt County Code (HCC) Section 109.1.3.3.4.: one parking space per every four seats, 2 spaces per staff member and 1 space per vendor.

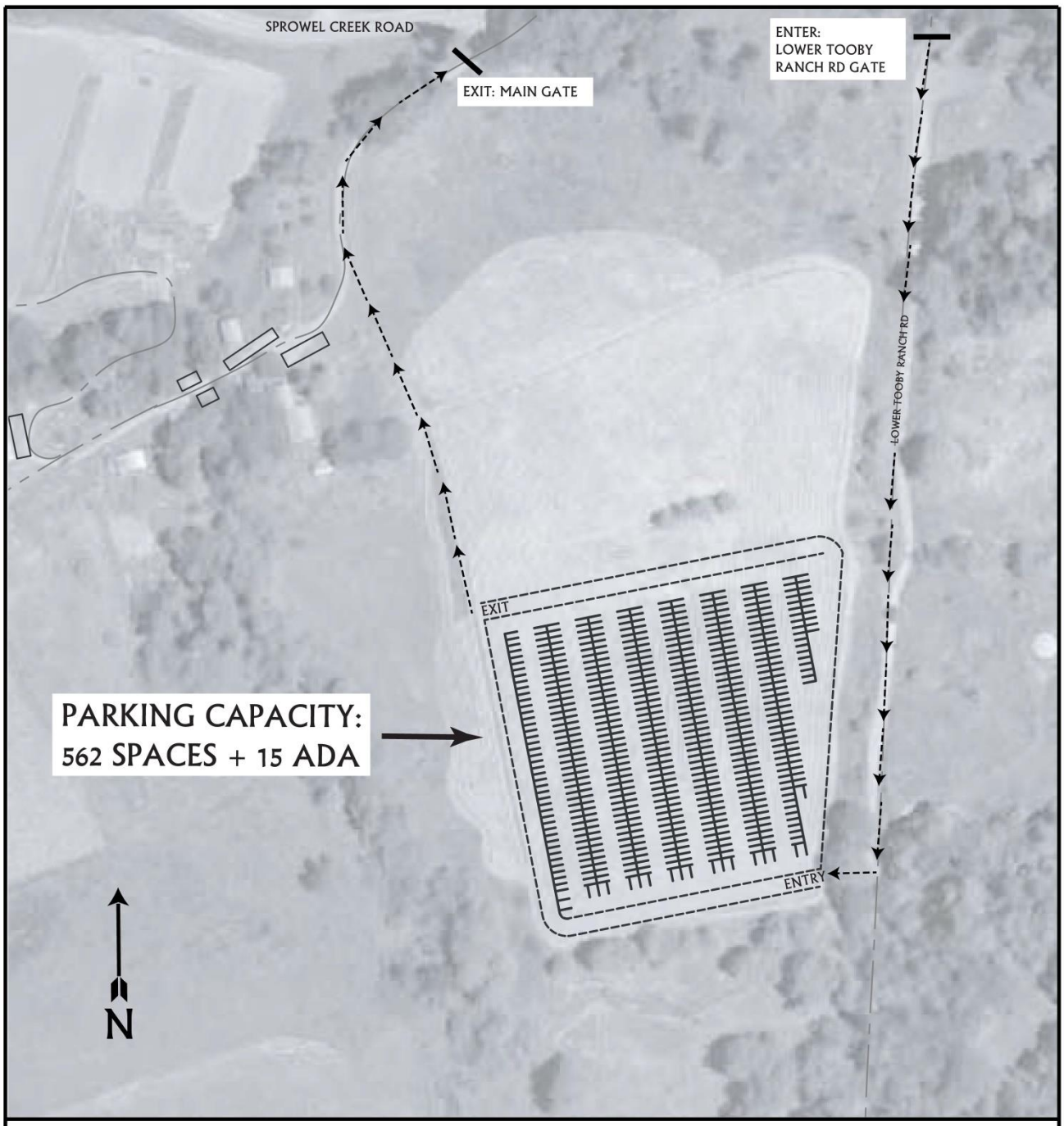


FIGURE 3: MEDIUM SIZED EVENT PARKING

HUBER C&D
WWW.HUBERCAD.COM

REVISION: -B-

DRAWN BY: RHUBER
DATE: 03/13/16

SOUTHERN HUMBOLDT Community Park

10. Off-site Parking

For events in the range of 1800- 2500 attendees additional parking will be available in Garberville and Redway for attendees riding the shuttles. (Figure 3)

There are 709 public parking spaces in the town of Garberville and 745 spaces in the town of Redway, excluding all parking lots for businesses. This is a total of 1454 public parking spaces within .25 miles of the shuttle bus stop locations. A typical event of this size would have attendees arriving and leaving over the course of up to 12 hours. The demand for parking at peak attendance would be lower than the maximum number of spaces needed for the total daily numbers of persons in attendance. It is important to note that not all of the parking spaces in the towns would be available for event parking. Public parking in Redway and Garberville is proven to be adequate for more than two decades for off-site parking for an event of twice this size and larger as evidenced during decades of past shuttle services to Summer Arts and Music Festival and Reggae on the River.

11. ON-SITE TRAFFIC

Entrance

- Entrance to the Community Commons Area 4 for medium-sized events shall be from Sprowel Creek Road, entering the Community Park on the Lower Tooby Ranch Road. This primary access is the longest access route from the County road to the parking area to enable the longest available queue (back-up of waiting vehicles) into the parking area without queuing into or over the County right of way.

- There will be one-way circulation for attendees to enter at the Lower Tooby Ranch Road and into the on-site event parking lot.

- A traffic control attendant will be stationed at the entry road. The attendant will direct traffic towards the parking area.

- Traffic cones will delineate the access roads. Attendees will be directed onto Lower Tooby Ranch Road, which will be delineated to provide two entrance lanes to the parking area on the left of the entry road as well as a third “holding” lane. Parking attendants will ensure that parking is done safely and efficiently.

- Should incoming vehicles slow traffic at the entry into the site, traffic control personnel will divert inbound traffic to the second entrance using the main entrance to the Park. Traffic control personnel will hold outbound event traffic until traffic on Sprowel Creek Road has cleared.

- For medium-sized special events a temporary marked crosswalk shall be created connecting the Tooby Memorial Playground to the Park Headquarters area. The crossing shall be placed to maximize sight lines, and during periods of peak usage, there shall be a crossing guard or flagger available to assist pedestrians and control traffic.

12. Processing Incoming Vehicles and Traffic Queue

Vehicles entering the site at Lower Tooby Ranch Road will be guided by traffic control personnel to the parking gate. The parking gate will be positioned beyond Lower Tooby Ranch Road inside the parking lot to maximize the road length for vehicular entrance. The distance from Sprowel Creek Road entrance on the internal road to the processing point inside parking area is 2000 feet. The first 1000 feet of Lower Tooby Flat Road will be delineated to provide two lanes for incoming traffic and one lane for holding traffic for release. The road has the potential to simultaneously hold 150 vehicles between Sprowel Creek Road and the processing area, allowing 40 feet for each vehicle in the two stacking lanes and 20 feet for each vehicle in the holding lane. (Table #1)

Number of Lanes	Distance between vehicles	Length of road to processing	Potential numbers of cars in queue
2	40'	2000'	100
1 turn-out lane	20'	1000'	50
			150

Table #1: Processing incoming vehicles and traffic queue

13. Parking

- A temporary parking area will be provided on-site in the northerly grass field at the Community Commons and in the adjacent Main Agricultural field that is adjacent to the Lower Tooby Ranch Road. (Figure 6)
- Grass fields shall be sufficiently watered in the morning to prevent ignition of the grass and serve as a dust palliative.
- Temporary Parking areas will be laid out previous to the event with lime chalk. Twenty-five foot (25') access lanes will be provided between parking rows and along the perimeters of the parking area. Individual parking stalls will be marked out with eighteen foot by nine foot (18' x 9') dimensions off both sides of each division line.
- The ends of parking rows will be prominently marked by 7-foot tall poles with flags for visibility. The division line between adjacent head-to-head parking spaces will be lined with lime chalk striping from pole to pole in a straight, even alignment.
- Carpooling will be encouraged to reduce vehicles on the roadways.

14. Parking Lighting

Any events that do not end within one-half hour before dusk shall provide all parking facilities with one temporary lighting facility per parking area per HCC Section 109.1.2.7. Lights used to illuminate parking spaces or driveways shall be directed and shielded so rays will be confined to the Park property and parking areas. (Appendix I: Lighting Plan)

15. Exiting Event

Vehicles will exit out the Main Park entrance at Park Headquarters creating a circular, one-way traffic flow.

16. Signage - Directional Exit signs

Exit signs will be at posted in the parking lot during the event.

17. Emergency and Service Entrance

- Lower Tooby Ranch Road will be used as the main entry during the event and will be available for emergency access and necessary services during medium-sized events.
- In the event that the Lower Tooby Ranch Road is closed, the Main Park Entrance will be utilized.
- Lower Tooby Ranch Road, beyond the parking area, will be closed to attendee traffic. It will be utilized as a one-way service access for staff, performers, service vehicles and emergency access vehicles only.

FESTIVAL

Description

This plan is scaled for an event similar in size and nature to the Mateel Community Center's Summer Arts and Music Festival or smaller. As an example, the Summer Arts and Music Festival is a two-day family-friendly event that is now in its thirty-ninth year. This event features a unique blending of local and regional musicians on three outdoor stages, roving entertainers, quality artisans displaying and selling wares, exhibits of fine arts displays, international cuisine, and on-site educational workshops.

The festival is open 14 hours on Saturday and 12 hours on Sunday. The attendance would fluctuate over the course of the day and the total number of attendees on the site at any one time would be less than the one day total.

For a similar event, systems will be utilized and scaled to the attendance expected for the event. This event will take place in the event area in the new Public Facility –Community Commons Area 4 in the Park. A festival sized event would occur once per year for a period of no more than two days.

General Attendees

Attendance for the festival would have a maximum of 4,000 attendees on-site. A festival sized event would have an estimated daily event support as follows: 120 staff members, 130 vendor booths with 2 workers per booth, 100 performers. This type of event would have attendees and support staff arriving and departing over a 12-14 hour period. Approximately 100 staff/vendors may stay overnight at the site for security and cleanup. Many vendors camp in their booths at night to secure their merchandise. Staff and vendors typically would be onsite one-hour before and one-hour after the event to reduce traffic flows.

1. OFF-SITE TRAFFIC
Highway 101

- **Southbound traffic** exiting at the second Garberville exit will turn right directly onto Sprowel Creek Road. Vehicles will follow Sprowel Creek Road to the event entrance approximately ¾ mile on the left.

- **Northbound traffic:** Attendees traveling northbound on Highway 101 will exit at the first Garberville exit onto Redwood Drive, turn left at the stop sign onto Sprowel Creek Road, travel ¾ mile and make a left into the event entrance.

2. Sprowel Creek Road

- Cars will enter the on-site parking areas through the marked entry at Lower Tooby Ranch Road. A traffic control attendant with a radio will be stationed here.

- A secondary entrance at the main gate can be used temporarily at peak entry times if there is a need to get vehicles off Sprowel Creek Road very quickly. A traffic control attendant with an orange vest will be stationed here.

3. Signage

- **Advanced Warning Signs**

  Advanced warning signs shall be placed at locations as have been determined by the project engineer. There are no milepost markers on Sprowel Creek Road. Signs shall consist of retro reflective fabric signs on collapsible flag stands with a retro reflectorized cone placed adjacent to each flag stand.

  The project traffic engineer has determined the following locations shall be signed as follows:

  - On Sprowel Creek Road, west of US 101 at Sunnybank Lane (facing west bound traffic): "Special event ahead" (SC5) Signs shall be placed so as not to confuse motorists exiting US 101 south and turning right.

  - On Sprowel Creek Road, at the large turnout after Leino Lane and before Lower Tooby Ranch Road (facing west bound traffic) "Flagger Ahead" (C9A).

  - On Sprowel Creek Road, at turnout 500 feet before event entrance at Lower Tooby Ranch Road (facing west bound traffic): "Be prepared to stop" (W3-4).

  - On Camp Kimtu Road (facing eastbound traffic) 500' before junction with Sprowel Creek Road: "Special event ahead" (SC5).

  - On Sprowel Creek Road, just east of the junction with Camp Kimtu Road (facing eastbound traffic) "Special event ahead" (SC5).

  - On Sprowel Creek Road, 500 feet before event entrance at Lower Tooby Ranch Road (facing eastbound traffic) "Be prepared to stop" (W3-4).

  Signage is not determined to be necessary and may confuse motorists if placed along the Sprowel Creek Road off-ramp on US 101.

- **Parking Restriction Signs**

  Parking restriction signs will be placed along Sprowel Creek Road and Camp Kimtu Road. Event parking on all County roads west of the intersection of Sprowel Creek Road and Sunnybank Lane shall be prohibited and signed in accordance with California Vehicle Code Sections 22651.(m) or 22651.05.(3).

Event parking will be allowed only in designated parking areas on-site at the Community Park property. All parking restriction signs shall be in place no less than twenty-four hours or one day before the date of the event taking place.

- No event parking will be allowed on Sprowel Creek Road from Sunnybank Lane west to the site.
- No event parking will be allowed on Leino Lane.
- No event parking will be allowed along Camp Kimtu Road.
- Parking will be prohibited at Tooby Park.

Parking is prohibited by law on freeway off-ramps. Due to the distance to the event site and the steep hill on the return, it is unlikely that attendees would park on off-ramps to walk to the event.

The applicant shall furnish and erect signage as directed by the Public Works Department that includes the telephone number of the local traffic law enforcement agency.

SC5

C9A

W3-4

R28 A RIGHT

R28A LEFT

R26K

4. Traffic Control Personnel

- Traffic Control and parking personnel will be properly trained and fully knowledgeable of established procedures as detailed in the Caltrans document entitled: “Flagging Instruction Handbook”.

- In addition, all personnel assigned to traffic control shall be briefed and fully understand the procedures specified under the heading “Emergency Access” below.

- Traffic control personnel assigned to public street intersections for the purpose of traffic control shall adhere to the requirements of California Vehicle Code Section 21100.(e).

- Traffic Control personnel shall display proper insignia as required by California Vehicle Code.

- Traffic control personnel will wear standard safety vests and carry a flag and a two-way radio with sufficient extra batteries to allow communications over the time assigned. They will carry a standard Stop/Slow paddle in addition to the flag.

- Traffic personnel working on Sprowel Creek Road or Camp Kimtu Road shall wear either a white hardhat or white baseball cap to increase visibility and awareness by drivers.

- Traffic control measures and personnel in place and working beyond on-half hour before sunset shall adhere to the procedures as outlined within the procedures as outlined within the Caltrans document entitled “North Region Construction Nightwork Guide.”

5. Minimum Number of Traffic Control Personnel

- For medium sized events, one (1) flagger shall be stationed at the intersection of Redwood Drive/Sprowel Creek Road at the conclusion of the event to direct traffic and reduce delays.

- One (1) traffic control person stationed on Sprowel Creek Road at the intersection with the Route US 101 southbound off / on ramps

- One (1) traffic control person stationed at the intersection of Sprowel Creek Road with Riverview Lane approximately four hundred (400’) west of the Sprowel Creek Road intersection with the Route US 101 southbound off / on ramps.

- For all medium-sized events one (1) traffic control person shall be stationed on Sprowel Creek Road at each incoming entrance to the event.

- Two traffic control personnel will be assigned within the parking area for each access point to the event, with one flagger directing traffic from Lower Tooby Road into the parking area and one directing each vehicle into designated parking spaces.

- One traffic control person will be assigned to facilitate vehicles exiting at the main gate.

- Adequate public street-side parking is available in the towns of Garberville and Redway. No off-site private parking lots are planned.

- In addition to the minimum required number of personnel specified, sufficient additional traffic control personnel shall be furnished to relieve personnel for mandatory break periods.

6. Non-Motorized Transportation

- For a festival, shuttle buses will be provided. Pedestrians and bicyclists will be directed to use shuttle buses.

- "Share the Road" signs should be placed along Sprowel Creek Road to alert motorists of the presence of bicycles.

- "Sharrows" shall be placed in the roadway to indicate the potential presence of cyclists.

- During a festival, shuttle buses will have bicycle racks ferry bicyclists uphill to the shuttle stop locations. Bicycles can easily travel at the same speed as vehicular traffic downhill from Garberville to the event. (Figure 4)

- Bicycle racks will be provided at Park entry locations.

- A temporary marked crosswalk will be created connecting the Tooby Memorial Playground to the central Community Park area. The crossing would be temporarily marked with a sign Pedestrian Crosswalk (R9-8) and temporary marked lines indicating the walkway. The crossing should be placed to maximize sight lines, and during periods of peak usage, there will be a crossing guard or flagger available to assist pedestrians and control traffic. There will be no event parking at Tooby Park during a festival.

7. Shuttle Service

The use of a shuttle service for the festival event will greatly reduce the amount of traffic on the road as well as lessen the demand for on-site parking. A shuttle service will be provided for ticket holders, pedestrians, neighbors, and volunteers. It will take them to and from the event. For an event similar to the current Summer Arts and Music Festival, there will be

three 76-passenger buses and one 60 passenger bus. The buses will run continuously during the event, each bus making two runs per hour. Shuttle buses will service bus stops in Garberville and Redway. Shuttle service will be utilized for events in this category, and for all events with 2000-4000 attendees.

This plan utilizes an existing model of shuttle bus operations that have been in place for decades in the Southern Humboldt community. These events include the Summer Arts and Music Festival (now in its 40th year) and Reggae on the River (now in its 32nd year). The community is well-accustomed to this shuttle system and these shuttle stop locations and few problems have been reported in the past. Several shuttle stops are located within the County right-of-way.

- Shuttle service will be utilized for a festival to reduce the total number of vehicles leaving the site to a maximum of 700 outbound vehicles in a single hour.

- Shuttle buses heading to the event will pick up passengers in Redway along Redwood Drive approximately 150' east of the junction with Rusk Lane (near the Majestic Center). The bus will continue east on Redwood Drive and pick up passengers at the corner of Redwood Drive and Sprowel Creek Road at the Chevron Station. The bus will turn left on Sprowel Creek road and proceed to the event site and turn-around on site.

- For passenger return from the site, the shuttle bus will travel west on Sprowel Creek Road toward Garberville. The bus will turn right at the intersection of Sprowel Creek Road and Redwood Drive. The bus will proceed to the circle at the south of Redwood Drive in Garberville and turn left at the stop sign heading north on Redwood Drive.

- The shuttle bus will drop off passengers along in Garberville on Redwood Drive across from the intersection with Sprowel Creek Road at the long curbside in front of Getti-up Coffee. The shuttle bus will continue north along Redwood Drive to drop off passengers in Redway along Redwood Drive approximately 500' east of the junction with Rusk Lane (near the Majestic Center). (FIGURE 4)

- Temporary shelter and shade for attendees will be provided in proximity to the shuttle stops and on Park property and outside of the County right-of-way. Shade canopies will not obstruct the traveled way for both vehicular and non-motorized traffic.

- Shuttle buses will be outfitted with bicycle racks

Shuttle service will drop off and pick up attendees at designated bus stops near the front entrance to the park. Attendees will proceed on foot to entry/ticket booth and staging areas. All attendees and volunteers will be encouraged to use the shuttle and carpool. Shuttle locations and hours of operation will be published in local newspapers.

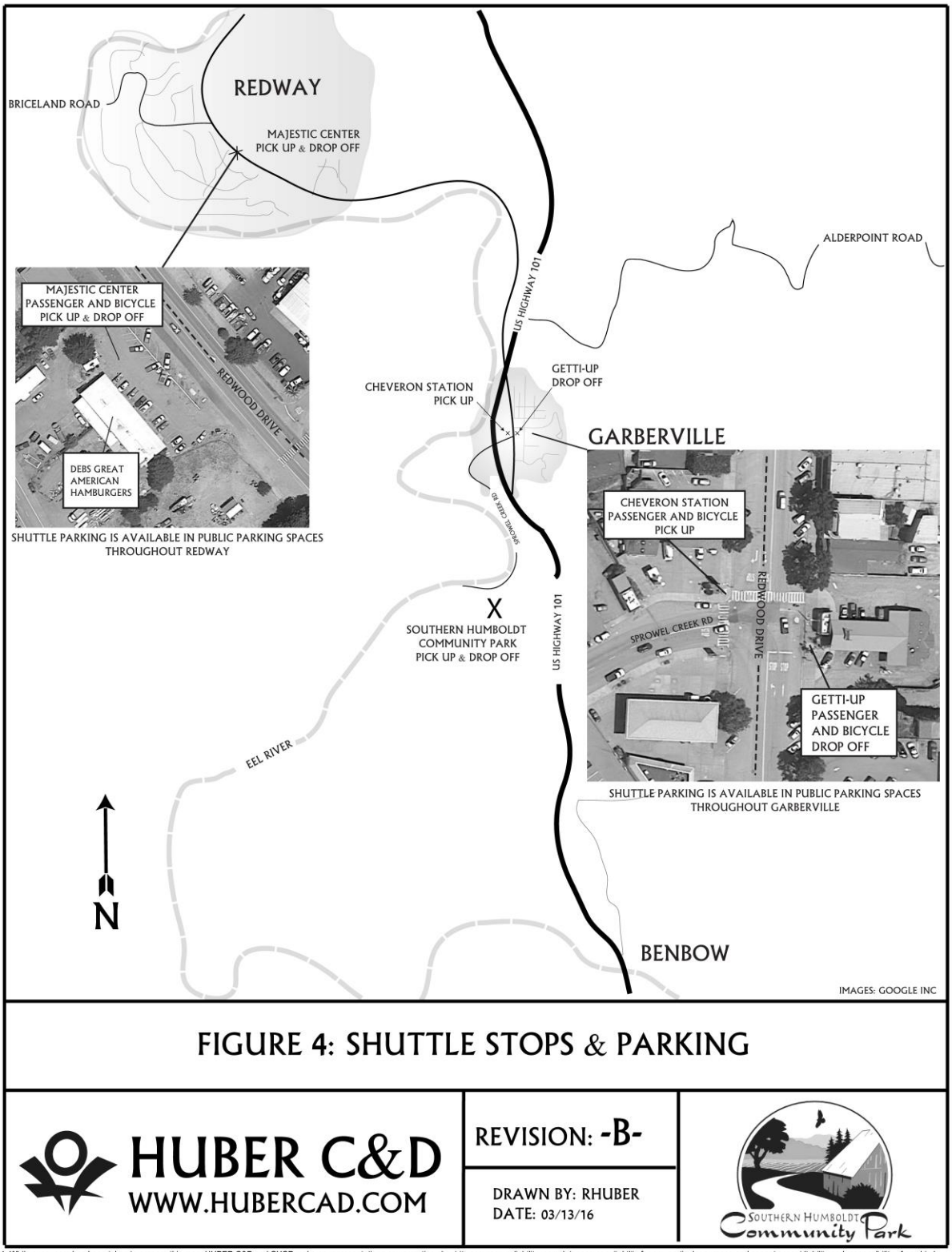


FIGURE 4: SHUTTLE STOPS & PARKING

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REVISION: -B-

DRAWN BY: RHUBER
DATE: 03/13/16

SOUTHERN HUMBOLDT Community Park

ON-SITE TRAFFIC

1. Entrance

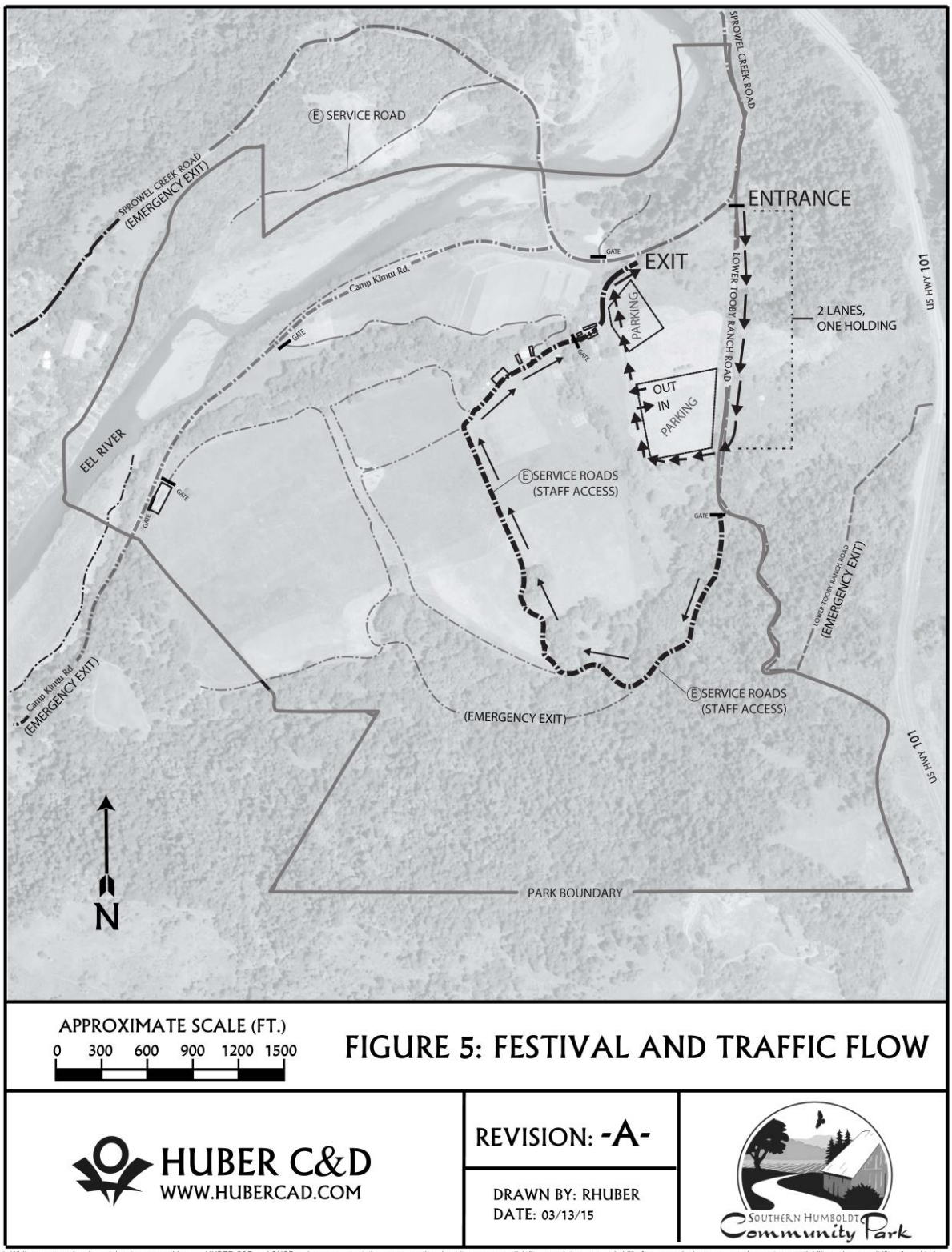
- Entrance to the Community Commons area for the festival shall be from Sprowel Creek Road, entering the Community Park on the Lower Tooby Ranch Road which has the longest queue.
- There will be one-way circulation for attendees to enter at the Lower Tooby Ranch Road and into the on-site event parking lot.
- A traffic control attendant will be stationed at the entry road and will direct drivers towards the parking area.
- Traffic cones will delineate the access roads. Attendees will be directed onto Lower Tooby Ranch Road which will be delineated with two entrance lanes to the parking area on the left of the entry road plus a third holding lane. Parking attendants will ensure that parking is done safely and efficiently.
- Should incoming traffic on the primary access queue up enough to impact operation on Sprowel Creek Road, traffic control personnel at the Sprowel Creek Road entrance shall redirect traffic to the secondary access point, the main entrance to the Park, until the queue along the primary access road is satisfactorily reduced to allow resumption of traffic on the primary parking lot access, Lower Tooby Ranch Road.
- During the festival, flaggers shall be stationed at the intersection of Redwood Drive and Sprowel Creek Road at the conclusion of the event to direct traffic and to reduce delays
- During the festival, a temporary marked crosswalk shall be created connecting the Tooby Memorial Playground to the Park Headquarters area. The crossing shall be placed to maximize sight lines, and during periods of peak usage, there shall be a crossing guard or flagger available to assist pedestrians and control traffic.

2. Processing Incoming Vehicles and Traffic Queue

Vehicles entering the site at Lower Tooby Ranch Road will be guided by traffic control personnel to the parking gate. The parking gate will be positioned beyond Lower Tooby Ranch Road inside the parking lot to maximize the road length for vehicular stacking. The distance from Sprowel Creek Road entrance on the internal road to the processing point inside the parking area is 2000 feet. The first 1000 feet of Lower Tooby Ranch Road will be delineated to provide two lanes of incoming traffic and one lane for holding traffic for release. The road has the potential to simultaneously hold 150 vehicles between Sprowel Creek Road and the processing area, allowing 40 feet for each vehicle in the two stacking lanes and 20 feet for each vehicle in the holding lane. (Table 2)

Number of Lanes	Distance between vehicles	Length of road to processing	Potential numbers of cars in queue
2	40'	2000'	100
1 turn-out lane	20'	1000'	50
			150

Table #2: Processing incoming vehicles and traffic queue



3. Parking Area Access

- All access roads serving parking areas from County roads shall have a durable dust free surface, gravel aggregate base.

4. Parking

- A temporary parking area will be provided on-site in the northerly grass field at the Community Commons and in the adjacent Main Agricultural field that is adjacent to the Lower Tooby Ranch Road. (Figure 6)

- Grass fields shall be sufficiently watered in the morning to prevent ignition of the grass and serve as a dust palliative.

- Temporary parking areas will be laid out previous to the event with lime chalk. Twenty-five foot (25') access lanes will be provided between parking rows and along the perimeters of the parking area. Individual parking stalls will be marked out with eighteen foot by nine foot (18' x 9') dimensions off both sides of each division line.

- The ends of parking rows will be prominently marked by 7-foot tall poles with flags for visibility. The division line between adjacent head-to-head parking spaces will be lined with lime chalk striping from pole to pole in a straight, even alignment.

- Carpooling and the use of shuttle buses will be encouraged in advanced via local media outlets to reduce vehicles on the roadways.

5. *On-site Parking Capacity*

Parking on the site would be limited to 500 spaces for attendees and 200 spaces for vendors and others working the event. While the vendors and others employed during the festival would likely remain on-site for an hour or more after the event concludes, the limited parking would ensure that the amount of traffic generated during a single hour results in trips that can be adequately handled by the street network.

All other attendees would need to arrive by shuttle from parking in Garberville and Redway. It is understood that this is how a Festival of larger size currently operates in Benbow, where there is substantially less parking than could be made available at the SHCP site.

Parking passes would be made available through advance purchase only, with a variety of purchase options, including buying them on-line or at the usual local ticket outlets where attendees purchase their event tickets. The number that can be issued should be limited for each day of the Festival to 500. A separate pass should be required for each day, half-day passes available, with the passes to be displayed on the dashboard of the vehicle.

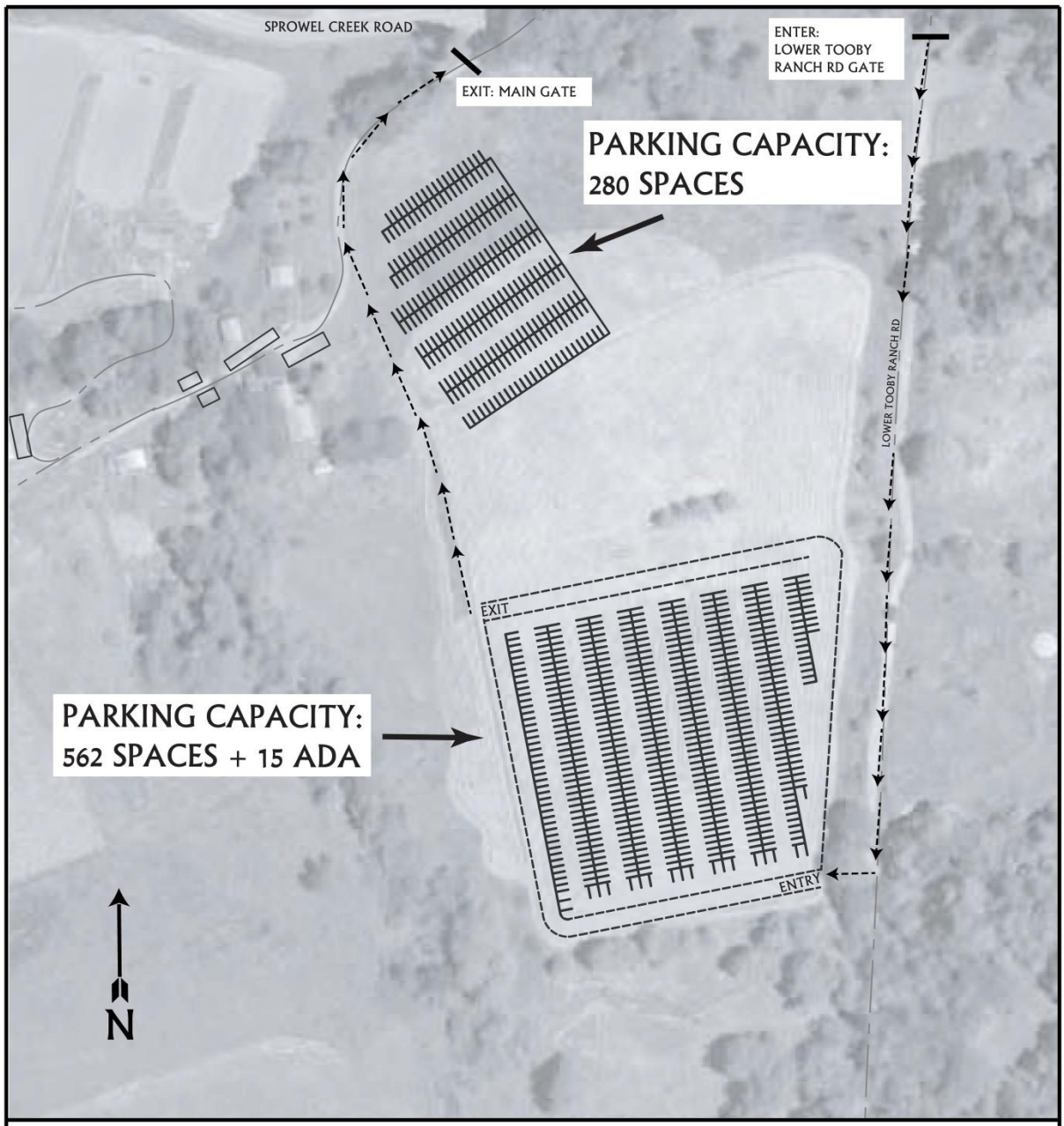


FIGURE 6: FESTIVAL PARKING

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DRAWN BY: RHUBER
DATE:03/13/16

SOUTHERN HUMBOLDT Community Park

6. Parking Demand Determination

For the Festival, on-site parking would be limited to a maximum of 500 spaces for attendees and 200 spaces for staff, volunteers, vendors and performers. A festival sized event with 4000 attendees onsite would have 500 parking spaces available for attendees (1 car per 2.5 persons).

Staff, vendors, and performers would have a total of 200 spaces: 120 staff would require 50 spaces (2 staff per car and not all staff onsite at one time), 130 vendor booths (requiring 1 space per vendor) and performers require 20 spaces (on rotation). There would be 700 spaces on the site with 15 accessible spaces. Staff and others working the event would be encouraged to utilize the shuttle buses.

With a 12-hour festival event, there is a natural flow of attendees in and out of the event site. The parking would need to be dispersed among onsite and streetside parking locations over the 12 hours of operation. Peak attendance is typically between 2:00 and 6:00 p.m. when there would be an estimated 1865 attendees on the site. The average attendee stays at the event approximately 4 hours. Conservatively estimating that one-half of the on-site parking passes were held by attendees at peak (1 parking space for each 2.5 persons), there would be an estimated 496 parking spaces needed offsite at the peak. The use of half-day parking passes and carpooling would further reduce this number.

There are at a total of 1,454 public parking spaces; Garberville has 709 public parking spaces in and Redway has 745 spaces, excluding all parking lots for businesses. These public parking spaces are within a five-minute walk of the shuttle bus stop locations. While not all parking spaces would be available, other larger local events have utilized this parking/shuttle system for decades and it has be well-proven to be workable model for events in Southern Humboldt. There would be sufficient public parking to meet this demand.

7. Offsite Parking:

Offsite Parking would be available in public parking spaces in Redway and Garberville. Festivals would occur on Saturday and Sunday's when there are lower numbers of people conducting business in the towns which leaves more spaces available. Over the years it has been proven that the towns of Garberville and Redway offer ample additional off-site parking for the number of vehicles as evidenced during offsite parking with shuttle services to and from Summer Arts and Music Festival in Benbow, an event with almost identical off-site parking needs.

8. Parking Passes

For the festival attendees parking passes will be sold in advance on the web or at the regular ticket outlets. Only vehicles with parking passes will be allowed on the site.

9. Parking Area Lighting

Any events that do not end within one-half hour before dusk shall provide all parking facilities with either permanent or temporary lighting facilities per HCC Section 109.1.2.7. Lights used to illuminate parking spaces or driveways shall be shielded and directed so that the direct rays are confined to the Park property, roadways and parking areas. (Appendix I - Lighting Plan)

10. Departures
During the event, patrons will be able to leave as necessary utilizing the Main Park access at Park Headquarters. Vehicles will exit out the Main Park access point creating a circular, one-way traffic flow. The release of cars onto Sprowel Creek Road will be controlled at the gate by traffic control personnel if necessary.

11. Signage - Directional Exit Signs
Directional Exit signs will be at posted in the parking area during the event.

12. Non-Motorized Transportation
A shuttle bus will be available for all off-site parking pedestrian traffic. Signage will be placed in visible locations to direct pedestrians to the shuttle buses. In Garberville, the shuttle buses will stop at the corner of Redwood Drive and Sprowel Creek Road. Pedestrians will be encouraged to take the shuttle bus. Shuttle buses will also be available for use by residents living along the Sprowel Creek/Garberville corridor who wish to go to the Park for reasons other than to attend the event.

It has been determined by the project traffic engineer, Dalene Whitlock, W-Trans that the project would not require improved shoulder widths along Sprowel Creek Road for non-motorized traffic. None of the activities at their proposed levels, small, medium and festival sized events, would trigger the need for improved shoulder facilities for pedestrians.

13. Staff and Vendor Access
Staff and vendors will be on-site the day before the event to set up. Some on-site camping will be available. Vendors tend to camp within their booths to secure their merchandise. Volunteers and staff not on-site overnight will be encouraged to take the shuttle busses or to arrive at least one-half hour before the event opens.

14. Local Traffic Access
Local traffic accessing a County Road in either direction shall not be stopped nor delayed by traffic control personnel except for allowing emergency vehicles to pass.

15. Emergency and Service Entrance
- Lower Tooby Ranch Road will be used as the main entry during the event and will be available for emergency access and necessary services during the Festival.
- In the event that the Lower Tooby Ranch Road is closed, the Main Park Entrance will be utilized.
- Lower Tooby Ranch Road, beyond the parking area, will be closed to attendee traffic. It will be utilized as a one-way service access for staff, performers, service vehicles and emergency access vehicles only.

16. Emergency Access
In the event an emergency vehicle requires access to a County road, event site, or points beyond, traffic control personnel shall adhere to the guidelines established within the Caltrans Flagging Instruction Handbook.

Immediately upon determination by traffic personnel that an emergency vehicle needs to proceed on the County road through the event area, an *"all stop, emergency vehicle"* or similar order shall be given over the radio by the traffic control personnel first aware of the emergency vehicle's presence. Traffic control personnel stationed on the County road at all parking lot access points shall immediately require all traffic in both directions to stop and direct outbound traffic on the County road to pull over onto the shoulder area or otherwise move or back up so as to allow sufficient clearance for emergency vehicles to get through the event area.

Upon securing a clear path, traffic control personnel stationed on the County road at each parking lot access point should broadcast on the radio a "cleared route secured" or other brief communication stating the emergency vehicle can proceed.

Traffic control personnel stationed on the County road at each parking lot access point securing a clear road shall hold all traffic in both directions until the emergency vehicle has passed.

Traffic control personnel shall be in constant radio contact with event personnel and advise them of the need for any emergency vehicle to access a County road.

17. Emergency Access to the Park – Entry Points

In event of an emergency, all existing access points to the Community Park shall provide access for emergency wildland fire equipment and civilian evacuation through use of public access points and also private internal Park ranch roads that provide connectivity, access, and exits to multiple locations within the Park property.

- **Main Entrance**: (Primary Emergency Entrance)

  The main entrance to the Park at 934 Sprowel Creek Road. From this entrance, emergency vehicles can gain emergency access to the entire event site, to the upper and lower farm fields, and to the Park Headquarters. There is a network of ranch roads and access roads that will allow emergency vehicles multiple exits from this entrance and adequate room for vehicle turn around.

- **Lower Tooby Ranch Road**: (Alternate Emergency Entrance)

  From this entrance, emergency vehicles can gain emergency access to the entire event site, the upper and lower farm fields, the residential and barn area. There is a network of ranch roads and a private access road that will allow emergency vehicles to access many locations on Park property. There is adequate room for vehicles to turn around and there are also alternate emergency exits from this entrance.

- **Lower Farm Field Access**: (Alternate Emergency Entrance)

  Emergency vehicles can gain access to the lower farm field through the ranch road that runs along the perimeter of the lower farm field. (This is not a public access entrance.) The entrance is off Camp Kimtu Road approximately 1/8 mile from the Sprowel Creek Kimtu junction on the left side of the road.

- **Camp Kimtu Road:** (Alternate Emergency Entrance)

  The third entry is accessed from the Park's entrance at Camp Kimtu Road. There is a circular drive for turn around. Continuing straight through the parking area to the gate to the left of the entrance, emergency vehicles can obtain access to the westernmost upper farm field and through the field to the Community Commons area designated for vendor camping.

Airport Access

The Garberville Airport, located on Sprowel Creek Road less than one mile from the Park, can be used to airlift passengers for medical emergencies.

Hospital

The Jerold Phelps Community Hospital is located in Garberville approximately 1.5 miles from the Community Park main entrance. Ambulance service is available from Garberville for transport of patients.

APPENDIX F
TRANSPORTATION DATA

AM Existing Tue Mar 19, 2013 15:51:11 Page 2-1

AM Peak Hour - Existing Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 US 101 SB Ramp/Sprowl Creek Rd

Average Delay (sec/veh): 3.6 Worst Case Level Of Service: B[10.2]

Street Name:	US 101 SB Ramp						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	0 0 1!	0	0	0 0 0	1	0	0 1 0	0	0
Volume Module: >> Count Date: 7 Apr 2011 << 8:00 - 9:00 am												
Base Vol:	0	0	0	20	0	2	0	62	3	56	35	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	2	0	62	3	56	35	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	0	0	26	0	3	0	79	4	72	45	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	26	0	3	0	79	4	72	45	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	270	271	45	xxxx	xxxx	xxxxx	83	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	724	639	1031	xxxx	xxxx	xxxxx	1527	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	697	607	1031	xxxx	xxxx	xxxxx	1527	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.00	xxxx	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	718	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.2	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	A	*	*
ApproachDel:	xxxxxx			10.2			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

PM Existing Tue Mar 19, 2013 15:51:35 Page 2-1

PM Peak Hour - Existing Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 US 101 SB Ramp/Sprowl Creek Rd

Average Delay (sec/veh): 3.9 Worst Case Level Of Service: B[11.1]

Street Name:	US 101 SB Ramp						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	0 0 1!	0	0	0 0 0	1	0	0 1 0	0	0
Volume Module: >> Count Date: 7 Apr 2011 << 4:00 - 5:00 pm												
Base Vol:	0	0	0	15	1	4	0	63	1	105	68	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	15	1	4	0	63	1	105	68	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	0	0	0	18	1	5	0	75	1	124	80	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	18	1	5	0	75	1	124	80	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	404	405	80	xxxx	xxxx	xxxxx	76	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	606	538	985	xxxx	xxxx	xxxxx	1536	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	566	491	985	xxxx	xxxx	xxxxx	1536	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.00	xxxx	xxxx	xxxx	0.08	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	614	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	11.1	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	A	*	*
ApproachDel:	xxxxxx			11.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

AM Existing Tue Mar 19, 2013 15:51:12 Page 3-1

AM Peak Hour - Existing Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Redwood Dr/Sprowl Creek Rd

Cycle (sec):	100	Critical Vol./Cap.(X):	0.169
Loss Time (sec):	0	Average Delay (sec/veh):	8.3
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Redwood Dr						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0 0	0	0 1	0 1	0	0 1!	0 0	0	0 0	0 0
Volume Module: >> Count Date: 7 Apr 2011 << 8:00 - 9:00 am												
Base Vol:	31	99	0	0	99	82	29	0	76	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	31	99	0	0	99	82	29	0	76	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
PHF Volume:	38	120	0	0	120	99	35	0	92	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	120	0	0	120	99	35	0	92	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	38	120	0	0	120	99	35	0	92	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.28	0.00	0.72	0.00	0.00	0.00
Final Sat.:	645	710	0	0	717	833	216	0	567	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.06	0.17	xxxx	xxxx	0.17	0.12	0.16	xxxx	0.16	xxxx	xxxx	xxxx
Crit Moves:		****			****				****			
Delay/Veh:	8.5	8.6	0.0	0.0	8.6	7.5	8.1	0.0	8.1	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.5	8.6	0.0	0.0	8.6	7.5	8.1	0.0	8.1	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		8.6			8.1			8.1		xxxxxx		
Delay Adj:		1.00			1.00			1.00		xxxxx		
ApprAdjDel:		8.6			8.1			8.1		xxxxxx		
LOS by Appr:		A			A			A		*		
AllWayAvgQ:	0.1	0.2	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

PM Existing Tue Mar 19, 2013 15:51:35 Page 3-1

PM Peak Hour - Existing Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Redwood Dr/Sprowl Creek Rd

Cycle (sec):	100	Critical Vol./Cap.(X):	0.223
Loss Time (sec):	0	Average Delay (sec/veh):	8.7
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Redwood Dr						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0 0	0	0 1	0 1	0	0 1!	0 0	0	0 0	0 0
Volume Module: >> Count Date: 7 Apr 2011 << 4:00 - 5:00 pm												
Base Vol:	71	149	0	0	112	118	95	0	39	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	71	149	0	0	112	118	95	0	39	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	74	155	0	0	117	123	99	0	41	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	74	155	0	0	117	123	99	0	41	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	74	155	0	0	117	123	99	0	41	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.71	0.00	0.29	0.00	0.00	0.00
Final Sat.:	635	697	0	0	695	804	495	0	203	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.12	0.22	xxxx	xxxx	0.17	0.15	0.20	xxxx	0.20	xxxx	xxxx	xxxx
Crit Moves:		****			****				****			
Delay/Veh:	9.0	9.1	0.0	0.0	8.7	7.8	9.0	0.0	9.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.0	9.1	0.0	0.0	8.7	7.8	9.0	0.0	9.0	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		9.1			8.3			9.0		xxxxxx		
Delay Adj:		1.00			1.00			1.00		xxxxx		
ApprAdjDel:		9.1			8.3			9.0		xxxxxx		
LOS by Appr:		A			A			A		*		
AllWayAvgQ:	0.1	0.3	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

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AM Future                Tue Apr 9, 2013 12:20:58                 Page 2-1
--------------------------------------------------------------------------------
                    AM Peak Hour - Future Conditions
                  Southern Humboldt Community Park TIS
                          County of Humboldt
--------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 US 101 SB Ramp/Sprowl Creek Rd
********************************************************************************
Average Delay (sec/veh):      3.6       Worst Case Level Of Service: A[  9.9]
********************************************************************************
Street Name:          US 101 SB Ramp                Sprowl Creek Rd
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 7 Apr 2011 << 8:00 - 9:00 am
Base Vol:       0    0    0    20    0    2     0   62     3    56   35     0
Growth Adj:  1.10 1.10 1.10  1.10 1.10 1.10  1.10 1.10  1.10  1.10 1.10  1.10
Initial Bse:    0    0    0    22    0    2     0   68     3    62   39     0
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0    0    22    0    2     0   68     3    62   39     0
Reduct Vol:     0    0    0     0    0    0     0    0     0     0    0     0
FinalVolume:    0    0    0    22    0    2     0   68     3    62   39     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   232  233    39  xxxx xxxx xxxxx    72 xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   761  671  1039  xxxx xxxx xxxxx  1542 xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   737  643  1039  xxxx xxxx xxxxx  1542 xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.03 0.00  0.00  xxxx xxxx  xxxx  0.04 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.4 xxxx xxxxx
LOS by Move:    *    *      *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  757 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx   0.1 xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  9.9 xxxxx xxxxx xxxx xxxxx   7.4 xxxx xxxxx
Shared LOS:     *    *      *     *    A     *     *    *     *     A    *     *
ApproachDel:    xxxxxx              9.9           xxxxxx           xxxxxx
ApproachLOS:         *                A                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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PM Future                Tue Apr 9, 2013 12:21:13                 Page 2-1
--------------------------------------------------------------------------------
                    PM Peak Hour - Future Conditions
                  Southern Humboldt Community Park TIS
                          County of Humboldt
--------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 US 101 SB Ramp/Sprowl Creek Rd
********************************************************************************
Average Delay (sec/veh):      3.9       Worst Case Level Of Service: B[ 10.8]
********************************************************************************
Street Name:          US 101 SB Ramp                Sprowl Creek Rd
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 7 Apr 2011 << 4:00 - 5:00 pm
Base Vol:       0    0    0    15    1    4     0   63     1   105   68     0
Growth Adj:  1.10 1.10 1.10  1.10 1.10 1.10  1.10 1.10  1.10  1.10 1.10  1.10
Initial Bse:    0    0    0    17    1    4     0   69     1   116   75     0
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0    0    17    1    4     0   69     1   116   75     0
Reduct Vol:     0    0    0     0    0    0     0    0     0     0    0     0
FinalVolume:    0    0    0    17    1    4     0   69     1   116   75     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   376  376    75  xxxx xxxx xxxxx    70 xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   630  558   992  xxxx xxxx xxxxx  1543 xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   591  514   992  xxxx xxxx xxxxx  1543 xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.03 0.00  0.00  xxxx xxxx  xxxx  0.07 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx
LOS by Move:    *    *      *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  638 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx 10.8 xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx
Shared LOS:     *    *      *     *    B     *     *    *     *     A    *     *
ApproachDel:    xxxxxx             10.8           xxxxxx           xxxxxx
ApproachLOS:         *                B                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

AM Future Tue Apr 9, 2013 12:20:58 Page 3-1

AM Peak Hour - Future Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Redwood Dr/Sprowl Creek Rd

Cycle (sec):	100	Critical Vol./Cap.(X):	0.156
Loss Time (sec):	0	Average Delay (sec/veh):	8.2
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Redwood Dr						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0 0	0	0 1	0 1	0	0 1!	0 0	0	0 0	0 0
Volume Module: >> Count Date: 7 Apr 2011 << 8:00 - 9:00 am												
Base Vol:	31	99	0	0	99	82	76	0	29	0	0	0
Growth Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Initial Bse:	34	109	0	0	109	90	84	0	32	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	34	109	0	0	109	90	84	0	32	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	34	109	0	0	109	90	84	0	32	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	34	109	0	0	109	90	84	0	32	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.72	0.00	0.28	0.00	0.00	0.00
Final Sat.:	650	715	0	0	721	839	537	0	205	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.15	xxxx	xxxx	0.15	0.11	0.16	xxxx	0.16	xxxx	xxxx	xxxx
Crit Moves:		****			****				****			
Delay/Veh:	8.4	8.5	0.0	0.0	8.4	7.4	8.4	0.0	8.4	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.4	8.5	0.0	0.0	8.4	7.4	8.4	0.0	8.4	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		8.5			8.0			8.4			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		8.5			8.0			8.4			xxxxxx	
LOS by Appr:		A			A			A			*	
AllWayAvgQ:	0.1	0.2	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

PM Future Tue Apr 9, 2013 12:21:14 Page 3-1

PM Peak Hour - Future Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Redwood Dr/Sprowl Creek Rd

Cycle (sec):	100	Critical Vol./Cap.(X):	0.237
Loss Time (sec):	0	Average Delay (sec/veh):	8.9
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Redwood Dr						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0 0	0	0 1	0 1	0	0 1!	0 0	0	0 0	0 0
Volume Module: >> Count Date: 7 Apr 2011 << 4:00 - 5:00 pm												
Base Vol:	71	149	0	0	112	118	95	0	39	0	0	0
Growth Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Initial Bse:	78	164	0	0	123	130	105	0	43	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	78	164	0	0	123	130	105	0	43	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	164	0	0	123	130	105	0	43	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	78	164	0	0	123	130	105	0	43	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.70	0.01	0.29	0.00	0.00	0.00
Final Sat.:	630	691	0	0	689	795	489	0	201	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.12	0.24	xxxx	xxxx	0.18	0.16	0.21	0.00	0.21	xxxx	xxxx	xxxx
Crit Moves:		****			****		****					
Delay/Veh:	9.1	9.3	0.0	0.0	8.9	7.9	9.2	9.2	9.2	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.1	9.3	0.0	0.0	8.9	7.9	9.2	9.2	9.2	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	A	A	*	*	*
ApproachDel:		9.2			8.4			9.2			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		9.2			8.4			9.2			xxxxxx	
LOS by Appr:		A			A			A			*	
AllWayAvgQ:	0.1	0.3	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

AM Peak Hour - Existing plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Trip Generation Report

Forecast for am

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	In	1.00	Community Park	5.00	0.00	5	0	5	62.5
	Zone 1 Subtotal					5	0	5	62.5
2	Out	1.00	Community Park	0.00	3.00	0	3	3	37.5
	Zone 2 Subtotal					0	3	3	37.5
TOTAL						5	3	8	100.0

PM Peak Hour - Existing plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Trip Generation Report

Forecast for pm

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	In	1.00	Community Park	22.00	0.00	22	0	22	59.5
	Zone 1 Subtotal					22	0	22	59.5
2	Out	1.00	Community Park	0.00	15.00	0	15	15	40.5
	Zone 2 Subtotal					0	15	15	40.5
TOTAL						22	15	37	100.0

AM Peak Hour - Existing plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 US 101 SB Ramp/Sprowl Creek Rd

Average Delay (sec/veh): 3.6 Worst Case Level Of Service: B[10.1]

Street Name:	US 101 SB Ramp						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	0 0 1!	0	0	0 0 0	1	0	0 1 0	0	0
Volume Module: >> Count Date: 7 Apr 2011 << 8:00 - 9:00 am												
Base Vol:	0	0	0	20	0	2	0	62	3	56	35	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	2	0	62	3	56	35	0
Added Vol:	0	0	0	0	0	3	0	3	0	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	5	0	65	3	56	37	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	0	0	26	0	6	0	83	4	72	47	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	26	0	6	0	83	4	72	47	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	276	278	47	xxxx	xxxx	xxxxx	87	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	718	633	1027	xxxx	xxxx	xxxxx	1522	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	691	602	1027	xxxx	xxxx	xxxxx	1522	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.01	xxxx	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	740	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.1	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	A	*	*
ApproachDel:	xxxxxx			10.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

PM Peak Hour - Existing plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 US 101 SB Ramp/Sprowl Creek Rd

Average Delay (sec/veh): 3.9 Worst Case Level Of Service: B[10.4]

Street Name:	US 101 SB Ramp						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	0 0 1!	0	0	0 0 0	1	0	0 1 0	0	0
Volume Module: >> Count Date: 7 Apr 2011 << 4:00 - 5:00 pm												
Base Vol:	0	0	0	15	1	4	0	63	1	105	68	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	15	1	4	0	63	1	105	68	0
Added Vol:	0	0	0	0	0	13	0	14	2	0	9	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	15	1	17	0	77	3	105	77	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	0	0	0	18	1	20	0	91	4	124	91	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	18	1	20	0	91	4	124	91	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	433	434	91	xxxx	xxxx	xxxxx	95	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	584	518	972	xxxx	xxxx	xxxxx	1512	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	545	472	972	xxxx	xxxx	xxxxx	1512	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.02	xxxx	xxxx	xxxx	0.08	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	700	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.4	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	A	*	*
ApproachDel:	xxxxxx			10.4			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

AM Existing plus Project Fri Apr 19, 2013 09:58:21 Page 4-1

AM Peak Hour - Existing plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Redwood Dr/Sprowl Creek Rd

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.179
Loss Time (sec): 0 | Average Delay (sec/veh): 8.4
Optimal Cycle: 0 | Level Of Service: A

Street Name:	Redwood Dr						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0	0	0 1	0 1	0	0 1!	0 0	0	0 0	0 0
Volume Module: >> Count Date: 7 Apr 2011 << 8:00 - 9:00 am												
Base Vol:	31	99	0	0	99	82	76	0	29	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	31	99	0	0	99	82	76	0	29	0	0	0
Added Vol:	2	0	0	0	0	1	2	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	33	99	0	0	99	83	78	0	29	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
PHF Volume:	40	120	0	0	120	101	95	0	35	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	40	120	0	0	120	101	95	0	35	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	40	120	0	0	120	101	95	0	35	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.73	0.00	0.27	0.00	0.00	0.00
Final Sat.:	641	705	0	0	711	826	529	0	197	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.06	0.17	xxxx	xxxx	0.17	0.12	0.18	xxxx	0.18	xxxx	xxxx	xxxx
Crit Moves:		****			****		****					
Delay/Veh:	8.5	8.7	0.0	0.0	8.6	7.5	8.7	0.0	8.7	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.5	8.7	0.0	0.0	8.6	7.5	8.7	0.0	8.7	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		8.7			8.1			8.7			xxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		8.7			8.1			8.7			xxxxx	
LOS by Appr:		A			A			A			*	
AllWayAvgQ:	0.1	0.2	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.0

PM Existing plus Project Fri Apr 19, 2013 09:59:19 Page 4-1

PM Peak Hour - Existing plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Redwood Dr/Sprowl Creek Rd

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.225
Loss Time (sec): 0 | Average Delay (sec/veh): 8.9
Optimal Cycle: 0 | Level Of Service: A

Street Name:	Redwood Dr						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0	0	0 1	0 1	0	0 1!	0 0	0	0 0	0 0
Volume Module: >> Count Date: 7 Apr 2011 << 4:00 - 5:00 pm												
Base Vol:	71	149	0	0	112	118	95	0	39	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	71	149	0	0	112	118	95	0	39	0	0	0
Added Vol:	7	0	0	0	0	2	12	0	2	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	78	149	0	0	112	120	107	0	41	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	81	155	0	0	117	125	111	0	43	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	81	155	0	0	117	125	111	0	43	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	81	155	0	0	117	125	111	0	43	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.72	0.00	0.28	0.00	0.00	0.00
Final Sat.:	629	689	0	0	687	793	501	0	192	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.13	0.22	xxxx	xxxx	0.17	0.16	0.22	xxxx	0.22	xxxx	xxxx	xxxx
Crit Moves:		****			****				****			
Delay/Veh:	9.1	9.2	0.0	0.0	8.8	7.9	9.2	0.0	9.2	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.1	9.2	0.0	0.0	8.8	7.9	9.2	0.0	9.2	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		9.2			8.3			9.2			xxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		9.2			8.3			9.2			xxxxx	
LOS by Appr:		A			A			A			*	
AllWayAvgQ:	0.1	0.3	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.0	0.0	0.0

AM Peak Hour - Future plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 US 101 SB Ramp/Sprowl Creek Rd

Average Delay (sec/veh): 3.6 Worst Case Level Of Service: B[10.3]

Street Name:	US 101 SB Ramp						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 0 0 1 0			0 1 0 0 0		
Volume Module: >> Count Date: 7 Apr 2011 << 8:00 - 9:00 am												
Base Vol:	0	0	0	20	0	2	0	62	3	56	35	0
Growth Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Initial Bse:	0	0	0	22	0	2	0	68	3	62	39	0
Added Vol:	0	0	0	0	0	3	0	3	0	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	22	0	5	0	71	3	62	41	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	0	0	28	0	7	0	91	4	79	52	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	28	0	7	0	91	4	79	52	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	303	305	52	xxxx	xxxx	xxxxx	96	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	693	611	1022	xxxx	xxxx	xxxxx	1511	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	664	578	1022	xxxx	xxxx	xxxxx	1511	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.01	xxxx	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	711	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	0.2	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.3	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	A	*	*
ApproachDel:	xxxxxx			10.3			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

PM Peak Hour - Future plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 US 101 SB Ramp/Sprowl Creek Rd

Average Delay (sec/veh): 3.9 Worst Case Level Of Service: B[10.8]

Street Name:	US 101 SB Ramp						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 0 0 1 0			0 1 0 0 0		
Volume Module: >> Count Date: 7 Apr 2011 << 4:00 - 5:00 pm												
Base Vol:	0	0	0	15	1	4	0	63	1	105	68	0
Growth Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Initial Bse:	0	0	0	17	1	4	0	69	1	116	75	0
Added Vol:	0	0	0	0	0	13	0	14	2	0	9	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	17	1	17	0	83	3	116	84	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	0	0	0	20	1	21	0	99	4	137	99	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	20	1	21	0	99	4	137	99	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	473	475	99	xxxx	xxxx	xxxxx	102	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	553	491	962	xxxx	xxxx	xxxxx	1502	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	512	443	962	xxxx	xxxx	xxxxx	1502	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.02	xxxx	xxxx	xxxx	0.09	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	663	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.8	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	A	*	*
ApproachDel:	xxxxxx			10.8			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

AM Future plus Project Fri Apr 19, 2013 10:03:53 Page 3-1

AM Peak Hour - Future plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Redwood Dr/Sprowl Creek Rd

Cycle (sec): 100 Critical Vol./Cap.(X): 0.200
Loss Time (sec): 0 Average Delay (sec/veh): 8.6
Optimal Cycle: 0 Level Of Service: A

Street Name:	Redwood Dr						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0	0	0 1	0 1	0	0 1!	0 0	0	0 0	0 0
Volume Module: >> Count Date: 7 Apr 2011 << 8:00 - 9:00 am												
Base Vol:	31	99	0	0	99	82	76	0	29	0	0	0
Growth Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Initial Bse:	34	109	0	0	109	90	84	0	32	0	0	0
Added Vol:	2	0	0	0	0	1	2	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	36	109	0	0	109	91	86	0	32	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
PHF Volume:	44	132	0	0	132	111	104	0	39	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	132	0	0	132	111	104	0	39	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	132	0	0	132	111	104	0	39	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.73	0.00	0.27	0.00	0.00	0.00
Final Sat.:	633	695	0	0	703	814	519	0	193	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.19	xxxx	xxxx	0.19	0.14	0.20	xxxx	0.20	xxxx	xxxx	xxxx
Crit Moves:		****			****				****			
Delay/Veh:	8.7	8.9	0.0	0.0	8.8	7.7	8.9	0.0	8.9	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.7	8.9	0.0	0.0	8.8	7.7	8.9	0.0	8.9	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		8.8			8.3			8.9			xxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		8.8			8.3			8.9			xxxxx	
LOS by Appr:		A			A			A			*	
AllWayAvgQ:	0.1	0.2	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.0

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PM Future plus Project Fri Apr 19, 2013 10:03:57 Page 4-1

PM Peak Hour - Future plus Project Conditions
Southern Humboldt Community Park TIS
County of Humboldt

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Redwood Dr/Sprowl Creek Rd

Cycle (sec): 100 Critical Vol./Cap.(X): 0.251
Loss Time (sec): 0 Average Delay (sec/veh): 9.1
Optimal Cycle: 0 Level Of Service: A

Street Name:	Redwood Dr						Sprowl Creek Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0	0	0 1	0 1	0	0 1!	0 0	0	0 0	0 0
Volume Module: >> Count Date: 7 Apr 2011 << 4:00 - 5:00 pm												
Base Vol:	71	149	0	0	112	118	95	0	39	0	0	0
Growth Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Initial Bse:	78	164	0	0	123	130	105	0	43	0	0	0
Added Vol:	7	0	0	0	0	2	12	0	2	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	85	164	0	0	123	132	117	0	45	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	89	171	0	0	128	137	121	0	47	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	171	0	0	128	137	121	0	47	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	89	171	0	0	128	137	121	0	47	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.72	0.00	0.28	0.00	0.00	0.00
Final Sat.:	620	679	0	0	677	779	490	0	189	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.14	0.25	xxxx	xxxx	0.19	0.18	0.25	xxxx	0.25	xxxx	xxxx	xxxx
Crit Moves:		****			****				****			
Delay/Veh:	9.3	9.5	0.0	0.0	9.1	8.1	9.5	0.0	9.5	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.3	9.5	0.0	0.0	9.1	8.1	9.5	0.0	9.5	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		9.4			8.6			9.5			xxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		9.4			8.6			9.5			xxxxx	
LOS by Appr:		A			A			A			*	
AllWayAvgQ:	0.2	0.3	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.0	0.0	0.0

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SEGMENT COLLISION RATE CALCULATIONS

County of Humboldt

Location: Sprowl Creek Road west of Riverview Lane

Date of Count: Friday, August 01, 2008
ADT: 1,400

Number of Collisions: 2
Number of Injuries: 1
Number of Fatalities: 0
Start Date: January 1, 2007
End Date: December 31, 2011
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: >55
Terrain: Rolling/Mountain

Segment Length: 1.3 miles
Direction: East/West

$$\frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{SEGMENT LENGTH} \times \text{NUMBER OF YEARS}}$$

$$\frac{2 \times 1{,}000{,}000}{1{,}400 \times 365 \times 1.3 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.60 c/mvm**	**0.0%**	**50.0%**
Statewide Average*	**1.00 c/mvm**	**3.2%**	**41.5%**

ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2009 Collision Data on California State Highways, Caltrans

INTERSECTION COLLISION RATE CALCULATIONS

County of Humboldt

Intersection # 1: Sprowl Creek Road & US 101 South Ramps

Date of Count: Thursday, April 07, 2011

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 2600
Start Date: July 1, 2006
End Date: June 30, 2011
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Suburban

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{0 \times 1{,}000{,}000}{2{,}600 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.15 c/mve**	**0.8%**	**36.2%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2009 Collision Data on California State Highways, Caltrans

Intersection # 2: Sprowl Creek Road & Redwood Road

Date of Count: Thursday, April 07, 2011

Number of Collisions: 4
Number of Injuries: 1
Number of Fatalities: 0
ADT: 5800
Start Date: July 1, 2006
End Date: June 30, 2011
Number of Years: 5

Intersection Type: Four-Legged
Control Type: 4 Way Stop
Area: Suburban

$$\text{collision rate} = \frac{\text{NUMBER OF COLLISIONS} \times 1\ \text{MILLION}}{\text{ADT} \times 365\ \text{DAYS PER YEAR} \times \text{NUMBER OF YEARS}}$$

$$\text{collision rate} = \frac{4 \times 1{,}000{,}000}{5{,}800 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.38 c/mve**	**0.0%**	**25.0%**
Statewide Average*	**0.40 c/mve**	**0.1%**	**44.4%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2009 Collision Data on California State Highways, Caltrans

APPENDIX G
WATER SUPPLY DATA

2 September 2014

To	Southern Humboldt Community Park		
Copy to	Kathryn Lobato		
From	Rebecca Crow	Tel	707-443-8326
Subject	Water Supply and Demand Analysis Memorandum	Job no.	8411201//

1 Introduction

1.1 Purpose of this report

The purpose of this technical memorandum is to present a water demand and water supply analysis for existing and proposed new facilities and events hosted in the Southern Humboldt Community Park (SHCP) to determine if the water available on site is sufficient to meet proposed future demands. The Park operations will include a variety of potable and non-potable water uses. This water supply and demand analysis was prepared to to support the utilities and services section of the Environmental Impact Report (EIR) being prepared for the SHCP. This memo is broken into the following sections:

- Water Demand Analysis
- Water Supply Analysis
- Water Storage Analysis
- Supply and Demand Comparison
- Water Supply Options
- Recommendations and Conclusions

There are currently three sources of water in use at the Park: Source 1 (non-potable) is from the South Fork Eel River by a permitted Infiltration Gallery (IG); source 2 (potable) is from a tributary spring; and source 3 (potable) is from a well located in Tooby Memorial Park (TP Well). A fourth source, a groundwater well, (potable) is available in Area 4 but is currently not in use.

1.2 Scope and limitations

This report: has been prepared by GHD for Southern Humboldt Community Park and may only be used and relied on by Southern Humboldt Community Park for the purpose agreed between GHD and the Southern Humboldt Community Park as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Southern Humboldt Community Park arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and contract between GHD and SHCP and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Southern Humboldt Community Park and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

GHD has not been involved in the preparation of the Environmental Impact Report and has had no contribution to, or review of the Environmental Impact Report other than in the Water Supply and Demand Analysis. GHD shall not be liable to any person for any error in, omission from, or false or misleading statement in, any other part of the Environmental Impact Report.

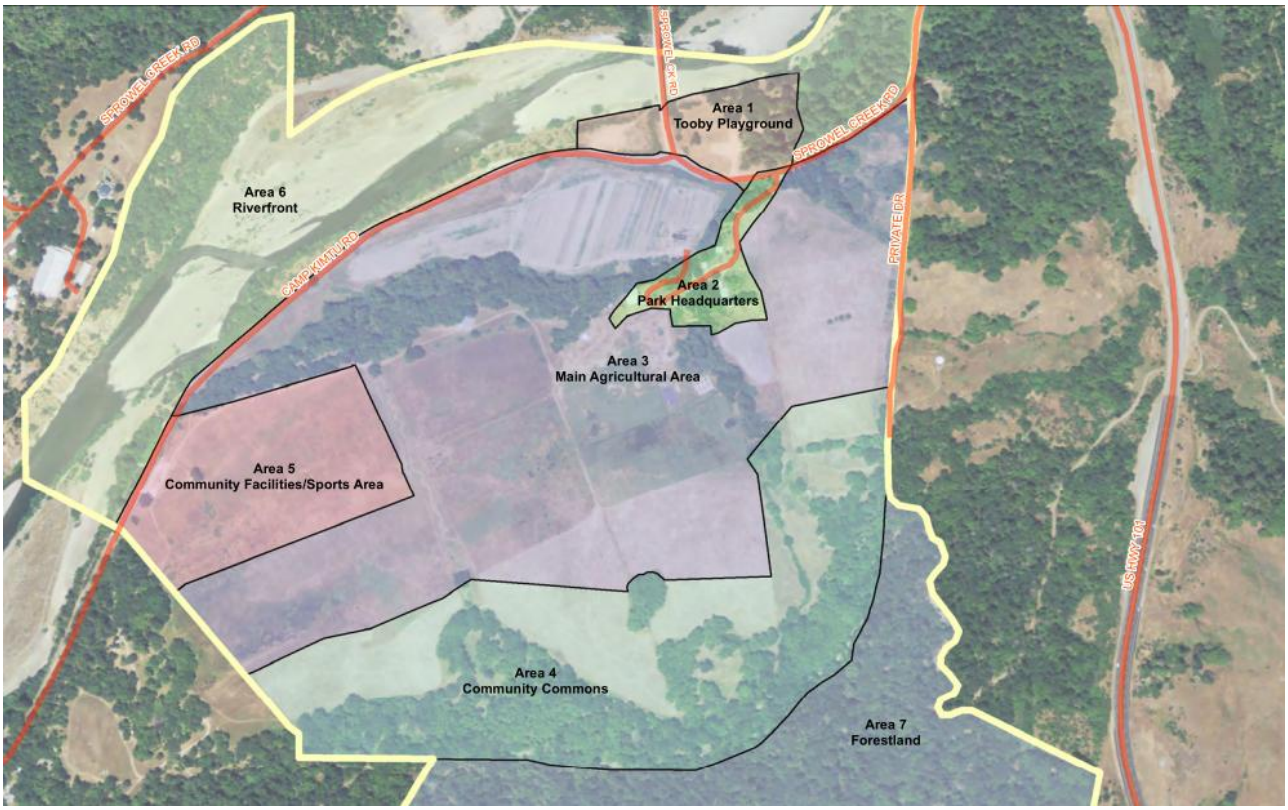
2 Water Demand Analysis

The section of the technical memorandum evaluates the proposed types of water uses, volume of use, and frequency of use for potable and non-potable water demands for existing and proposed future residential and recreation facilities based on the project planning information provided by SHCP. The project was split into seven (7) areas listed below.

- Area 1 – Tooby Memorial Park
- Area 2 – Park Headquarters
- Area 3 – Main Agricultural
- Area 4 – Community Commons
- Area 5 – Community Facilities
- Area 6 – Riverfront
- Area 7 – Forestland

According to the California Department of Public Heath (CDPH), the water system at the Park is classified as “Transient Non-Community Water System”, meaning the water system is not a public water system. See Appendix A for the CDPH Decision Tree for Classification of Water Systems.

Figure 1 Map of Southern Humboldt Community Park Proposed Areas



Within this section, water demands are presented in terms of the project areas as shown in Figure 1, types of uses, and existing and future uses. In section 5 of this memorandum the demand is further broken out by potable and non-potable uses for comparison with available supply.

2.1 Existing Demands

Table 1 below presents estimates of the current water demands at the Park by source, estimated from existing known use. A list of existing facilities is located in Appendix A.

Table 1 Existing Water Demands at SHCP by Source

Source	Peak (gal/mo)	Off-Peak (gal/mo)
1 (IG)	328,015	167
2 (Spring)	31,741	13,262
3 (TP Well)	7,950	7,950
Total	***367,706***	***21,379***

Table 2 below presents estimates of the current water demands at the park by area. For the purpose of this analysis, Peak is defined as May 1 through October 31 (6 months), and Off-Peak is defined as November 1 through April 30 (6 months).

Table 2 Existing Water Demands at SHCP by Area

Area	Source	Peak (gal/mo)	Off-Peak (gal/mo)
1	TP Well	7,950	7,950
2	Spring	33,908	13,428
3	IG	325,848	-
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
Total		***367,706***	***21,379***

2.2 Proposed Demands

2.2.1 New Facilities

Table 3 is a general summary of the existing and proposed facilities that require water at the Park. For a full description of the project facilities see Appendix A. Areas 6 and 7 are not included because there are no existing or proposed facilities that will use water in either area. The construction of proposed new facilities are broken into Phase 1 and Phase 2. Phase 1 includes years 1 through 3, and Phase 2 includes demands after year 3.

Table 3 Existing and Proposed Facilities Requiring Water

Area	Existing Facility	Proposed New Facility-Ph. 1	Proposed New Facility-Ph. 2
1	Caretaker Unit	Restrooms; Drinking Fountain	None
2	Ranch House, Cabin, Bunkhouse, Large Barn, Chicken Coop, Horse Barn	None	Remodel Structures into Offices, Workshop, Community Kitchen, etc.; Greenhouse; Restrooms; Drinking Fountain
3	Crop Irrigation	None	None
4	None	Temporary Sanitation Station Water Hookups; Food Vendor Washing Station Water Hookups; Faucet at Each Camp Site. *(1/2 capacity)*	Temporary Sanitation Station Water Hookups; Food Vendor Washing Station Water Hookups; Faucet at Each Camp Site. *(full capacity)*
5	None	None	Concession Stand with Sink; Restrooms; Drinking Fountain; Four (4) Irrigated Sports Fields.

The water demand for all uses except for irrigation was calculated using typical wastewater flow rates from Metcalf & Eddy “Wastewater Engineering: Treatment and Reuse”, Fourth Ed., 2003. As noted in Appendix B, several factors were increased by 20% to account for water that does not go to the wastewater system, which is a typical practice. A baseline, everyday water demand was calculated for

peak and off-peak months. The baseline water demand includes visitors using facilities at the hiking trails, playground, headquarter offices & spaces, restrooms, and sports fields. The baseline water demand also includes irrigation, livestock, and household use.

2.2.2 Irrigation Calculations

Four sports fields and surrounding areas equaling approximately ten (10) acres are proposed in Area 5. This area will need to be irrigated regularly depending on the time of year. Using historical average and drought precipitation data from Garberville and nearby Richardson's Grove, and average temperature (from Western Regional Climate Center), and applying the Blaney-Criddle Formula from U.S. Department of Agriculture, Soil Conservation Service Technical Release No. 21, an average and drought effective irrigation demand (inch/month) was calculated and converted to a monthly demand (gallon/month). Table 4 summarizes the irrigation demand calculations. For complete calculations, see Appendix B. Irrigation of crops in Area 3 is accounted for under existing uses and is based on historical water use in these areas and is anticiapted to continue at historial rates.

Table 4 Sports Fields Irrigation Demands - Proposed

Month	Number days/mo	Avg. Effective Irrigation Demand (in/mo)	Drought Effective Irrigation Demand (in/mo)	Avg. Monthly Demand (gal/mo)	Drought Monthly Demand (gal/mo)
January	31	0.00	0.00	-	-
February	28	0.00	0.00	-	-
March	31	0.00	0.00	-	-
April	30	0.31	1.72	84,301	467,210
May	31	3.44	4.09	934,900	1,110,719
June	30	5.58	5.81	1,516,173	1,578,078
July	31	7.40	7.43	2,009,929	2,018,435
August	31	6.39	6.67	1,735,919	1,811,978
September	30	4.36	4.77	1,184,701	1,296,234
October	31	0.41	1.77	110,804	481,459
November	30	0.00	0.00	-	-
December	31	0.00	0.00	-	-

The irrigation demand was also analyzed using the minimum areas needing irrigation, which includes the sports fields only. The total of these four fields equals approximately 5.5 acres. This analysis is included as an approach to conserve water in response to the ongoing drought. Table 5 summarizes the minimum field irrigation requirements.

Table 5 Sports Fields Irrigation Demands - Minimum

Month	Number days/mo	Avg. Effective Irrigation Demand (in/mo)	Drought Effective Irrigation Demand (in/mo)	Avg. Monthly Demand (gal/mo)	Drought Monthly Demand (gal/mo)
January	31	0.00	0.00	-	-
February	28	0.00	0.00	-	-
March	31	0.00	0.00	-	-
April	30	0.31	1.72	46,689	258,756
May	31	3.44	4.09	517,777	615,151
June	30	5.58	5.81	839,704	873,989
July	31	7.40	7.43	1,113,162	1,117,873
August	31	6.39	6.67	961,406	1,003,530
September	30	4.36	4.77	656,124	717,895
October	31	0.41	1.77	61,367	266,647
November	30	0.00	0.00	-	-
December	31	0.00	0.00	-	-

2.2.3 Special Events and Phasing

Special events are held at various areas of the Park. These events typically occur during peak months and temporarily increase the water demand. These events include weddings, memorials, fundraisers, private parties, annual community events, medium events of 800 to 2,500 attendees occurring up to five times per year, and one large two-day festival with 5,000 attendees allowed once per year.

The construction of proposed water facilities will be phased as the park develops over the next several years. Phase 1 will occur over years 1 through 3 which includes construction of a new restroom in Area 1, and temporary facilities operated at half capacity in Area 4. Phase 2 will include construction of the remaining proposed facilities after year 3, and temporary facilities operated at full capacity in Area 4. Tables 6 and 7 depict a by-month assessment of the events in each phase used to calculate event driven water demands. Table 8 shows the Phase 1 demand including existing facilities to remain and proposed new Phase 1 uses. Table 9 shows the total Phase 2 water demands, including existing facilities to remain, all proposed new facilities, events, and irrigation.

Table 6 Summary of Events at SHCP [(AREA) – (EVENT) X (FREQUENCY)] – PHASE 1

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2 - Winter Event x 1 4 - Fundraiser x 1	None	None	1 - Egg Hunt x 1 2 - Spring Event x 1	1 - Bike Event x 1 4 - Fundraiser x 1 4 - Group of 10 Camp x 1	1 - Memorial x 1 4 - Wedding x 1 4 - 1,500 Person Event x 1 4 - Group of 10 Camp x 1 4 - Group of 15 Camp x 1 4 - Group of 20 Camp x 1	1 - Wedding x 1 2 - Summer Event x 1 4 - Wedding x 1 4 - 1,250 Person Event x 1 4 - Group of 10 Camp x 1 4 - Group of 15 Camp x 1	4 - Fundraiser x 1 4 - 1,250 Person Event x 1 4 - Group of 10 Camp x 1	1 - Walk in the Park Event x 1 4 - Group of 10 Camp x 1	2 - Fall Event x 1	None	None

Table 7 Summary of Events at SHCP [(AREA) – (EVENT) X (FREQUENCY)] – PHASE 2

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2 - Winter Event x 1 4 - Memorial x 1 4 - Fundraiser x 1	None	4 - Fundraiser x 1 5 - Soccer Tournament x 1	1 - Egg Hunt x 1 2 - Spring Event x 1 4 - Group of 10 Camp x 1	1 - Bike Event x 1 4 - Memorial x 1 4 - Fundraiser x 1 4 - 800 Person Event x 1 4 - Group of 10 Camp x 2	1 - Memorial x 1 4 - Wedding x 1 4 - Private Party x 1 4 - 1,500 Person Event x 1 4 - 5,000 Person Festival x 1 4 - Group of 10 Camp x 2 4 - Group of 15 Camp x 1 4 - Group of 20 Camp x 1	1 - Wedding x 1 2 - Summer Event x 1 4 - Wedding x 1 4 - Private Party x 1 4 - 1,250 Person Event x 1 4 - Group of 10 Camp x 2 4 - Group of 15 Camp x 1 4 - Group of 20 Camp x 1	4 - Wedding x 1 4 - Fundraiser x 1 4 - 1,250 Person Event x 1 4 - Group of 10 Camp x 2 4 - Group of 15 Camp x 1 4 – Group of 20 Camp x 1	1 - Walk in the Park Event x 1 4 - Memorial x 1 4 - Wedding x 1 4 - 800 Person Event x 1 4 - Group of 10 Camp x 1	2 - Fall Event x 1 5 - Soccer Tournament x 1	4 - Fundraiser x 1	None

Table 8 Summary of Post-Project Water Demands at SHCP by Month – PHASE 1

	(gallons/month)											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AREA 1												
Baseline Water Use	9,072	9,072	9,072	9,072	18,402	18,402	18,402	18,402	18,402	18,402	9,072	9,072
Events, Camps, Tournaments	-	-	-	2,640	990	330	330	-	1,980	-	-	-
Irrigation	-	-	-	-	9,863	9,863	9,863	9,863	9,863	9,863	-	-
AREA 2												
Baseline l Water Use	19,094	19,094	19,094	19,094	39,965	39,965	39,965	39,965	39,965	39,965	19,094	19,094
Events, Camps, Tournaments	2,250	-	-	2,250	-	-	4,500	-	-	2,700	-	-
Irrigation	-	-	-	-	20,055	20,055	20,055	20,055	20,055	20,055	-	-
AREA 3												
Baseline Water Use	-	-	-	-	-	-	-	-	-	-	-	-
Events, Camps, Tournaments	-	-	-	-	-	-	-	-	-	-	-	-
Irrigation	-	-	-	-	325,848	325,848	325,848	325,848	325,848	325,848	-	-
AREA 4												
Baseline l Water Use	-	-	-	-	-	-	-	-	-	-	-	-
Events, Camps, Tournaments	240	-	-	-	348	1,768	1,352	1,348	108	-	-	-
/Irrigation	-	-	-	-	-	-	-	-	-	-	-	-
AREA 5												
Baseline Water Use	-	-	-	-	-	-	-	-	-	-	-	-
Events, Camps, Tournaments	-	-	-	-	-	-	-	-	-	-	-	-
Irrigation	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DEMAND:	***30,656***	***28,166***	***28,166***	***33,056***	***415,470***	***416,230***	***420,314***	***415,480***	***416,220***	***416,832***	***28,166***	***28,166***

Table 9 Summary of Post-Project Water Demands at SHCP by Month – PHASE 2

	(gallons/month)											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AREA 1												
Baseline Water Use	9,072	9,072	9,072	9,072	18,402	18,402	18,402	18,402	18,402	18,402	9,072	9,072
Events, Camps, Tournaments	-	-	-	2,640	990	330	330	-	1,980	-	-	-
Irrigation	-	-	-	-	9,863	9,863	9,863	9,863	9,863	9,863	-	-
AREA 2												
Baseline l Water Use	19,094	19,094	19,094	19,094	39,965	39,965	39,965	39,965	39,965	39,965	19,094	19,094
Events, Camps, Tournaments	2,250	-	-	2,250	-		4,500	-	-	2,700	-	-
Irrigation	-	-	-	-	20,055	20,055	20,055	20,055	20,055	20,055	-	-
AREA 3												
Baseline Water Use	-	-	-	-	-	-	-	-	-	-	-	-
Events, Camps, Tournaments	-	-	-	-	-	-	-	-	-	-	-	-
Irrigation	-	-	-	-	325,848	325,848	325,848	325,848	325,848	325,848	-	-
AREA 4												
Baseline l Water Use	-	-	-	-	-	-	-	-	-	-	-	-
Events, Camps, Tournaments	320	-	240	108	1,176	9,996	1,796	1,916	928	-	240	-
Irrigation	-	-	-	-	-	-	-	-	-	-	-	-
AREA 5												
Baseline Water Use	5,400	5,400	5,400	5,400	14,190	14,190	14,190	14,190	14,190	14,190	5,400	5,400
Events, Camps, Tournaments	-	-	4,200	-	-	-	-	-	-	4,200	-	-
Irrigation (Proposed 10 acres)	-	-	-	467,210	1,110,719	1,578,078	2,018,435	1,811,978	1,296,234	481,459	-	-
TOTAL DEMAND, (Proposed Irrigation in Area 5):	***36,136***	***33,566***	***38,006***	***505,774***	***1,541,207***	***2,016,727***	***2,453,384***	***2,242,216***	***1,727,464***	***916,681***	***33,806***	***33,566***
Irrigation (Reduced 5.5 acres)	-	-	-	258,756	615,151	873,989	1,117,873	1,003,530	717,895	266,647	-	-
TOTAL DEMAND, (Reduced Irrigation in Area 5)	***36,136***	***33,566***	***38,006***	***297,320***	***1,045,639***	***1,312,638***	***1,552,821***	***1,433,768***	***1,149,125***	***701,869***	***33,806***	***33,566***

3 Water Supply Analysis

This section of the technical memorandum presents the evaluation of the capacity of the existing supply sources. Currently, SHCP has access to three (3) water sources, and owns another well located in area 4 of the park (not currently in use). The tables below summarize these sources. The pump at the Infiltration Gallery and the Upland Well (after installation) were assumed to run for twelve (12) hours per day.

Table 10 Existing Water Sources at SHCP

Source No.	Water Source	Permit	Water Rights Filings	Pump	Storage Capacity	Potable	Conditions
1	South Fork Eel River – Infiltration Gallery	CDFW: LSAA (R1-2009-0238)	SWRCB, Statement of Water Diversion and Use: S0243379	Gould's submersible pump 107 GPM (2013)	None	No	Rate of diversion 108 GPM or 10% of streamflow (lesser of the two)
2	Spring – Unnamed Tributary			None. Gravity feed	55,000 gallon tank	Yes	Rate of diversion 1.39 GPM. No draw of water July 2 to October 31 each year
3	Tooby Memorial Park – Well	-		Grundfos submersible pump	None	Yes	Capacity unknown.
4	Upland Park – Well	-	Will apply after use starts	None – to be installed in the future.	None	Yes	Capacity approx. 2.5 GPM

Table 11 Water Source Capacity by Month

Month	No. of Days	Source 1 Capacity (12 hrs/day)	Source 2 Capacity	Source 3 Capacity	Source 4 Capacity (12 hrs/day)
		(gal/mo)			
January	31	2,388,240	62,050	Unknown – Currently supplying "plenty" of water to area 1 caretaker unit and irrigation (approx. 7,950 gal/mo)	55,800
February	28	2,157,120	56,045		50,400
March	31	2,388,240	62,050		55,800
April	30	2,311,200	60,048		54,000
May	31	2,388,240	62,050		55,800
June	30	2,311,200	60,048		54,000
July	31	2,388,240	-		55,800
August	31	2,388,240	-		55,800
September	30	2,311,200	-		54,000
October	31	2,388,240	-		55,800
November	30	2,311,200	60,048		54,000
December	31	2,388,240	62,050		55,800

4 Water Storage Analysis

The Southern Humboldt Community Park currently maintains one 55,000 gallon water storage tank. The tank holds water from the spring (source 2) and is located on an adjacent property APN 221-091-11. Additional water storage tanks, up to 50,000 gallons may be placed at this location for a total of 105,000 gallons of storage.

4.1 Storage Volume Requirements

There are typically three components to estimating required system storage volume. They are the working storage, fire storage, and emergency storage. The water storage needs for each of these are based on the proposed projected water demands developed in Sections 2.3 of this memorandum.

4.1.1. Working Storage

The current 55,000 serves as the Park's working storage. As discussed under the water supply options section below, this storage can meet the SHCP's needs under several water supply options. Additional storage facilities for potable water use during peak summer months, would enhance the system but are not required.

4.1.2. Fire Storage

Fire storage provides water for fighting fires. The annual volume of water used for firefighting is small, but during fires, the rate of use may be very high for several hours. This results in the need to have a relatively large volume of water always in reserve for fighting a fire. Currently, the 55,000 gallon water tank is plumbed with 1 ½" line to hydrant connections. The Park has a fire hydrant connection close to the event site that can be easily accessed during a fire. For the festival, the volunteer fire departments will have engines available on site, and the Park owns a portable 300-gallon fire-suppression water-pumper tank installed on a four-wheel drive truck that can provide access into most areas within park boundaries.

4.1.3. Emergency Storage

The Park is not located within the Town of Garberville, and only three residences are located at the site. If an emergency takes place, there are a total of four water sources that these residences can divert water to use in emergencies should the primary source fail.

5 Supply and Demand Comparison

Table 12 below breaks out each facility requiring water and has the demand for each month including all the events listed in Tables 6 and 7. Each water source capacity is shown at the bottom of the table for comparison.

Table 12 Water Demands by Facility (after year 3)

FACILITY	AREA	NEW (Y/N)	WATER DEMANDS (gal/mo) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	EXISTING SOURCE
MH Caretakers Unit (2bd, 1ba)	1	N	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	Tooby Well
Irrigation	1	N	-	-	-	-	9,863	9,863	9,863	9,863	9,863	9,863	-	-	Tooby Well
Restrooms															
Toilets	1	Y	2,892	2,892	2,892	4,492	8,125	7,725	7,725	7,525	8,725	7,525	2,892	2,892	NA
Sinks	1	Y	1,446	1,446	1,446	2,246	4,063	3,863	3,863	3,763	4,363	3,763	1,446	1,446	NA
Drinking Fountains	1	Y	1,242	1,242	1,242	1,482	3,713	3,653	3,653	3,623	3,803	3,623	1,242	1,242	NA
Main Ranch House (3bd, 2ba)	2														Tank-Spring
Remodel - 2bd, 1ba residence	2	Remodel	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	NA
Remodel - offices, 1/2 ba, kitchen	2	Remodel	3,696	3,096	3,096	3,696	18,576	18,576	19,776	18,576	18,576	19,296	3,096	3,096	NA
Garage (offices)															NA
Cabin (office, 1/2 ba, kitchen)															Tank-Spring
Bunkhouse (2 bd, 1ba)	2	N	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	Tank-Spring
Irrigation	2	N	-	-	-	-	20,055	20,055	20,055	20,055	20,055	20,055	-	-	Tank-Spring
Large Barn (utility sink)	2	N	300	300	300	300	300	300	300	300	300	300	300	300	Tank-Spring
Chicken Coop	2	N	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	Tank-Spring
Horse Barn	2	N	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	Tank-Spring
Restrooms															
Toilets	2	Y	2,446	1,446	1,446	2,446	3,225	3,225	5,225	3,225	3,225	4,425	1,446	1,446	NA
Sinks	2	Y	1,223	723	723	1,223	1,613	1,613	2,613	1,613	1,613	2,213	723	723	NA
Drinking Fountains	2	Y	771	621	621	771	1,553	1,553	1,853	1,553	1,553	1,733	621	621	NA
Crop Irrigation	3	N	-	-	-	-	325,848	325,848	325,848	325,848	325,848	325,848	-	-	Eel River IG
Events Area - 4A															
*Food Vendor Washing	4A	Y	120	-	90	-	600	3,533	458	503	308	-	90	-	NA
*Hand washing	4A	Y	200	-	150	-	360	5,888	763	838	513	-	150	-	NA
Environmental Camp Area - 4B															
*Camp Sites (15 total)	4B	Y	-	-	-	72	144	384	384	384	72	-	-	-	NA
*Hand washing	4B	Y	-	-	-	36	72	192	192	192	36	-	-	-	NA
*Sports Fields (Proposed 10 acres)	5	Y	-	-	-	467,210	1,110,719	1,578,078	2,018,435	1,811,978	1,296,234	481,459	-	-	NA
*Sports Fields (Reduced 5.5 acres)			-	-	-	258,756	615,151	873,989	1,117,873	1,003,530	717,895	266,647	-	-	
Concession Stand w/ Restrooms															
*Stand Sink	5	Y	1,800	1,800	2,400	1,800	5,160	5,160	5,160	5,160	5,160	5,760	1,800	1,800	NA
*Toilets	5	Y	1,800	1,800	3,800	1,800	4,300	4,300	4,300	4,300	4,300	6,300	1,800	1,800	NA
*Sinks	5	Y	900	900	1,900	900	2,150	2,150	2,150	2,150	2,150	3,150	900	900	NA
*Drinking Fountains	5	Y	900	900	1,500	900	2,580	2,580	2,580	2,580	2,580	3,180	900	900	NA
TOTAL, PROPOSED			***36,136***	***33,566***	***38,006***	***505,774***	***1,541,207***	***2,016,727***	***2,453,384***	***2,242,216***	***1,727,464***	***916,681***	***33,806***	***33,566***	
TOTAL, REDUCED			***36,136***	***33,566***	***38,006***	***297,320***	***1,045,639***	***1,312,638***	***1,552,821***	***1,433,768***	***1,149,125***	***701,869***	***33,806***	***33,566***	
Infiltration Gallery Capacity			2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	
Spring Capacity			62,050	56,045	62,050	60,048	62,050	60,048	-	-	-	-	60,048	62,050	
Upland Well Capacity			55,800	50,400	55,800	54,000	55,800	54,000	55,800	55,800	54,000	55,800	54,000	55,800	

*Phase 2 facilities to be implemented after year 3. See Tables 8 and 9 for breakdown of water demands in each phase.

At this time, the Spring supplies water to the 55,000 gallon storage tank. SHCP currently has a forbearance program in place which stops the spring water withdrawals from July 2 to October 31. Table 13 shows a baseline water supply option with no new sources incorporated. Existing water facilities will continue to use their using existing water sources and the Spring (with tank) would supply all new facilities, with the exception of the Infiltration Gallery supplying the irrigation of the sports fields in Area 5. An asterisk (*) indicates facilities to be constructed in Phase 2.

Tables 14 and 15 show a comparison of available water supply with existing and proposed water demands under two scenarios. The first is the Phase 1 uses only, which are the uses without an asterisk in Table 13. As shown in Table 14 there is sufficient supply to meet the near term, Phase 1, needs of the Park with no changes to water supply. Table 15 compares the Phase 1 and 2 water demands to the water supply, which indicates additional supply is needed to meet the long-term demands of the Park.

Table 13 Water Sources for New and Existing Facilities

Facility	Area	As-Is Water Source (No changes to Existing)
MH Caretakers Unit (2bd, 1ba)	1	Tooby Well
Irrigation	1	Tooby Well
Restrooms		
Toilets	1	Tooby Well
Sinks	1	Tooby Well
Drinking Fountains	1	Tooby Well
Temp. Hand washing (for events)	2	Eel River IG
Temp. Food Washing (for events)	2	Tank-Spring
Main Ranch House (3bd, 2ba)		
*Remodel - 2bd, 1ba residence	2	Tank-Spring
*Remodel - offices, 1/2 ba, kitchen	2	Tank-Spring
*Garage (offices)		
*Cabin (office, 1/2 ba, kitchen)		
Bunkhouse (2 bd, 1ba)	2	Tank-Spring
Irrigation	2	Tank-Spring
Large Barn (sink to wash produce)	2	Tank-Spring
Chicken Coop	2	Eel River IG
Horse Barn	2	Eel River IG
Restrooms		
*Toilets	2	Tank-Spring
*Sinks	2	Tank-Spring
*Drinking Fountains	2	Tank-Spring
Crop Irrigation	3	Eel River IG
Events Area - 4A		
Food Vendor Washing	4A	Tank-Spring
Hand washing	4A	Tank-Spring
Environmental Camp Area - 4B		
Camp Sites (15 total)	4B	Tank-Spring
Hand washing	4B	Tank-Spring
*Sports Fields Irrigation	5	Eel River IG
*Concession Stand w/ Restrooms	5	
*Stand Sink	5	Tank-Spring
*Toilets	5	Tank-Spring
*Sinks	5	Tank-Spring
*Drinking Fountain	5	Tank-Spring

Table 14 Current Water Supply and Demand with New and Existing Facilities – PHASE 1

	AS-IS (NO CHANGES TO EXISTING) (gallons/month)											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SOUTH FORK EEL RIVER INFILTRATION GALLERY												
Demand	2,664	2,264	2,264	2,514	22,505	23,288	23,591	23,130	22,355	22,619	2,264	2,264
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,385,576***	***2,154,856***	***2,385,976***	***2,308,686***	***2,365,735***	***2,287,912***	***2,364,649***	***2,365,110***	***2,288,845***	***2,365,621***	***2,308,936***	***2,385,976***
TOOBY WELL												
Demand	9,072	9,072	9,072	11,712	29,255	28,595	28,595	28,265	30,245	28,265	9,072	9,072
Capacity	currently unknown											
Remaining												
TANK (WITH SPRING)												
Demand	11,334	10,944	10,944	11,244	12,896	13,534	13,915	13,271	12,806	13,094	10,944	10,944
Capacity	62,050	56,045	62,050	60,048	62,050	60,048	-	-	-	-	60,048	62,050
Tank Storage	55,000	55,000	55,000	55,000	55,000	55,000	55,000	41,085	27,814	15,008	27,500	55,000
Remaining	***105,716***	***100,101***	***106,106***	***103,804***	***104,153***	***101,514***	***41,085***	***27,814***	***15,008***	***1,914***	***21,604***	***51,106***

Table 15 Current Water Supply and Demand with New and Existing Facilities – PHASE 2

	AS-IS (NO CHANGES TO EXISTING) (gallons/month)											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SOUTH FORK EEL RIVER INFILTRATION GALLERY												
Demand	2,464	2,264	2,414	469,510	1,459,318	1,932,325	2,367,557	2,161,174	1,644,950	829,626	2,414	2,264
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,385,776***	***2,154,856***	***2,385,826***	***1,841,690***	***928,922***	***378,875***	***20,683***	***227,066***	***666,250***	***1,558,614***	***2,308,786***	***2,385,976***
TOOBY WELL												
Demand	9,072	9,072	9,072	11,712	29,255	28,595	28,595	28,265	30,245	28,265	9,072	9,072
Capacity	currently unknown											
Remaining												
TANK (WITH SPRING)												
Demand	24,800	22,230	26,670	24,588	53,066	61,886	58,186	53,806	52,818	58,790	22,470	22,230
Capacity	62,050	56,045	62,050	60,048	62,050	60,048	-	-	-	-	60,048	62,050
Tank Storage	55,000	55,000	55,000	55,000	55,000	55,000	55,000	-	-	-	27,500	55,000
Remaining	**92,250**	**88,815**	**90,380**	**90,460**	**63,983**	**53,162**	**(3,186)**	**(53,806)**	**(52,818)**	**(58,790)**	**10,078**	**39,820**

For Phase 2, the proposed new water services will need to be brought on-line.

6 Water Supply Options

Several water supply options were analyzed to help assist the Park in selecting the proper course of action for sourcing water for the long term. Assumptions made for the options include: (a) The pump at the Tooby Park Well has not been rated, so a supply analysis was not done at this source. It is assumed that the Tooby Well is potable and will have enough capacity to supply all the water necessary in Area 1; (b) The water from Tooby Well and Upland Well is potable; (c) The water used for irrigation and livestock in Area 2 has been changed to the Infiltration Gallery non-potable source for all options in order to maximize potable water throughout the Park; (d) For irrigation of the sports fields, a drought year was chosen.

- *Option 1*: Connect the Upland Well to the 55,000 gallon storage tank in addition to the Spring source. This will keep supplying potable water to the park during the forbearance months of July through October.
- *Option 2*: Connect the Upland Well to the 55,000 gallon storage tank in addition to the Spring source. This will keep supplying potable water to the park during the forbearance months of July through October. Also install dual-piping to the new facilities in Areas 2 and 5 with the Spring / Upland Well supplying potable water to hand washing sinks and drinking fountains, and the Infiltration Gallery supplying non-potable water to the toilets. This assumes all existing facilities will remain on their current water sources, i.e. the remodeled residential structures will still receive Spring water.
- *Options 3*: Add more storage (32,000 gallons) to the Spring water source, and use the Upland Well for all event area potable water and the concession stand with restrooms in Area 5.
- *Option 4*: Construct an on-site water treatment facility for the water from the South Fork Eel River Infiltration Gallery and supply the treated water to all the new facilities. During forbearance months, the tank will be refilled with treated water from the South Fork Eel River. The Upland Well is not used in this option.

As discussed above, for Phase 1, no new water supply configurations are needed to meet demands so no options were evaluated. For Phase 1, the Park does not need to make any changes to water sources for the first 3 years. See Table 14 for Phase 1 supply and demand data.

Table 16 lists all existing and new facilities requiring water. The proposed water source for each listed facility for all four options is shown.

Table 16 Water Supply Options for Phase 2 by Facility

Facility	Area	Option 1	Option 2	Option 3	Option 4
MH Caretakers Unit (2bd, 1ba)	1	Tooby Well	Tooby Well	Tooby Well	Tooby Well
Irrigation	1	Tooby Well	Tooby Well	Tooby Well	Tooby Well
Restrooms	1				
Toilets	1	Tooby Well	Tooby Well	Tooby Well	Tooby Well
Sinks	1	Tooby Well	Tooby Well	Tooby Well	Tooby Well
Drinking Fountains	1	Tooby Well	Tooby Well	Tooby Well	Tooby Well
Main Ranch House (3bd, 2ba)	2				
Remodel - 2bd, 1ba residence	2	Tank-Spring & Well	Tank-Spring & Well	Tank-Spring	Tank-Spring
Remodel - offices, 1/2 ba, kitchen	2	Tank-Spring & Well	Tank-Spring & Well	Tank-Spring	Tank-Spring
Garage (offices)					
Cabin (office, 1/2 ba, kitchen)					
Bunkhouse (2 bd, 1ba)	2	Tank-Spring & Well	Tank-Spring & Well	Tank-Spring	Tank-Spring
Irrigation	2	Eel River IG	Eel River IG	Eel River IG	Eel River IG
Large Barn (sink to wash produce)	2	Tank-Spring & Well	Tank-Spring & Well	Tank-Spring	Tank-Spring
Chicken Coop	2	Eel River IG	Eel River IG	Eel River IG	Eel River IG
Horse Barn	2	Eel River IG	Eel River IG	Eel River IG	Eel River IG
Restrooms	2				
Toilets	2	Tank-Spring & Well	Eel River IG	Tank-Spring	Eel River IG
Sinks	2	Tank-Spring & Well	Tank-Spring & Well	Tank-Spring	Treated Eel River IG
Drinking Fountains	2	Tank-Spring & Well	Tank-Spring & Well	Tank-Spring	Treated Eel River IG
Crop Irrigation	3	Eel River IG	Eel River IG	Eel River IG	Eel River IG
Events Area - 4A	4A				
Food Vendor Washing	4A	Tank-Spring & Well	Tank-Spring & Well	Upland Well	Treated Eel River IG
Hand washing	4A	Tank-Spring & Well	Tank-Spring & Well	Upland Well	Treated Eel River IG
Environmental Camp Area - 4B	4B				
Camp Sites (15 total)	4B	Tank-Spring & Well	Tank-Spring & Well	Upland Well	Treated Eel River IG
Hand washing	4B	Tank-Spring & Well	Tank-Spring & Well	Upland Well	Treated Eel River IG
Sports Fields Irrigation	5	Eel River IG	Eel River IG	Eel River IG	Eel River IG
Concession Stand w/ Restrooms	5				
Stand Sink	5	Tank-Spring & Well	Tank-Spring & Well	Upland Well	Treated Eel River IG
Toilets	5	Tank-Spring & Well	Eel River IG	Upland Well	Eel River IG
Sinks	5	Tank-Spring & Well	Tank-Spring & Well	Upland Well	Treated Eel River IG
Drinking Fountains	5	Tank-Spring & Well	Tank-Spring & Well	Upland Well	Treated Eel River IG

Lastly, Table 17 shows a summary of the demand and capacity of each source by month for each option. For all options listed, when a deficit is shown, the existing storage tank will need to be filled with another potable source (e.g. the Upland Well, imported purchased potable water, etc.). At any given time, it has been determined that there is enough potable water in the park to meet the demands.

Table 17 Water Supply Options by Source

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
OPTION 1 (gallons)												
South Fork Eel River Infiltration Gallery (Proposed, 10 Acres Irrigation)												
Demand	2,264	2,264	2,264	469,474	1,458,886	1,926,245	2,366,603	2,160,145	1,644,401	829,626	2,264	2,264
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,385,976***	***2,154,856***	***2,385,976***	***1,841,726***	***929,354***	***384,955***	***21,637***	***228,095***	***666,799***	***1,558,614***	***2,308,936***	***2,385,976***
South Fork Eel River Infiltration Gallery (Minimum, 5.5 Acres Irrigation)												
Demand	2,264	2,264	2,264	261,020	963,318	1,222,156	1,466,040	1,351,697	1,066,062	614,814	2,264	2,264
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,385,976***	***2,154,856***	***2,385,976***	***2,050,180***	***1,424,922***	***1,089,044***	***922,200***	***1,036,543***	***1,245,138***	***1,773,426***	***2,308,936***	***2,385,976***
Tooby Well												
Demand	9,072	9,072	9,072	11,712	29,255	28,595	28,595	28,265	30,245	28,265	9,072	9,072
Capacity						*currently unknown*						
Remaining												
Tank (with Spring & Upland Well)												
Demand	24,800	22,230	26,670	24,588	53,066	61,886	58,186	53,806	52,818	58,790	22,470	22,230
Capacity	117,850	106,445	117,850	114,048	117,850	114,048	55,800	55,800	54,000	55,800	114,048	117,850
Tank Storage	55,000*	55,000	55,000	55,000	55,000	55,000	55,000	52,614	54,608	55,000	55,000	55,000
Remaining	***38,050***	***139,215***	***146,180***	***144,460***	***119,783***	***107,162***	***52,614***	***54,608***	***55,790***	***52,010***	***143,588***	***150,620***

*Refill tank in January

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
OPTION 2 (gallons)												
South Fork Eel River Infiltration Gallery (Proposed, 10 Acres Irrigation)												
Demand	6,510	5,510	7,510	473,720	1,466,411	1,933,770	2,376,128	2,167,670	1,651,926	840,351	5,510	5,510
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,381,730***	***2,151,610***	***2,380,730***	***1,837,480***	***921,829***	***377,430***	***12,112***	***220,570***	***659,274***	***1,547,889***	***2,305,690***	***2,382,730***
South Fork Eel River Infiltration Gallery (Minimum, 5.5 Acres Irrigation)												
Demand	6,510	5,510	7,510	265,266	970,843	1,229,681	1,475,565	1,359,222	1,073,587	625,539	5,510	5,510
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,381,730***	***2,151,610***	***2,380,730***	***2,045,934***	***1,417,397***	***1,081,519***	***912,675***	***1,029,018***	***1,237,613***	***1,762,701***	***2,305,690***	***2,382,730***
Tooby Well												
Demand	9,072	9,072	9,072	11,712	29,255	28,595	28,595	28,265	30,245	28,265	9,072	9,072
Capacity						*currently unknown*						
Remaining												
Tank (with Spring & Upland Well)												
Demand	20,554	18,984	21,424	20,342	45,541	54,361	48,661	46,281	45,293	48,065	19,224	18,984
Capacity	117,850	106,445	117,850	114,048	117,850	114,048	55,800	55,800	54,000	55,800	114,048	117,850
Tank Storage	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000*	55,000*
Remaining	***152,296***	***142,461***	***151,426***	***148,706***	***127,308***	***114,687***	***62,139***	***64,519***	***63,707***	***62,735***	***94,824***	***126,366***

*Refill tank in November and December, if necessary

Table 17 Water Supply Options by Source, Continued

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
OPTION 3 (gallons)												
South Fork Eel River Infiltration Gallery (Proposed, 10 Acres Irrigation)												
Demand	2,264	2,264	2,264	469,474	1,458,886	1,926,245	2,366,603	2,160,145	1,644,401	829,626	2,264	2,264
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,385,976***	***2,154,856***	***2,385,976***	***1,841,726***	***929,354***	***384,955***	***21,637***	***228,095***	***666,799***	***1,558,614***	***2,308,936***	***2,385,976***
South Fork Eel River Infiltration Gallery (Minimum, 5.5 Acres Irrigation)												
Demand	2,264	2,264	2,264	261,020	963,318	1,222,156	1,466,040	1,351,697	1,066,062	614,814	2,264	2,264
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,385,976***	***2,154,856***	***2,385,976***	***2,050,180***	***1,424,922***	***1,089,044***	***922,200***	***1,036,543***	***1,245,138***	***1,773,426***	***2,308,936***	***2,385,976***
Tooby Well												
Demand	9,072	9,072	9,072	11,712	29,255	28,595	28,595	28,265	30,245	28,265	9,072	9,072
Capacity						*currently unknown*						
Remaining												
Tank (with Spring. Existing 55,000 gal + Proposed 32,000 gal)												
Demand	19,080	16,830	16,830	19,080	37,700	37,700	42,200	37,700	37,700	40,400	16,830	16,830
Capacity	62,050	56,045	62,050	60,048	62,050	60,048	-	-	-	-	60,048	62,050
Tank Storage	87,000*	87,000	87,000	87,000	87,000	87,000	87,000	44,800	71,100	-	29,000*	58,000*
Remaining	***65,970***	***126,215***	***132,220***	***127,968***	***111,349***	***109,348***	***44,800***	***7,100***	***(30,600)[1]***	***(40,400)[2]***	***14,218***	***39,220***
Upland Well												
Demand	5,720	5,400	9,840	5,508	15,366	24,186	15,986	16,106	15,118	18,390	5,640	5,400
Capacity	55,800	50,400	55,800	54,000	55,800	54,000	55,800	55,800	54,000	55,800	54,000	55,800
Remaining	***50,080***	***45,000***	***45,960***	***48,492***	***40,434***	***29,814***	***39,814***	***39,694***	***38,882***	***37,410***	***48,360***	***50,400***

*Refill tank in November, December, and January
1. Refill tank with water from Upland Well; 2. Refill tank with water from Upland Well and imported purchased potable water

OPTION 4 (gallons)												
Treated South Fork Eel River Infiltration Gallery (Proposed, 10 Acres Irrigation)												
Demand	12,104	10,454	14,654	479,314	1,479,466	1,946,825	2,390,483	2,180,725	1,664,981	856,386	10,454	10,454
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,376,136***	***2,146,666***	***2,373,586***	***1,831,886***	***908,774***	***364,375***	***(2,243)[1]***	***207,515***	***646,219***	***1,531,854***	***2,300,746***	***2,377,786***
Treated South Fork Eel River Infiltration Gallery (Minimum, 5.5 Acres Irrigation)												
Demand	12,104	10,454	14,654	270,860	983,898	1,242,736	1,489,920	1,372,277	1,086,642	641,574	10,454	10,454
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remaining	***2,376,136***	***2,146,666***	***2,373,586***	***2,040,340***	***1,404,342***	***1,068,464***	***898,320***	***1,015,963***	***1,224,558***	***1,746,666***	***2,300,746***	***2,377,786***
Tooby Well												
Demand	9,072	9,072	9,072	11,712	29,255	28,595	28,595	28,265	30,245	28,265	9,072	9,072
Capacity						*currently unknown*						
Remaining												
Tank (with Spring)												
Demand	14,960	14,040	14,280	14,748	32,486	41,306	34,306	33,226	32,238	32,030	14,280	14,040
Capacity	62,050	56,045	62,050	60,048	62,050	60,048	-	-	-	-	60,048	62,050
Tank Storage	55,000	55,000	55,000	55,000	55,000	55,000	55,000	20,694	-	-	27,500*	55,000*
Remaining	***102,090***	***97,005***	***102,770***	***100,300***	***84,563***	***73,742***	***20,694***	***(12,532)[2]***	***(32,238)[2]***	***(32,030)[2]***	***18,268***	***48,010***

*Refill tank in November and December
1. Use backup water from the Spring; 2. Refill tank with water from the Treated Infiltration Gallery

7 Recommendations and Conclusions

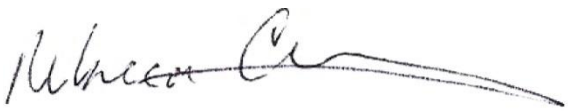
The current configuration with the Spring supplying all the potable water to Area 2, will not meet the demands during peak summer months once Phase 2 water demands come online. However, there is more than enough water in the park to meet the demands as shown in the options evaluted in the last section.

Option 2 is the preferred water supply configuration because it utilizes existing infrastructure, which results in minimum ground disturbance during construction and as a result is also likely the most cost effective. Option 2 also maximizes the use of potable water sources for potable needs, as the Eel River infiltration gallery source can be used for toilet flushing. This option also includes refilling of the 55,000 gallon existing tank from the Upland Well during the months of July through October, which improves the system's overall reliaibility.

It is assumed that if additional events beyond those included in this analysis or if the events occur in an alternate time of year (during the forebareance months), the Park will import purchased potable water in portable/temporary storage tanks for said events. If events occur in a different area, as long as the same source is used, it should not affect the supply.

For Phase 1, there is enough potable and non-potable water supply with the Park's current water sources and service configurations.

Regards,



Rebecca Crow
Project Manager

Appendices

Appendix A - (Supporting Documents)

- Decision Tree for Classification of Water Systems (CDPH)
- Proposed Project Site Map
- List of Facilities

  Area 1

  Area 2

  Area 3

  Area 4

  Area 5

  Area 6/7

Appendix B - (Supporting Calculations)

- Existing Water Demand Calculations - GHD
- Post-Project Weekday Water Demands
- Post-Project Weekend Water Demands
- Estimated Number of Visitors - SHCP
- Event Water Demand Calculations (Phase 1 and 2)
- Demand Calendar (Phase 1 and 2)
- Demand Calendar (Total/Summary)
- Irrigation Calculations
  - Effective Irrigation Demand Calculations
  - Blaney-Criddle Formula (SCS Technical Release No. 21)
  - Temperatures and Precipitation Data
- Water Source Capacity Calculations

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
1	Stephanie Gould, EIT	Rebecca Crow, PE		Rebecca Crow, PE		9/2/2014

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Appendices

Appendix A - (Supporting Documents)

- Decision Tree for Classification of Water Systems (CDPH)
- Proposed Project Site Map
- List of Facilities

  Area 1

  Area 2

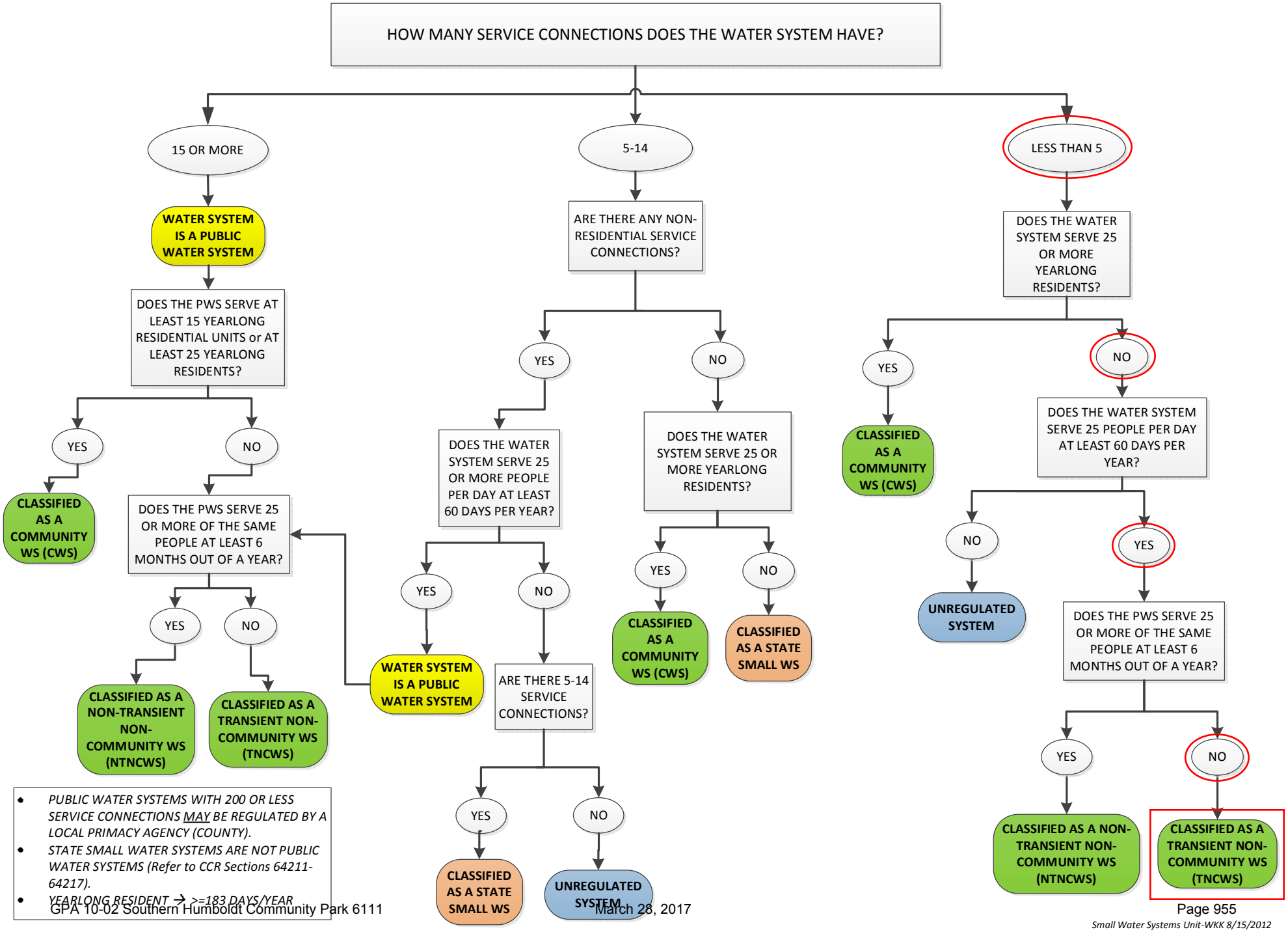
  Area 3

  Area 4

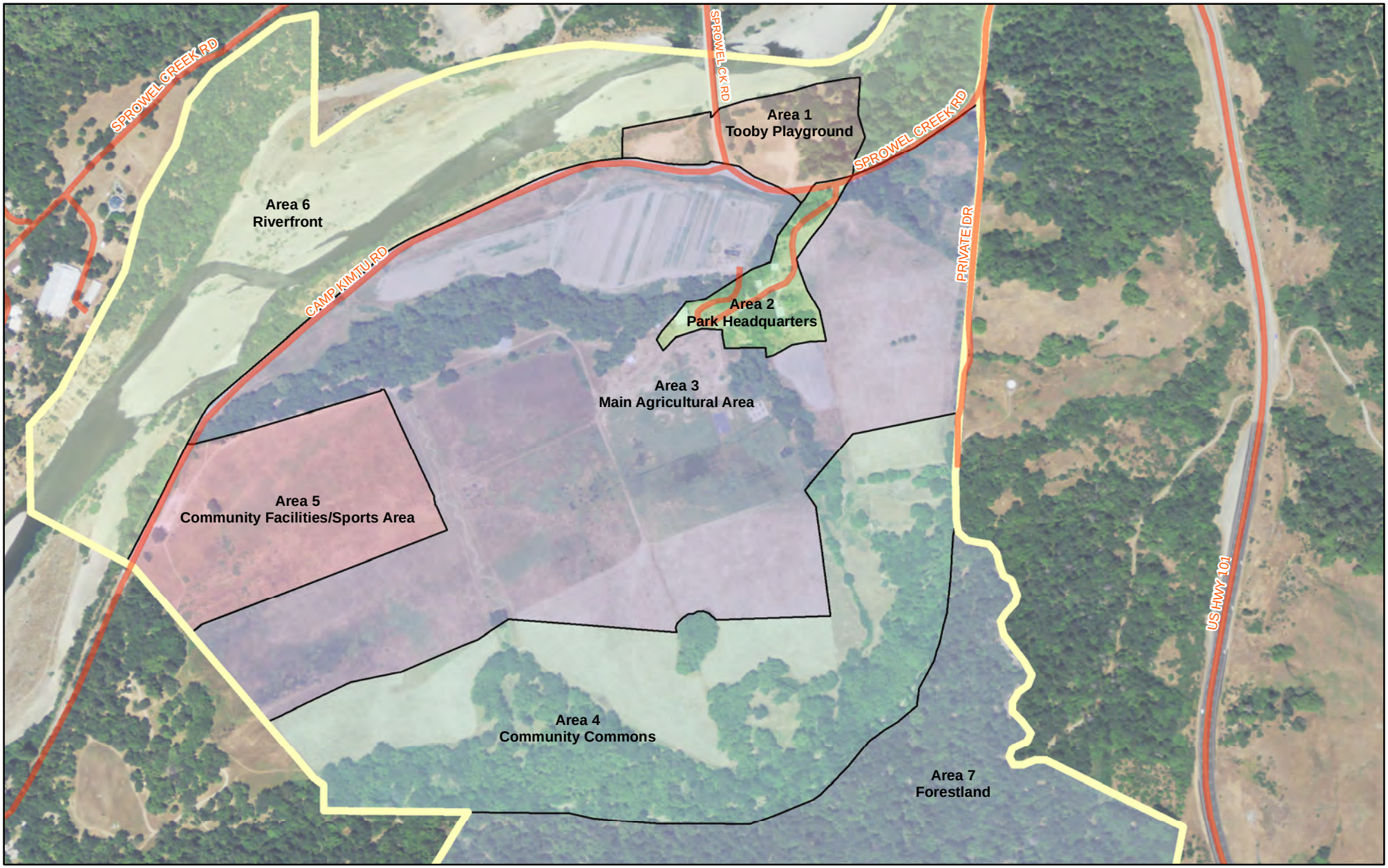
  Area 5

  Area 6/7

DECISION TREE FOR CLASSIFICATION OF WATER SYSTEMS



- *PUBLIC WATER SYSTEMS WITH 200 OR LESS SERVICE CONNECTIONS MAY BE REGULATED BY A LOCAL PRIMACY AGENCY (COUNTY).*
- *STATE SMALL WATER SYSTEMS ARE NOT PUBLIC WATER SYSTEMS (Refer to CCR Sections 64211-64217).*
- *YEARLONG RESIDENT → >=183 DAYS/YEAR*



Paper Size ANSI A

0 150 300 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

Roads and Streets

SHCP Property Boundary

Southern Humboldt Community Park
Environmental Impact Report

Job Number 12556 11 001
Revision 2
Date 18 Oct 2012

Proposed Project
Site Map

Figure 2

G:\12556 Southern Humboldt Community Park\12556-11-001 EIR Proj Mgmt Assistance\08-GIS\Maps\Figures\F2_ProposedProject.mxd

718 3rd St Eureka CA 95501 **T** 707 443 8326 **F** 707 444 8330 **E** rebecaa.crowl@ghd.com **W** www.ghd.com

FACILITY	EXISTING, NO CHANGE	EXISTING, MODIFICATIONS	PROPOSED
Area 1 - Tooby Memorial Park - 8.2 acres			
Residential Facilities			
Residence(s), caretaker (mobile home)	X		
Agricultural Facilities			
None			
Recreational/Community Facilities			
Playground		X	
Picnic area		X	
BBQ pits	X		
Benches		X	
Trails		X	
Boat ramp (non-paved, non-motorized)			X
Gazebo/shade structure			X
Kiosks (informational)		X	
Restrooms (portable)	X		
Restrooms (permanent)			X
Signage, gateway		X	
Signage, wayfinding/interpretive		X	
Transportation/Parking			
Parking area, permanent - daily use		X	
Parking area, unpaved regular use - seasonal events and sports		X	
Fencing for public areas for safety		X	
Intermittent use ranch service roads	X		
Proposed Park Uses			
Farmer's market		X	
Events, small (800 and under)	X		
Parties (under 100 attendance)	X		
Weddings, memorials, parties	X		
Workshops and classes	X		
Sporting tournaments (sports, bikes, disc golf)			X
Hiking, bicycling, equestians	X		

FACILITY	EXISTING, NO CHANGE	EXISTING, MODIFICATIONS	PROPOSED
Area 2 - Park Headquarters - 6.0 acres			
Residential Facilities			
Residence(s), 3 bdrm ranch/caretaker house		X	
Residence(s), 2 bdrm bunkhouse (rental/farm-worker housing)	X		
Residence(s), 1 bdrm cabin	X		
Agricultural Facilities			
Agricultural storage	X		
2 barns/stable/horse barn/chicken coops	X		
Farm stand	X		
Greenhouses	X		
Old slaughterhouse and scale house	X		
Fencing for animals - ag		X	
Temporary fencing for animal protection/control	X		
Recreational/Community Facilities			
Community center w/ kitchen (includes daycare)			X
Benches		X	
Equestrian facility	X		
Skate park	X		
Performance stage (temporary)			X
Trails		X	
Kiosks (informational)		X	
Restrooms (portable)	X		
Restrooms (permanent)			X
Signage, gateway		X	
Signage, wayfinding/interpretive		X	
Transportation/Parking			
Parking area, permanent - daily use		X	
Parking area, unpaved regular use - seasonal events and sports	X		
Parking area, unpaved temporary - event use		X	
Fencing for public areas for safety			X
Park HQ main entrance (unpaved)			X
Intermittent use ranch service roads	X		
Proposed Park Uses			
Agricultural processing		X	
Agricultural production (includes forest mgmt)		X	
Animal boarding		X	
Cottage industry		X	
Farmer's market		X	
Livestock grazing	X		
Equestrian activities and events		X	
Events, midsize (attendance 800-2500)			X
Events, small (800 and under)			X
Parties (under 100 attendance)	X		
Weddings, memorials, parties			X
Workshops and classes			X
Camping (farm related)			X
Sporting tournaments (sports, bikes, disc golf)			X
Hiking, bicycling, equestians	X		

FACILITY	EXISTING, NO CHANGE	EXISTING, MODIFICATIONS	PROPOSED
Area 3 - Main Agricultural - 127.1 acres			
Residential Facilities			
None			
Agricultural Facilities			
Greenhouses		X	
Fencing for animals - ag		X	
Temporary fencing for animal protection/control	X		
Recreational/Community Facilities			
Benches		X	
Disc golf course	X		
Labyrinth (weddings and memorials)	X		
Trails		X	
Restrooms (portable)		X	
Signage wayfinding/interpretive		X	
Transportation/Parking			
Parking area, unpaved regular use - seasonal events and sports		X	
Parking area, unpaved temporary - event use		X	
Fencing for public areas for safety		X	
Intermittent use ranch service roads	X		
Proposed Park Uses			
Agricultural processing		X	
Agricultural production (includes forest mgmt)		X	
Animal boarding		X	
Cottage industry			X
Livestock grazing	X		
Equestrian activities and events			X
Weddings, memorials, parties		X	
Workshops and classes			X
Camping (farm related)	X		
Sporting tournaments (sports, bikes, disc golf)			X
Hiking, bicycling, equestians	X		
Restoration, watershed/ecosystem/habitat			X

FACILITY	EXISTING, NO CHANGE	EXISTING, MODIFICATIONS	PROPOSED
Area 4 - Community Commons - 56.4 acres			
Residential Facilities			
None			
Agricultural Facilities			
Temporary fencing for animal protection/control	X		
Recreational/Community Facilities			
Picnic area			X
BBQ pits			X
Benches		X	
Camping site area (tent platforms, picnic tables, portable toilets)			X
Disc golf course	X		
Fenced dog park			X
Bike park			X
Performance stage (temporary)		X	
Trails		X	
Restrooms (portable)		X	
Signage, wayfinding/interpretive		X	
Transportation/Parking			
Parking area, unpaved temporary - event use			X
Fencing for public areas for safety		X	
Roads, new vehicular/pedestrian bridge			X
Intermittent use ranch service roads	X		
Proposed Park Uses			
Agricultural processing		X	
Agricultural production (includes forest mgmt)		X	
Animal boarding		X	
Livestock grazing	X		
Events, festival (attendance 2500-5000)			X
Events, midsize (attendance 800-2500)			X
Events, small (800 and under)			X
Parties (under 100 attendance)	X		
Weddings, memorials, parties		X	
Workshops and classes			X
Specialty camp area			X
Camping (farm related)			X
Sporting tournaments (sports, bikes, disc golf)			X
Hiking, bicycling, equestians	X		
Restoration, watershed/ecosystem/habitat		X	

FACILITY	EXISTING, NO CHANGE	EXISTING, MODIFICATIONS	PROPOSED
Area 5 - Community Facilities - 16.0 acres			
Residential Facilities			
None			
Agricultural Facilities			
None			
Recreational/Community Facilities			
Playground			X
Picnic area		X	
BBQ pits			X
Benches		X	
Bleachers			X
Skate park			X
Sports field(s), multipurpose (baseball/soccer) 130,000 sqft.			X
Sports field(s), soccer 45,000 sqft.			X
Sports field(s), multipurpose (soccer/football) 70,000 sqft.			X
Sports field(s), multipurpose (softball, baseball/ soccer) 80,000 sqft.			X
Multipurpose recreational building 12,000 sqft., gymnasium, administration offices			X
Trails		X	
Concession stands/storage			X
Gazebo/shade structure			X
Kiosks (informational)		X	
Restrooms (portable)	X		
Restrooms (permanent)			X
Signage, gateway		X	
Signage, wayfinding/interpretive		X	
Transportation/Parking			
Parking area, permanent - daily use		X	
Parking area, unpaved regular use - seasonal events and sports		X	X
Fencing for public areas for safety		X	
Roads, new or substantial improved (unpaved)			X
Intermittent use ranch service roads	X		
Proposed Park Uses			
Events, midsize (attendance 800-2500)		X	
Workshops and classes	X		
Sporting tournaments (sports, bikes, disc golf)			X
Hiking, bicycling, equestians	X		

FACILITY	EXISTING, NO CHANGE	EXISTING, MODIFICATIONS	PROPOSED
Area 6 - Riverfront - 77.0 acres			
Residential Facilities			
None			
Agricultural Facilities			
None			
Recreational/Community Facilities			
Picnic area			X
Trails		X	
Signage, wayfinding/interpretive		X	
Transportation/Parking			
Parking area, permanent - daily use		X	
Parking area, unpaved regular use - seasonal events and sports		X	
Parking area, unpaved temporary - event use		X	
Intermittent use ranch service roads	X		
Proposed Park Uses			
Workshops and classes			X
Hiking, bicycling, equestians	X		
Restoration, watershed/ecosystem/habitat			X
Area 7 - Forestland - 115.0 acres			
Residential Facilities			
None			
Agricultural Facilities			
None			
Recreational/Community Facilities			
Benches			X
Disc golf course	X		
Trails		X	
Signage, wayfinding/interpretive		X	
Transportation/Parking			
None			
Proposed Park Uses			
Agricultural production (includes forest mgmt)	X		
Sporting tournaments (sports, bikes, disc golf)			X
Hiking, bicycling, equestians	X		
Restoration, watershed/ecosystem/habitat		X	

Appendix B - (Supporting Calculations)

- Existing Water Demand Calculations - GHD
- Post-Project Weekday Water Demands
- Post-Project Weekend Water Demands
- Estimated Number of Visitors - SHCP
- Event Water Demand Calculations (Phase 1 and 2)
- Demand Calendar (Phase 1 and 2)
- Demand Calendar (Total/Summary)
- Irrigation Calculations

  Effective Irrigation Demand Calculations

  Blaney-Criddle Formula (SCS Technical Release No. 21)

  Temperatures and Precipitation Data
- Water Source Capacity Calculations

EXISTING FACILITIES										
	Water Source	No. of Units Peak	No. of Units Off-Peak	Units	Quantities of WW flow* (gal/unit/day)	WW Generation (gal/day)	Water Demand (1.2 x WW Flow) (gal/day)	Peak Monthly Demand (gal/mo)	Off-Peak Monthly Demand (gal/mo)	Assumptions
AREA 1										
MH Caretakers Unit (2bd, 1ba)	3	1	1	Occupants	97	97	116	2950	2950	For a 1 person household - typical flowrate of 97 gal/capita/d
Landscaping	3	1	1	Area			164	5000	5000	From SHCP, 60,000 gal/year
AREA 2										
Main Ranch House (3bd, 2ba)	2	2	2	Occupants	76	152	182	5548	5548	For a 2 person household - typical flowrate of 76 gal/capita/d
Bunkhouse (2 bd, 1ba)	2	2	2	Occupants	76	152	182	5548	5548	For a 2 person household - typical flowrate of 76 gal/capita/d
Landscaping	2	10000	0	SqFt			603	18333	0	22 G/SQFT/YR - 6 months irrigation, from SHCP
Landscaping Backup	1							2000	0	From SHCP, 12,000 gal per year
Large Barn (utility sink)	2	5	1	Person	1	5	6	183	37	
Chicken Coop	2	100	100	Chickens			10	304	304	10 GPD for 100 chickens
Horse Barn	2	4	4	Horses			60	1825	1825	60 GPD for 4 horses
Livestock Backup	1							167	167	From SHCP, 2,000 gal/year
AREA 3										
Crop Irrigation	1	8	0	Acres			10713	325848	0	From SHCP. Tomato crops - 120 day growing cycle (6 months)
AREA 4										
None										
AREA 5										
None										
AREA 6										
None										
AREA 7										
None										

APPENDIX B
POST-PROJECT WEEKDAY WATER DEMANDS

*averaged 17 weekdays per month	No. of Units Peak	No. of Units Off-Peak	Units	Quantities of WW flow* (gal/unit/day)	WW Generation (gal/day)	Water Demand (1.2 x WW Flow) (gal/day)	Peak Monthly Demand (gal/mo)	Off-Peak Monthly Demand (gal/mo)	Assumptions
AREA 1									
MH Caretakers Unit (2bd, 1ba)	1	1	Occupants	97	97	116.4	1979	1979	For a 1 person household - typical flowrate of 97 gal/capita/d
Restrooms			Visitors						
Toilets	88	30		2	175	175	2975	1020	Picnic park with flush toilets
Sinks	88	30		1	88	88	1488	510	
Drinking Fountains	88	30		0.5	44	53	893	306	
Landscaping	1	1	Area			329	5589	0	From SHCP
						Potable Total:	4359	2795	
						Non-Potable Total:	8564	1020	
AREA 2									
Main Ranch House (3bd, 2ba)									For a 2 person household - typical flowrate of 76 gal/capita/d
Remodel - 2bd, 1ba residence	2	2	Occupants	76	152	182.4	3101	3101	
Remodel - offices, 1/2 ba, kitchen Garage (offices) Cabin (office, 1/2 ba, kitchen)	30	5	Persons	12	360	432	7344	1224	Remodel existing structures to offices, meeting rooms, workshops, kitchen, 1/2 bathrooms
Bunkhouse (2 bd, 1ba)	2	2	Occupants	76	152	182.4	3101	3101	For a 2 person household - typical flowrate of 76 gal/capita/d
Landscaping	10000	0	SqFt			603	10247	0	22 G/SQFT/YR - 6 months irrigation
Landscaping Backup							1118	0	From SHCP
Large Barn (utility sink to wash produce)	1	0	Acres			60	1014	0	1 acre of root vegetables washed (over 6 months) 1/4 gal/sqft.
Chicken Coop	1	1	100 Chickens	10			170	170	
Horse Barn	1	1	4 Horses	60			1020	1020	
Livestock Backup							93	93	From SHCP
Restrooms	0		Visitors						Picnic park with flush toilets
Toilets	37.5	15		2	75	75	1275	510	
Sinks	37.5	15		1	37.5	38	638	255	
Drinking Fountains	37.5	15		0.5	18.75	23	383	153	
						Potable Total:	27017	9024	
						Non-Potable Total:	2486	603	
AREA 3									
Crop Irrigation	8	0	Acres			10713	182118	0	From SHCP. Tomato crops - 120 day growing cycle (6 months)
AREA 4									
Events Area - 4A	Only Used During Special Events, See Table X								
Temp. Sanitation Station									
Food Vendors									
Washing Station									
Environmental Camp Area - 4B			Site						
Camp Sites (15 total)	15								Hose bib fountain at each camp site - 4 campers/site @ peak,
Temp. Sanitation Station	Only Used During Special Events, See Table X								2 campers/site @ off-peak
Washing Station									
AREA 5									
Sports Fields (Irrigated 10 acres)	See Table X for Irrigation Water Demand								
Concession Stand w/ Restrooms			Visitors						
Stand Sink	50	25		2	100	120	2040	1020	
Toilets	50	25		2	100	100	1700	1020	Picnic park with flush toilets
Sinks	50	25		1	50	50	850	510	
Drinking Fountains	50	25		1	50	60	1020	510	
						Potable Total:	3910	2040	
						Non-Potable Total:	1700	1020	
AREA 6									
None									
AREA 7									
None									

APPENDIX B
POST-PROJECT WEEKEND WATER DEMANDS

*averaged 13 weekend days/month	No. of Units Peak	No. of Units Off-Peak	Units	Quantities of WW flow* (gal/unit/day)	WW Generation (gal/day)	Water Demand (1.2 x WW Flow) (gal/day)	Peak Monthly Demand (gal/mo)	Off-Peak Monthly Demand (gal/mo)	Assumptions
AREA 1									
MH Caretakers Unit (2bd, 1ba)	1	1	Occupants	97	97	116.4	1513	1513	For a 1 person household - typical flowrate of 97 gal/capita/d
Restrooms			Visitors						
Toilets	175	60		2	350	350	4550	1872	Picnic park with flush toilets
Sinks	175	60		1	175	175	2275	936	
Drinking Fountains	175	60		1	175	210	2730	936	
Landscaping	1	1	Area			329	4274	0	From SHCP
						Potable Total:	6518	3385	
						Non-Potable Total:	8824	1872	
AREA 2									
Main Ranch House (3bd, 2ba)									For a 2 person household - typical flowrate of 76 gal/capita/d
Remodel - 2bd, 1ba residence	2	2	Occupants	76	152	182.4	2371	2371	
Remodel - offices, 1/2 ba, kitchen Garage (offices) Cabin (office, 1/2 ba, kitchen)	60	10	Persons	12	720	864	11232	1872	Remodel existing structures to offices, meeting rooms, workshops, kitchen, 1/2 bathrooms
Bunkhouse (2 bd, 1ba)	2	2	Occupants	76	152	182.4	2371	2371	For a 2 person household - typical flowrate of 76 gal/capita/d
Landscaping	10000	0	SqFt			603	7836	0	22 G/SQFT/YR - 6 months irrigation
Landscaping Backup							855	0	From SHCP
Large Barn (utility sink to wash produce)	1	0	Acres			60	776	0	1 acre of root vegetables washed (over 6 months) 1/4 gal/sqft.
Chicken Coop	1	1	100 Chickens	10			130	130	
Horse Barn	1	1	4 Horses	60			780	780	
Livestock Backup							71	71	From SHCP
Restrooms			Visitors						Picnic park with flush toilets
Toilets	75	30		2	150	150	1950	936	
Sinks	75	30		1	75	75	975	468	
Drinking Fountains	75	30		1	75	90	1170	468	
						Potable Total:	27641	8460	
						Non-Potable Total:	2876	1007	
AREA 3									
Crop Irrigation	8	0	Acres			10713	139267	0	From SHCP. Tomato crops - 120 day growing cycle (6 months)
AREA 4									
Events Area - 4A	Only Used During Special Events, See Table X								
Temp. Sanitation Station									
Food Vendors									
Washing Station									
Environmental Camp Area - 4B			Site						
Camp Sites (15 total)	15								Hose bib fountain at each camp site - 4 campers/site @ peak,
Temp. Sanitation Station	Only Used During Special Events, See Table X								2 campers/site @ off-peak
Washing Station									
AREA 5									
Sports Fields (Irrigated 10 acres)	See Table X for Irrigation Water Demand								
Concession Stand w/ Restrooms			Visitors						
Stand Sink	100	25		2	200	240	3120	780	
Toilets	100	25		2	200	200	2600	780	Picnic park with flush toilets
Sinks	100	25		1	100	100	1300	390	
Drinking Fountains	100	25		1	100	120	1560	390	
						Potable Total:	5980	1560	
						Non-Potable Total:	2600	780	
AREA 6									
None									
AREA 7									
None									

	Peak Monthly Demand (gal/mo)	Off-Peak Monthly Demand (gal/mo)
AREA 1		
MH Caretakers Unit (2bd, 1ba)	3,492	3,492
Restrooms		
Toilets	7,525	2,892
Sinks	3,763	1,446
Drinking Fountains	3,623	1,242
Landscaping	9,863	-
Potable Total:	10,877	6,180
Non-Potable Total:	17,388	2,892
AREA 2		
Main Ranch House (3bd, 2ba)		
Remodel - 2bd, 1ba residence	5,472	5,472
Remodel - offices, 1/2 ba, kitchen		
Garage (offices)		
Cabin (office, 1/2 ba, kitchen)	18,576	3,096
Bunkhouse (2 bd, 1ba)	5,472	5,472
Landscaping	18,082	-
Landscaping Backup	1,973	-
Large Barn (utility sink to wash produce)	1,790	-
Chicken Coop	300	300
Horse Barn	1,800	1,800
Livestock Backup	164	164
Restrooms		
Toilets	3,225	1,446
Sinks	1,613	723
Drinking Fountains	1,553	621
Potable Total:	54,657	17,484
Non-Potable Total:	5,362	1,610
AREA 3		
Crop Irrigation	325,848	-
AREA 4		
Events Area - 4A		
Food Vendor Washing	-	-
Handwashing	-	-
Environmental Camp Area - 4B		
Camp Sites (15 total)	-	-
Handwashing	-	-
AREA 5		
Sports Fields (Irrigated 10 acres)	See Irrigation Table	
Concession Stand w/ Restrooms		
Stand Sink	5,160	1,800
Toilets	4,300	1,800
Sinks	2,150	900
Drinking Fountains	2,580	900
Potable Total:	9,890	3,600
Non-Potable Total:	4,300	1,800
AREA 6		
None		
AREA 7		
None		

APPENDIX B
EVENT WATER DEMAND CALCULATIONS
PHASE 1

	No. of Units	Units	Quantities of WW flow* (gal/unit/event)	WW Generation (gal/event)	Water Demand (1.2 x WW Flow) (gal/event)	No. of Events/Yr	Potable Event Water Demand (gal/yr)	Non-Potable Event Water Demand (gal/yr)	Comments	Use Assumptions
Area 1										
Egg Hunt	400	Attendees	6.5	2,600	2,640	1	1,040	1,600	For Tooby Park events: water use in restrooms (toilets, sinks, drinking fountains)	*Potable* : 2.0 gal/person for sinks, 0.6 gal/person for drinking fountain *Non-Potable* : 4.0 gal/person for toilets
Bicycling Event	150	Attendees	6.5	975	990	1	390	600		
Walk in the Park	300	Attendees	6.5	1,950	1,980	1	780	1,200		
Wedding	50	Attendees	6.5	325	330	1	130	200		
Memorial	50	Attendees	6.5	325	330	1	130	200		
						Totals:	2,470	3,800		
Area 2										
Spring Events	250	Attendees	2.00	500	550	1	550	-	For Park Headquarters Events: water use for temporary sanitation station (handwashing station outside of portable toilets, and wash area for food service).	*Potable* : 1.0 gal/person/day for food service, 1.0 gal/person/day for handwashing
Summer Events	500	Attendees	2.00	1,000	1,100	1	1,100	-		
Fall Events	300	Attendees	2.00	600	660	1	660	-		
Winter	250	Attendees	2.00	500	550	1	550	-		
						Totals:	2,860	-		
Area 3										
No Special Events in this Area										
Area 4										
Events Area - 4A										
Weddings	125	Attendees	0.75	94	100	2	200	-	For Community Commons events: water use for temporary sanitation station (handwashing station outside of portable toilets, and wash area for food service).	*Potable* : 0.30 gal/person/day for food service vendors, 0.5 gal/person/day for handwashing
Memorials	-	Attendees	0.75	-	-	-	-	-		
Fundraisers	300	Attendees	0.75	225	240	3	720	-		
Private Parties	-	Attendees	0.75	-	-	-	-	-		
						Small Event Totals:	920	-		
Medium Events (800 people)	-	Attendees	0.75	-	-	-	-	-		
Medium Events (1000-1500 people)	1,250	Attendees	0.75	938	1,000	2	2,000	-		
Medium Events (2000 people)	1,500	Attendees	0.75	1,125	1,200	1	1,200	-		
						Medium Event Totals:	3,200	-		
Festival (2-day)	-	Attendees	0.75	-	-	-	-	-		
Environmental/Educational Camp Area - 4B										
Groups of 10	3	Campsite	12.0	36	36	15 (5/year x 3 days)	540	-	For Env/Edu Camp events: water use for temporary handwashing station outside portable toilets, and water spigot at each camp site	*Potable* : 8.0 gal/campsite/day for campsites, 4.0 gal/campsite/day for handwashing
Groups of 15	4	Campsite	12.0	48	48	6 (2/year x 3 days)	288	-		
Groups of 20	6	Campsite	12.0	72	72	3 (1/year x 3 days)	216	-		
						Group Totals:	1,044	-		
Area 5										
Sports Tournaments	0	Attendees	8.0	-	-	-	-	-	For Sports Facilities events: water use in restrooms (toilets, sinks, drinking fountain) and concession stand sink	*Potable* : 2.0 gal/person for sinks, 1.2 gal/person for drinking fountain, 1.2 gal/person for concession stank sink *Non-Potable* : 4.0 gal/person for toilets

APPENDIX B
EVENT WATER DEMAND CALCULATIONS
PHASE 2

	No. of Units	Units	Quantities of WW flow* (gal/unit/event)	WW Generation (gal/event)	Water Demand (1.2 x WW Flow) (gal/event)	No. of Events/Yr	Potable Event Water Demand (gal/yr)	Non-Potable Event Water Demand (gal/yr)	Comments	Use Assumptions
Area 1										
Egg Hunt	400	Attendees	6.5	2,600	2,640	1	1,040	1,600	For Tooby Park events: water use in restrooms (toilets, sinks, drinking fountains)	*Potable* : 2.0 gal/person for sinks, 0.6 gal/person for drinking fountain *Non-Potable* : 4.0 gal/person for toilets
Bicycling Event	150	Attendees	6.5	975	990	1	390	600		
Walk in the Park	300	Attendees	6.5	1,950	1,980	1	780	1,200		
Wedding	50	Attendees	6.5	325	330	1	130	200		
Memorial	50	Attendees	6.5	325	330	1	130	200		
						Totals:	2,470	3,800		
Area 2										
Spring Events	250	Attendees	8.5	2,125	2,250	1	1,250	1,000	For Park Headquarters Events: water use in restrooms (toilets, sinks, drinking fountains), community kitchen, utility sink in large barn	*Potable* : 2.0 gal/person for sinks, 0.6 gal/person for drinking fountain, 2.4 gal/person for food service/community kitchen *Non-Potable* : 4.0 gal/person for toilets
Summer Events	500	Attendees	8.5	4,250	4,500	1	2,500	2,000		
Fall Events	300	Attendees	8.5	2,550	2,700	1	1,500	1,200		
Winter	250	Attendees	8.5	2,125	2,250	1	1,250	1,000		
						Totals:	6,500	5,200		
Area 3										
No Special Events in this Area										
Area 4										
Events Area - 4A										
Weddings	125	Attendees	0.75	94	100	4	400	-	For Community Commons events: water use for temporary sanitation station (handwashing station outside of portable toilets, and wash area for food service).	*Potable* : 0.30 gal/person/day for food service vendors, 0.5 gal/person/day for handwashing
Memorials	100	Attendees	0.75	75	80	3	240	-		
Fundraisers	300	Attendees	0.75	225	240	5	1,200	-		
Private Parties	150	Attendees	0.75	113	120	2	240	-		
						Small Event Totals:	2,080	-		
Medium Events (800 people)	800	Attendees	0.75	600	640	2	1,280	-		
Medium Events (1000-1500 people)	1,250	Attendees	0.75	938	1,000	2	2,000	-		
Medium Events (2000 people)	1,500	Attendees	0.75	1,125	1,200	1	1,200	-		
						Medium Event Totals:	4,480	-		
Festival (2-day)	5,000	Attendees	0.75	3,750	4,000	1 event x 2 days	8,000	-		
Environmental/Educational Camp Area - 4B										
Groups of 10	3	Campsite	12.0	36	36	30 (10/year x 3 days)	1,080	-	For Env/Edu Camp events: water use for temporary handwashing station outside portable toilets, and water spigot at each camp site	*Potable* : 8.0 gal/campsite/day for campsites, 4.0 gal/campsite/day for handwashing
Groups of 15	4	Campsite	12.0	48	48	9 (3/year x 3 days)	432	-		
Groups of 20	6	Campsite	12.0	72	72	9 (3/year x 3 days)	648	-		
						Group Totals:	2,160	-		
Area 5										
Sports Tournaments	250	Attendees	8.0	2,000	2,100	4 (2 days x 2 events)	4,400	4,000	For Sports Facilities events: water use in restrooms (toilets, sinks, drinking fountain) and concession stand sink	*Potable* : 2.0 gal/person for sinks, 1.2 gal/person for drinking fountain, 1.2 gal/person for concession stank sink *Non-Potable* : 4.0 gal/person for toilets

APPENDIX B
PROPOSED WATER DEMANDS PHASE 1

PHASE 1				Water Demand (gal/mo)												
Facility	**Area**	**Water Source**	**New Facility (Y/N) [Phase]**	***January***	***February***	***March***	***April***	***May***	***June***	***July***	***August***	***September***	***October***	***November***	***December***
MH Caretakers Unit (2bd, 1ba)	1	Tooby Well	N	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492
Landscaping	1	Tooby Well	N	-	-	-	-	9,863	9,863	9,863	9,863	9,863	9,863	-	-
Restrooms																
Toilets	1	Tooby Well	Y [1]	2,892	2,892	2,892	4,492	8,125	7,725	7,725	7,525	8,725	7,525	2,892	2,892
Sinks	1	Tooby Well	Y [1]	1,446	1,446	1,446	2,246	4,063	3,863	3,863	3,763	4,363	3,763	1,446	1,446
Drinking Fountains	1	Tooby Well	Y [1]	1,242	1,242	1,242	1,482	3,713	3,653	3,653	3,623	3,803	3,623	1,242	1,242
Temporary Handwashing (for events)	2	Eel River IG	N	250			250			500			300		
Temporary Food Washing (for events)	2	Tank-Spring	N	300			300			600			360		
Main Ranch House (3bd, 2ba)	2	Tank-Spring	N	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472
Remodel - 2bd, 1ba residence	2		Remodel [2]												
Remodel - offices, 1/2 ba, kitchen															
Garage (offices)															
Cabin (office, 1/2 ba, kitchen)	2		Remodel [2]	-	-	-	-	-	-	-	-	-	-	-	-
Bunkhouse (2 bd, 1ba)	2	Tank-Spring	N	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472
Landscaping	2	Eel River IG	N	-	-	-	-	20,055	20,055	20,055	20,055	20,055	20,055	-	-
Large Barn (utility sink to wash produce)	2	Tank-Spring	N	-	-	-	-	1,790	1,790	1,790	1,790	1,790	1,790	-	-
Chicken Coop	2	Eel River IG	N	300	300	300	300	300	300	300	300	300	300	300	300
Horse Barn	2	Eel River IG	N	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964
Restrooms																
Toilets	2		Y [2]												
Sinks	2		Y [2]												
Drinking Fountains	2		Y [2]												
Crop Irrigation	3	Eel River IG	N	-	-	-	-	325,848	325,848	325,848	325,848	325,848	325,848	-	-
Events Area - 4A																
Food Vendor Washing	4A	Tank-Spring	Y [1/2 capac-1]	90	-	-	-	90	488	413	465	-	-	-	-
Handwashing	4A	Tank-Spring	Y [1/2 capac-1]	150	-	-	-	150	813	688	775	-	-	-	-
Environmental Camp Area - 4B																
Camp Sites (15 total)	4B	Tank-Spring	Y [1/2 capac-1]	-	-	-	-	72	312	168	72	72	-	-	-
Handwashing	4B	Tank-Spring	Y [1/2 capac-1]	-	-	-	-	36	156	84	36	36	-	-	-
Sports Fields (Proposed 10 acres)	5		Y [2]												
Sports Fields (Minimum 5.5 acres)	5		Y [2]												
Concession Stand w/ Restrooms																
Stand Sink	5		Y [2]												
Toilets	5		Y [2]												
Sinks	5		Y [2]												
Drinking Fountains	5		Y [2]												

APPENDIX B
PROPOSED WATER DEMANDS PHASE 2

PHASE 2				Water Demand (gal/mo)												
Facility	**Area**	**Water Source**	**New Facility (Y/N)**	***January***	***February***	***March***	***April***	***May***	***June***	***July***	***August***	***September***	***October***	***November***	***December***
MH Caretakers Unit (2bd, 1ba)	1	Tooby Well	N	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492	3,492
Landscaping	1	Tooby Well	N	-	-	-	-	9,863	9,863	9,863	9,863	9,863	9,863	-	-
Restrooms															
Toilets	1	Tooby Well	Y [1]	2,892	2,892	2,892	4,492	8,125	7,725	7,725	7,525	8,725	7,525	2,892	2,892
Sinks	1	Tooby Well	Y [1]	1,446	1,446	1,446	2,246	4,063	3,863	3,863	3,763	4,363	3,763	1,446	1,446
Drinking Fountains	1	Tooby Well	Y [1]	1,242	1,242	1,242	1,482	3,713	3,653	3,653	3,623	3,803	3,623	1,242	1,242
Main Ranch House (3bd, 2ba)															
Remodel - 2bd, 1ba residence	2	Tank-Spring	Remodel [2]	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472
Remodel - offices, 1/2 ba, kitchen Garage (offices) Cabin (office, 1/2 ba, kitchen)	2	Tank-Spring	Remodel [2]	3,696	3,096	3,096	3,696	18,576	18,576	19,776	18,576	18,576	19,296	3,096	3,096
Bunkhouse (2 bd, 1ba)	2	Tank-Spring	N	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472	5,472
Landscaping	2	Eel River IG	N	-	-	-	-	20,055	20,055	20,055	20,055	20,055	20,055	-	-
Large Barn (utility sink to wash produce)	2	Tank-Spring	N	-	-	-	-	1,790	1,790	1,790	1,790	1,790	1,790	-	-
Chicken Coop	2	Eel River IG	N	300	300	300	300	300	300	300	300	300	300	300	300
Horse Barn	2	Eel River IG	N	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964
Restrooms															
Toilets	2	Tank-Spring	Y [2]	2,446	1,446	1,446	2,446	3,225	3,225	5,225	3,225	3,225	4,425	1,446	1,446
Sinks	2	Tank-Spring	Y [2]	1,223	723	723	1,223	1,613	1,613	2,613	1,613	1,613	2,213	723	723
Drinking Fountains	2	Tank-Spring	Y [2]	771	621	621	771	1,553	1,553	1,853	1,553	1,553	1,733	621	621
Crop Irrigation	3	Eel River IG	N	-	-	-	-	325,848	325,848	325,848	325,848	325,848	325,848	-	-
Events Area - 4A															
Food Vendor Washing	4A	Tank-Spring	Y [full capac-2]	120	-	90	-	360	3,533	458	503	308	-	90	-
Handwashing	4A	Tank-Spring	Y [full capac-2]	200	-	150	-	600	5,888	763	838	513	-	150	-
Environmental Camp Area - 4B															
Camp Sites (15 total)	4B	Tank-Spring	Y [full capac-2]	-	-	-	72	144	384	384	384	72	-	-	-
Handwashing	4B	Tank-Spring	Y [full capac-2]	-	-	-	36	72	192	192	192	36	-	-	-
Sports Fields (Irrigated 10 acres, Proposed)	5	Eel River IG	Y [2]	-	-	-	467,210	1,110,719	1,578,078	2,018,435	1,811,978	1,296,234	481,459	-	-
Sports Fields (Irrigated 5.5 acres, Minimum)	5	Eel River IG	Y [2]	-	-	-	258,756	615,151	873,989	1,117,873	1,003,530	717,895	266,647	-	-
Concession Stand w/ Restrooms															
Stand Sink	5	Tank-Spring	Y [2]	1,800	1,800	2,400	1,800	5,160	5,160	5,160	5,160	5,160	5,760	1,800	1,800
Toilets	5	Tank-Spring	Y [2]	1,800	1,800	3,800	1,800	4,300	4,300	4,300	4,300	4,300	6,300	1,800	1,800
Sinks	5	Tank-Spring	Y [2]	900	900	1,900	900	2,150	2,150	2,150	2,150	2,150	3,150	900	900
Drinking Fountains	5	Tank-Spring	Y [2]	900	900	1,500	900	2,580	2,580	2,580	2,580	2,580	3,180	900	900

APPENDIX B
PROPOSED WATER DEMANDS SUMMARY

	Water Demand (gal/mo)											
	January	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
PHASE 1 (years 1-3)												
TOTAL TOOBY WELL												
Demand	9,072	9,072	9,072	11,712	29,255	28,595	28,595	28,265	30,245	28,265	9,072	9,072
Capacity	Currently Unknown											
Remain	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL SPRING (TANK)												
Demand	11,334	10,944	10,944	11,244	12,896	13,534	13,915	13,271	12,806	13,094	10,944	10,944
Capacity	62,050	56,045	62,050	60,048	62,050	60,048	-	-	-	-	60,048	62,050
Tank Storage	55,000	55,000	55,000	55,000	55,000	55,000	55,000	41,085	27,814	15,008	27,500	55,000
Remain	***105,716***	***100,101***	***106,106***	***103,804***	***104,153***	***101,514***	***41,085***	***27,814***	***15,008***	***1,914***	***21,604***	***51,106***
TOTAL EEL RIVER IG												
Demand	2,664	2,264	2,264	2,514	22,505	23,288	23,591	23,130	22,355	22,619	2,264	2,264
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remain	**2,385,576**	**2,154,856**	**2,385,976**	**2,308,686**	**2,365,735**	**2,287,912**	**2,364,649**	**2,365,110**	**2,288,845**	**2,365,621**	**2,308,936**	**2,385,976**
PHASE 2 (years 3+)												
TOTAL TOOBY WELL												
Demand	9,072	9,072	9,072	11,712	29,255	28,595	28,595	28,265	30,245	28,265	9,072	9,072
Capacity	Currently Unknown											
Remain	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL SPRING (TANK)												
Demand	24,800	22,230	26,670	24,588	53,066	61,886	58,186	53,806	52,818	58,790	22,470	22,230
Capacity	62,050	56,045	62,050	60,048	62,050	60,048	-	-	-	-	60,048	62,050
Tank Storage	55,000	55,000	55,000	55,000	55,000	55,000	55,000	-	-	-	27,500	55,000
Remain	***92,250***	***88,815***	***90,380***	***90,460***	***63,983***	***53,162***	***(3,186)***	***(53,806)***	***(52,818)***	***(58,790)***	***10,078***	***39,820***
TOTAL EEL RIVER IG												
Demand	2,264	2,264	2,264	469,474	1,458,886	1,926,245	2,366,603	2,160,145	1,644,401	829,626	2,264	2,264
Capacity	2,388,240	2,157,120	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240	2,388,240	2,311,200	2,388,240	2,311,200	2,388,240
Remain	**2,385,976**	**2,154,856**	**2,385,976**	**1,841,726**	**929,354**	**384,955**	**21,637**	**228,095**	**666,799**	**1,558,614**	**2,308,936**	**2,385,976**

Assumptions:

1. Temporary handwashing stations located in the park headquarters area 2, events area 4A, and the environmental camp area 4B for Phase 1 do not need to contain potable water.
2. The pump at the Tooby Park Well has not been rated, so a supply analysis was not done here. It is assumed that the well will have enough capacity to supply all water in Area 1.
3. The water from the Tooby Park Well is potable.
4. All water used for irrigation and landscaping in Area 2 is being supplied from the SF Eel River Infiltration Gallery.
5. The Upland Well was not analyzed in this particular comparison. See Alternatives Table.
6. See Events Table for Phase 1 to see which events per area were analyzed.

APPENDIX B
EFFECTIVE IRRIGATION DEMAND CALCULATIONS

Garberville	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average temperature, t (°F)	43.7	46.6	49.4	52.7	58.4	63.9	69.6	69.8	66.2	57.5	48.3	43.4	
Average Total Precip (in.)	11.29	9.09	7.54	3.84	1.37	0.36	0.03	0.44	0.77	3.69	8.88	10.70	58.00
Average total Precip %	19%	16%	13%	7%	2%	1%	0%	1%	1%	6%	15%	18%	100%
Min. Precip (in)	4.89	3.94	3.27	1.66	0.59	0.16	0.01	0.19	0.33	1.60	3.85	4.63	25.12
Max. Precip (in)	21.06	16.96	14.07	7.16	2.56	0.67	0.06	0.82	1.44	6.88	16.57	19.96	108.21
Monthly % of daytime hours, p	6.75	6.72	8.32	8.93	10.01	10.09	10.22	9.55	8.39	7.75	6.73	6.54	
Monthly consumptive factor, f	2.95	3.13	4.11	4.71	5.85	6.45	7.11	6.67	5.55	4.46	3.25	2.84	
k_t	0.44	0.49	0.54	0.60	0.70	0.79	0.89	0.89	0.83	0.68	0.52	0.44	
k_c	0.49	0.57	0.73	0.85	0.90	0.92	0.92	0.91	0.87	0.79	0.67	0.55	
Climatic coefficient, k	0.22	0.28	0.39	0.51	0.63	0.73	0.82	0.81	0.72	0.54	0.35	0.24	
Consumptive use, u (in/mo)	0.64	0.88	1.62	2.39	3.66	4.69	5.82	5.42	4.02	2.40	1.14	0.68	
Days per month	31	28	31	30	31	30	31	31	30	31	30	31	

Irrigation System Efficiency = 80%
Pasture effective root zone (ft) = 2 Input (blue colored)
Crop Depth Factor = 0.92 Output (red colored)

Month	r_t Average Rainfall (in/mo)	r_t Drought Rainfall (in/mo)	u Consumptive Use (ET) (in/mo)	r_e Average Effective Rainfall (in/mo)	r_e Drought Effective Rainfall (in/mo)	u-r_e Average Irrigation Demand (in/mo)	u-r_e Drought Irrigation Demand (in/mo)	(u-r_e)*eff Avg. Effective Irrigation Demand (in/mo)	(u-r_e)*eff Drought Effective Irrigation Demand (in/mo)	Effective Irrigation Demand (in/day)	Drought Effective Irrigation Demand (in/day)
Jan	11.29	4.89	0.64	0.64	0.64	0.00	0.00	0.00	0.00	0.00	0.00
Feb	9.09	3.94	0.88	0.88	0.88	0.00	0.00	0.00	0.00	0.00	0.00
Mar	7.54	3.27	1.62	1.62	1.62	0.00	0.00	0.00	0.00	0.00	0.00
Apr	3.84	1.66	2.39	2.14	1.01	0.25	1.38	0.31	1.72	0.01	0.06
May	1.37	0.59	3.66	0.91	0.39	2.75	3.27	3.44	4.09	0.11	0.13
Jun	0.36	0.16	4.69	0.23	0.05	4.47	4.65	5.58	5.81	0.19	0.19
Jul	0.03	0.01	5.82	-0.10	-0.12	5.92	5.95	7.40	7.43	0.24	0.24
Aug	0.44	0.19	5.42	0.31	0.08	5.11	5.34	6.39	6.67	0.21	0.22
Sep	0.77	0.33	4.02	0.53	0.20	3.49	3.82	4.36	4.77	0.15	0.16
Oct	3.69	1.60	2.40	2.07	0.98	0.33	1.42	0.41	1.77	0.01	0.06
Nov	8.88	3.85	1.14	1.14	1.14	0.00	0.00	0.00	0.00	0.00	0.00
Dec	10.70	4.63	0.68	0.68	0.68	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	58.00		33.36	11.04	7.54	22.32	25.82	27.90	32.28	0.91	1.05

Effective Rainfall calculated from Irrigation Water Requirements Technical Release No. 21
U.S. Dept. of Agriculture, Soil Conservaiton Service Engineering Division, April 1967
Appendix A ftp://ftp.wcc.nrcs.usda.gov/wntsc/waterMgt/irrigation/NEH15/ch2.pdf
r_t= monthly mean rainfall
f = adjustment factor
D = net depth of application
r_e = effective rainfall
u = average monthly consumptive use

$$f = (0.531714 + 0.295164D - 0.057697D^2 + 0.003804D^3)$$

$$r_e = \left(0.70917 r_t^{0.82416} - 0.11556\right)(10)^{0.02426\,u}\,(f)$$

	# days/mo	Avg. Effective Irrigation Demand (in/mo)	Drought Effect. Irrigation Demand (in/mo)	Proposed Sports Field - 10 Acres 435,600 sqft (avg) gal	Proposed Sports Field - 10 Acres 435,600 sqft (drought) gal	Minimum Sports Field - 5.5 Acres 241,249 sqft (avg) gal	Minimum Sports Field - 5.5 Acres 241,249 sqft (drought) gal
Jan	31	0.00	0.00	-	-	-	-
Feb	28	0.00	0.00	-	-	-	-
Mar	31	0.00	0.00	-	-	-	-
Apr	30	0.31	1.72	84,301	467,210	46,689	258,756
May	31	3.44	4.09	934,900	1,110,719	517,777	615,151
Jun	30	5.58	5.81	1,516,173	1,578,078	839,704	873,989
Jul	31	7.40	7.43	2,009,929	2,018,435	1,113,162	1,117,873
Aug	31	6.39	6.67	1,735,919	1,811,978	961,406	1,003,530
Sep	30	4.36	4.77	1,184,701	1,296,234	656,124	717,895
Oct	31	0.41	1.77	110,804	481,459	61,367	266,647
Nov	30	0.00	0.00	-	-	-	-
Dec	31	0.00	0.00	-	-	-	-

Appendix A Blaney-Criddle Formula (SCS Technical Release No. 21)

Because of the historical and in some cases legal significance of the Blaney-Criddle equation described in Technical Release No. 21 (SCS 1970), that method is presented in this appendix. The following material is taken directly from Technical Release No. 21. The reference crop methods presented in sections 623.0203 and 623.0204 have proven to be more accurate than this version of the Blaney-Criddle formula. Thus, the reference crop and appropriate crop coefficient techniques are recommended.

Disregarding many influencing factors, consumptive use varies with the temperature, length of day, and available moisture regardless of its source (precipitation, irrigation water, or natural ground water). Multiplying the mean monthly temperature (t) by the possible monthly percentage of daytime hours of the year (p) gives a monthly consumptive-use factor (f). It is assumed that crop consumptive use varies directly with this factor when an ample water supply is available. Expressed mathematically,

$$u = kf$$
$$U = \text{sum of } kf = KF$$

where:

- U = Consumptive use of the crop in inches for the growing season.
- K = Empirical consumptive-use crop coefficient for the growing season. This coefficient varies with the different crops being irrigated.
- F = Sum of the monthly consumptive-use factors for the growing season (sum of the products of mean monthly temperature and monthly percentage of daylight hours of the year).
- u = Monthly consumptive use of the crop in inches.
- k = Empirical consumptive-use crop coefficient for a month (also varies by crops).
- f = Monthly consumptive-use factor (product of mean monthly temperature and monthly percentage of daylight hours of the year).

$$f = \frac{t \times p}{100}$$

where:

- t = Mean monthly air temperature in degrees Fahrenheit.
- p = Monthly percentage of annual daylight hours. Values of p for 0 to 65 degrees north latitude are shown in table 2A–1.

Note: Value of t, p, f, and k can also be made to apply to periods of less than a month.

Following are modifications made in the original formula:

$$k = k_t \times k_c$$

where:

- k = a climatic coefficient which is related to the mean air temperature (t),
- k_t = .0173t - .314. Values of k_t for mean air temperatures from 36 to 100 degrees are shown in table 2A–4.
- k_c = A coefficient reflecting the growth stage of the crop. Values are obtained from crop growth stage coefficient curves as shown in figures 2A–1 through 2A–25 at the back of this appendix.

The consumptive-use factor (F) may be computed for areas for which monthly temperature records are available, if the percentage of hours that is shown in table 2A–1 is used. Then the total crop consumptive use (U) is obtained by multiplying F by the empirical consumptive-use crop coefficient (K). This relationship allows the computation of seasonal consumptive use at any location for those crops for which values of K have been experimentally established or can be estimated.

Table 2A–1 Monthly percentage of daytime hours (p) of the year for northern latitudes

Latitude N	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
65°	3.52	5.13	7.96	9.97	12.72	14.15	13.59	11.18	8.55	6.53	4.08	2.62
64°	3.81	5.27	8.00	9.92	12.50	13.63	13.26	11.08	8.56	6.63	4.32	3.02
63°	4.07	5.39	8.04	9.86	12.29	13.24	12.97	10.97	8.56	6.73	4.52	3.36
62°	4.31	5.49	8.07	9.80	12.11	12.92	12.73	10.87	8.55	6.80	4.70	3.65
61°	4.51	5.58	8.09	9.74	11.94	12.66	12.51	10.77	8.55	6.88	4.86	3.91
60°	4.70	5.67	8.11	9.69	11.78	12.41	12.31	10.68	8.54	6.95	5.02	4.14
59°	4.86	5.76	8.13	9.64	11.64	12.19	12.13	10.60	8.53	7.00	5.17	4.35
58°	5.02	5.84	8.14	9.59	11.50	12.00	11.96	10.52	8.53	7.06	5.30	4.54
57°	5.17	5.91	8.15	9.53	11.38	11.83	11.81	10.44	8.52	7.13	5.42	4.71
56°	5.31	5.98	8.17	9.48	11.26	11.68	11.67	10.36	8.52	7.18	5.52	4.87
55°	5.44	6.04	8.18	9.44	11.15	11.53	11.54	10.29	8.51	7.23	5.63	5.02
54°	5.56	6.10	8.19	9.40	11.04	11.39	11.42	10.22	8.50	7.28	5.74	5.16
53°	5.68	6.16	8.20	9.36	10.94	11.26	11.30	10.16	8.49	7.32	5.83	5.30
52°	5.79	6.22	8.21	9.32	10.85	11.14	11.19	10.10	8.48	7.36	5.92	5.42
51°	5.89	6.27	8.23	9.28	10.76	11.02	11.09	10.05	8.47	7.40	6.00	5.54
50°	5.99	6.32	8.24	9.24	10.68	10.92	10.99	9.99	8.46	7.44	6.08	5.65
49°	6.08	6.36	8.25	9.20	10.60	10.82	10.90	9.94	8.46	7.48	6.16	5.75
48°	6.17	6.41	8.26	9.17	10.52	10.72	10.81	9.89	8.45	7.51	6.24	5.85
47°	6.25	6.45	8.27	9.14	10.45	10.63	10.73	9.84	8.44	7.54	6.31	5.95
46°	6.33	6.50	8.28	9.11	10.38	10.53	10.65	9.79	8.43	7.58	6.37	6.05
45°	6.40	6.54	8.29	9.08	10.31	10.46	10.57	9.75	8.42	7.61	6.43	6.14
44°	6.48	6.57	8.29	9.05	10.25	10.39	10.49	9.71	8.41	7.64	6.50	6.22
43°	6.55	6.61	8.30	9.02	10.19	10.31	10.42	9.66	8.40	7.67	6.56	6.31
42°	6.61	6.65	8.30	8.99	10.13	10.24	10.35	9.62	8.40	7.70	6.62	6.39
41°	6.68	6.68	8.31	8.96	10.07	10.16	10.29	9.59	8.39	7.72	6.68	6.47
40°	6.75	6.72	8.32	8.93	10.01	10.09	10.22	9.55	8.39	7.75	6.73	6.54
39°	6.81	6.75	8.33	8.91	9.95	10.03	10.16	9.51	8.38	7.78	6.78	6.61
38°	6.87	6.79	8.33	8.89	9.90	9.96	10.11	9.47	8.37	7.80	6.83	6.68
37°	6.92	6.82	8.34	8.87	9.85	9.89	10.05	9.44	8.37	7.83	6.88	6.74
36°	6.98	6.85	8.35	8.85	9.80	9.82	9.99	9.41	8.36	7.85	6.93	6.81
35°	7.04	6.88	8.35	8.82	9.76	9.76	9.93	9.37	8.36	7.88	6.98	6.87
34°	7.10	6.91	8.35	8.80	9.71	9.71	9.88	9.34	8.35	7.90	7.02	6.93
33°	7.15	6.94	8.36	8.77	9.67	9.65	9.83	9.31	8.35	7.92	7.06	6.99
32°	7.20	6.97	8.36	8.75	9.62	9.60	9.77	9.28	8.34	7.95	7.11	7.05
31°	7.25	6.99	8.36	8.73	9.58	9.55	9.72	9.24	8.34	7.97	7.16	7.11
30°	7.31	7.02	8.37	8.71	9.54	9.49	9.67	9.21	8.33	7.99	7.20	7.16
29°	7.35	7.05	8.37	8.69	9.50	9.44	9.62	9.19	8.33	8.00	7.24	7.22
28°	7.40	7.07	8.37	8.67	9.46	9.39	9.58	9.17	8.32	8.02	7.28	7.27
27°	7.44	7.10	8.38	8.66	9.41	9.34	9.53	9.14	8.32	8.04	7.32	7.32
26°	7.49	7.12	8.38	8.64	9.37	9.29	9.49	9.11	8.32	8.06	7.36	7.37
25°	7.54	7.14	8.39	8.62	9.33	9.24	9.45	9.08	8.31	8.08	7.40	7.42
24°	7.58	7.16	8.39	8.60	9.30	9.19	9.40	9.06	8.31	8.10	7.44	7.47
23°	7.62	7.19	8.40	8.58	9.26	9.15	9.36	9.04	8.30	8.12	7.47	7.51
22°	7.67	7.21	8.40	8.56	9.22	9.11	9.32	9.01	8.30	8.13	7.51	7.56
21°	7.71	7.24	8.41	8.55	9.18	9.06	9.28	8.98	8.29	8.15	7.55	7.60

Table 2A–1 Monthly percentage of daytime hours (p) of the year for northern latitudes—Continued

Latitude N	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
20°	7.75	7.26	8.41	8.53	9.15	9.02	9.24	8.95	8.29	8.17	7.58	7.65
19°	7.79	7.28	8.41	8.51	9.12	8.97	9.20	8.93	8.29	8.19	7.61	7.70
18°	7.83	7.31	8.41	8.50	9.08	8.93	9.16	8.90	8.29	8.20	7.65	7.74
17°	7.87	7.33	8.42	8.48	9.04	8.89	9.12	8.88	8.28	8.22	7.68	7.79
16°	7.91	7.35	8.42	8.47	9.01	8.85	9.08	8.85	8.28	8.23	7.72	7.83
15°	7.94	7.37	8.43	8.45	8.98	8.81	9.04	8.83	8.27	8.25	7.75	7.88
14°	7.98	7.39	8.43	8.43	8.94	8.77	9.00	8.80	8.27	8.27	7.79	7.93
13°	8.02	7.41	8.43	8.42	8.91	8.73	8.96	8.78	8.26	8.29	7.82	7.97
12°	8.06	7.43	8.44	8.40	8.87	8.69	8.92	8.76	8.26	8.31	7.85	8.01
11°	8.10	7.45	8.44	8.39	8.84	8.65	8.88	8.73	8.26	8.33	7.88	8.05
10°	8.14	7.47	8.45	8.37	8.81	8.61	8.85	8.71	8.25	8.34	7.91	8.09
9°	8.18	7.49	8.45	8.35	8.77	8.57	8.81	8.68	8.25	8.36	7.95	8.14
8°	8.21	7.51	8.45	8.34	8.74	8.53	8.78	8.66	8.25	8.37	7.98	8.18
7°	8.25	7.53	8.46	8.32	8.71	8.49	8.74	8.64	8.25	8.38	8.01	8.22
6°	8.28	7.55	8.46	8.31	8.68	8.45	8.71	8.62	8.24	8.40	8.04	8.26
5°	8.32	7.57	8.47	8.29	8.65	8.41	8.67	8.60	8.24	8.41	8.07	8.30
4°	8.36	7.59	8.47	8.28	8.62	8.37	8.64	8.57	8.23	8.43	8.10	8.34
3°	8.40	7.61	8.48	8.26	8.58	8.33	8.60	8.55	8.23	8.45	8.13	8.38
2°	8.43	7.63	8.49	8.25	8.55	8.29	8.57	8.53	8.22	8.46	8.16	8.42
1°	8.47	7.65	8.49	8.23	8.52	8.25	8.53	8.51	8.22	8.48	8.19	8.45
0°	8.50	7.67	8.49	8.22	8.49	8.22	8.50	8.49	8.21	8.49	8.22	8.50

Seasonal consumptive-use coefficients

Consumptive-use coefficients (K) have been determined experimentally at numerous localities for most crops grown in the western states. Consumptive-use values (U) were measured, and these data were correlated with temperature and growing season. Crop consumptive-use coefficients were then computed by the formula:

$$K = \frac{U}{F}$$

The computed coefficients varied somewhat because of the diverse conditions, such as soils, water supply, and methods, under which the studies were conducted. These coefficients were adjusted where necessary after the data were analyzed. The resulting coefficients are believed to be suitable for use under normal conditions.

While only very limited investigations of consumptive use have been made in the Eastern or humid-area States, studies made thus far fail to indicate that there should be any great difference between the seasonal consumptive-use coefficients used there and those used in the Western States.

Table 2A–2 shows the values of seasonal consumptive-use crop coefficients currently proposed by Blaney-Criddle for most irrigated crops. Ranges in the values of these coefficients are shown. The values, however, are not all inclusive limits. In some circumstances, K values may be either higher or lower than shown.

Monthly or short-time consumptive-use coefficients

Although seasonal coefficients (K) as reported by various investigators show some variation for the same crops, monthly or short-time coefficients (k) show even greater variation. These great variations are influenced by a number of factors that must be considered when computing or estimating short-time coefficients. Although these factors are numerous, the most important are temperature and the growth stage of the crop.

Table 2A–2 Seasonal consumptive-use crop coefficients (K) for irrigated crops

Crop	Length of normal growing season or period 1/	Consumptive-use coefficient (K) 2/
Alfalfa	Between frosts	0.80 to 0.90
Bananas	Full year	.80 to 1.00
Beans	3 months	.60 to .70
Cocoa	Full year	.70 to .80
Coffee	Full year	.70 to .80
Corn (maize)	4 months	.75 to .85
Cotton	7 months	.60 to .70
Dates	Full year	.65 to .80
Flax	7 to 8 months	.70 to .80
Grains, small	3 months	.75 to .85
Grain, sorghum	4 to 5 months	.70 to .80
Oilseeds	3 to 5 months	.65 to .75
Orchard crops:		
Avocado	Full year	.50 to .55
Grapefruit	Full year	.55 to .65
Orange and lemon	Full year	.45 to .55
Walnuts	Between frosts	.60 to .70
Deciduous	Between frosts	.60 to .70
Pasture crops:		
Grass	Between frosts	.75 to .85
Ladino whiteclover	Between frosts	.80 to .85
Potatoes	3 to 5 months	.65 to .75
Rice	3 to 5 months	1.00 to 1.10
Soybeans	140 days	.65 to .70
Sugar beet	6 months	.65 to .75
Sugarcane	Full year	.80 to .90
Tobacco	4 months	.70 to .80
Tomatoes	4 months	.65 to .70
Truck crops, small	2 to 4 months	.60 to .70
Vineyard	5 to 7 months	.50 to .60

1/ Length of season depends largely on variety and time of year when the crop is grown. Annual crops grown during the winter period may take much longer than if grown in the summertime.

2/ The lower values of K for use in the Blaney-Criddle formula, U=KF, are for the more humid areas, and the higher values are for the more arid climates.

Growing season

In using the Blaney-Criddle formula for computing seasonal requirements, the potential growing season for the various crops is normally considered to extend from frost to frost or from the last killing frost in the spring to the end of a definite period thereafter. For most crops, this is adequate for seasonal use estimates, but a refinement is necessary to more precisely define the growing season when monthly or short-time use estimates are required. In many areas records are available from which planting, harvesting, and growth dates can be determined. These records should be used where possible. In other areas temperature data may be helpful for estimating these dates. Table 2A–3 gives some guides that can help determine these dates.

The spring frost date corresponds very nearly with a mean temperature of 55 degrees, so it is obvious that many of the common crops use appreciable amounts of water before the last frost in the spring and may continue to use water after the first front in the fall.

Climate coefficient (k_t)

While it is recognized that a number of climatological factors affect consumptive use by crops, seldom is complete climatological data on relative humidity, wind movement, sunshine hours, or pan evapotranspiration available for a specific site. Thus, it is necessary to rely on records of temperature that are widely available.

In 1954, J.T. Phelan attempted to correlate the monthly consumptive-use coefficient (k) with the mean monthly temperature (t). It was noted that a loop effect occurred in the plotted points—the computed values of (k) were higher in the spring than in the fall for the same temperature. The effects of this loop were later corrected by the development of a crop growth stage coefficient (k_c). The relationship between (k) and (t) was adopted for computing values of (k_t), the temperature coefficient. This relationship is expressed as $k_t = .0173t - .314$. Table 2A–4 gives values of k_t for temperatures ranging from 36 to 100 degrees Fahrenheit.

Table 2A–3 A guide for determining planting dates, maturity dates, and lengths of growing seasons as related to mean air temperature

Crops	Earliest moisture—Use or planting date as related to mean air temperature	Latest moisture—Use or maturing date as related to mean air temperature	Growing season days
Perennial crops			
Alfalfa	50° mean temp.	28° frost	Variable
Grasses, cool	45° mean temp.	45° mean temp.	Variable
Orchards, deciduous	50° mean temp.	45° mean temp.	Variable
Grapes	55° mean temp.	50° mean temp.	Variable
Annual crops			
Beans	60° mean temp.	32° frost	90 — 100
Corn	55° mean temp.	32° frost	140 — Max.
Cotton	62° mean temp.	32° frost	240 — Max.
Grain, spring	45° mean temp.	32° frost	130 — Max.
Potatoes, late	60° mean temp.	32° frost	130 — Max.
Sorghum, grain	60° mean temp.	32° frost	130 — Max.
Sugar beets	28° frost	28° frost	180 — Max.
Wheat, winter			
(fall season)		45° mean temp.	
(spring season)	45° mean temp.		

Crop growth stage coefficients (k_c)

As previously stated, another factor that causes consumptive use to vary widely throughout the growing season is the plant itself. Stage of growth is a primary variable that must be recognized because it is obvious that plants in the rapid growth stage use water at a more rapid rate than will new seedlings. It is also obvious that these variations in consumptive use throughout the growing season will be greater for annual crops than for perennial crops, such as alfalfa, permanent pasture grasses, and orchards.

Table 2A–4 Values of the climate coefficients (k_t) for various mean air temperatures (t)[1]

t (°F)	k_t	t (°F)	k_t	t (°F)	k_t
36	.31	58	.69	80	1.07
37	.33	59	.71	81	1.09
38	.34	60	.72	82	1.11
39	.36	61	.74	83	1.12
40	.38	62	.76	84	1.14
41	.40	63	.78	85	1.16
42	.41	64	.79	86	1.17
43	.43	65	.81	87	1.19
44	.45	66	.83	88	1.21
45	.46	67	.85	89	1.23
46	.48	68	.86	90	1.24
47	.50	69	.88	91	1.26
48	.52	70	.90	92	1.28
49	.53	71	.91	93	1.30
50	.55	72	.93	94	1.31
51	.57	73	.95	95	1.33
52	.59	74	.97	96	1.35
53	.60	75	.98	97	1.36
54	.62	76	1.00	98	1.38
55	.64	77	1.02	99	1.40
56	.66	78	1.04	100	1.42
57	.67	79	1.05		

1 Values of (k_t) are based on the formula, $k_t = .0173\ t - .314$ for mean temperatures less than 36°, use $k_t = .300$.

To recognize these variations in consumptive use, crop growth stage coefficients (k_c) have been introduced into the formula. Values of these coefficients are calculated from research data. Where values of k_c are plotted against time or stage of growth, curves similar to those shown in figures 2A–1 through 2A–25 result. Such curves are used to obtain values of k_c that, when used with appropriate values of k_t will permit a determination of values of monthly or short-time consumptive-use coefficients (k).

Also, the value of k_c might to some extent be influenced by factors other than the characteristics of the plant itself. For this reason, it is not expected that these curves can be used universally. They should, however, be valid over a considerable area and certainly should be of value in areas where no measured consumptive-use data are available.

For annual crops, such as corn, values of k_c are best plotted as a function of a percentage of the growing season. Figure 2A–7 shows the suggested values of k_c for corn.

For perennial crops, values of k_c generally are best plotted on a monthly basis. Figure 2A–1 shows the plotting of such values for alfalfa. Crop growth stage coefficient curves for all crops for which data are available are in this appendix.

Assumptions in applying the formula

To apply results of a consumptive-use-of-water study in one area to other areas, certain assumptions must be made. If sufficient basic information is available locally, such actual data should be used; however, sufficient detail of the needed data is rarely available. Where necessary information is unavailable, the following assumptions must be made in applying the consumptive-use formula to transfer data between areas:

- Seasonal consumptive use (U) of water varies directly with the consumptive-use factor (F).
- Crop growth and yields are not limited by inadequate water at any time during the growing season.

- Growing periods for alfalfa, pasture, orchard crops, and natural vegetation, although usually extending beyond the frost-free periods, are usually indicated by such periods. Yields of crops dependent only upon vegetative growth vary with the length of the growing period.

Application to specific areas

The application of the Blaney-Criddle formula to specific areas can best be illustrated by examples. Two have been chosen for this purpose. The first is an annual crop, corn, grown in a humid area, Raleigh, North Carolina. The second is a perennial crop, alfalfa, grown in an arid area, Denver, Colorado.

Corn at Raleigh, North Carolina

The procedure for estimating the average daily, monthly, and seasonal consumptive use by corn at this location is shown in sample calculation 2A–1. The average length of the growing season for corn grown near Raleigh is 120 days beginning about April 20.

The estimate is made on a monthly basis, the months and fractions thereof being shown in column 1. The midpoint date for each month or fraction is shown in column 2. The accumulated number of days from the planting date, April 20, to the midpoint of each month or period is shown in column 3. The percentage of the 120-day growing season represented by these midpoint dates is shown in column 4. Thus:

$$\text{column 4} = \frac{\text{column 3}}{120}$$

Mean monthly air temperature values, shown in column 5, are taken from Weather Bureau records. The mean temperature is assumed to occur on the 15th day of each month. The mean air temperature for a part of a month can be obtained mathematically or graphically by assuming that the increase or decrease in temperature between the 15th day of any consecutive month is a straight-line relationship. For example, at Raleigh, the mean monthly air temperature for April is 60.6 degrees and that for May is 69.2 degrees. The mean air temperature for the midpoint date is calculated as follows:

$$60.6° + \frac{10 \text{ days } (69.2° - 60.6°)}{30 \text{ days}} = 63.5°$$

Sample calculation 2A–1 Estimate of average daily, monthly, and seasonal consumptive-use by corn (harvested for grain) at Raleigh, North Carolina, latitude 35°47' N

(1) Month or period	(2) Midpoint of period	(3) Accum. days to midpoint	(4) Percent of growing season	(5) Mean air temp., t (°F)	(6) Daylight hours, p (%)	(7) Cons. use factor, f	(8) Climatic coeff., k_t	(9) Growth stage coeff., k_c	(10) Cons. use coeff., k	(11) Monthly cons. use, u (in)	(12) Daily cons. use, u (in/d)
April 20											
	April 25	5	4.2	63.5	3.05	1.94	.79	.46	.36	.70	.070
May											
	May 15	25	20.8	69.2	9.79	6.77	.88	.59	.52	3.52	.114
June											
	June 15	56	46.7	76.9	9.81	7.54	1.02	1.02	1.04	7.84	.261
July											
	July 15	86	71.7	79.4	9.98	7.92	1.06	1.05	1.11	8.79	.284
August											
	Aug. 9	111	92.5	78.3	5.52	4.32	1.04	.91	.95	4.10	.228
Aug. 18											
Season total										24.95 inches	

Raleigh is located at latitude 35°47' N. The monthly percentages of daylight hours, shown in column 6, are taken from table 2A–1. For parts of a month, the values of these percentages can be obtained in a similar manner as that described for mean air temperature. For example, at Raleigh, the monthly percentage of daylight hours for April is 8.84 and that for May is 9.79. For the period April 20 through April 30, the monthly percentage of daylight hours is calculated as:

$$\left(8.84\% + \frac{10 \text{ days}(9.79\% - 8.84\%)}{30 \text{ days}}\right)\frac{10 \text{ days}}{30 \text{ days}} = 3.05\%$$

The values of consumptive use factors (f) shown in column 7 are the product of t and p divided by 100. Values of the climatic coefficient (k_t) shown in column 8 are taken from table 2A–4. Values of the crop growth stage coefficient (k_c) shown in column 9 are taken from the curve shown in figure 2A–7. The values of the monthly consumptive-use coefficient (k) shown in column 10 are the product of k_t and k_c. Values of monthly consumptive use (u) shown in column 11 are the product of values of k and f. The average daily rates of consumptive use shown in column 12 are the monthly values of u (column 11) divided by the number of days in the month.

Alfalfa in Denver, Colorado

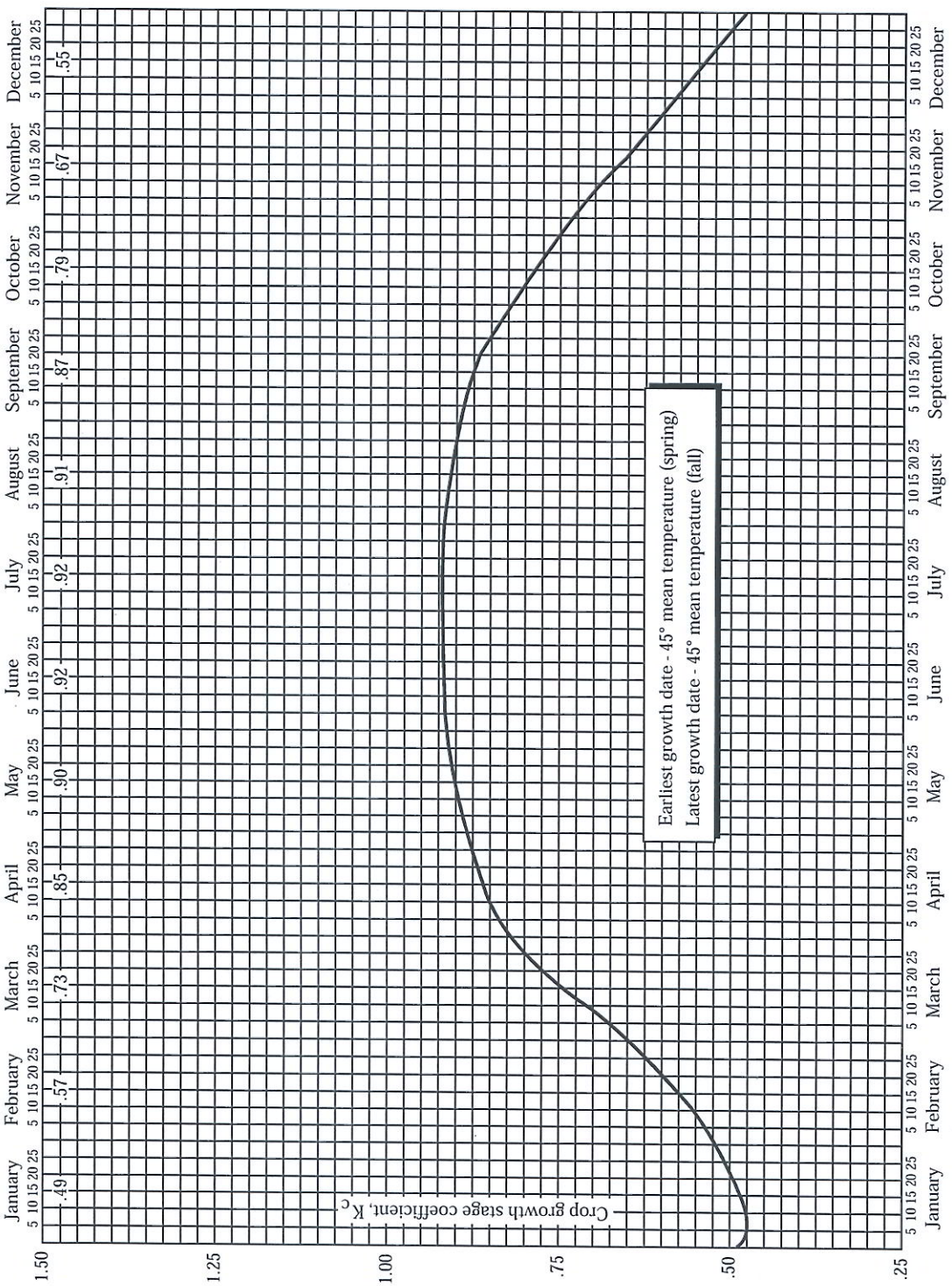
The procedure for estimating the average daily, monthly, and seasonal consumptive use by alfalfa in this location is shown in sample calculation 2A–2. The growing season for alfalfa grown near Denver is considered to be that period from the date corresponding to 50° mean temperature in the spring to the date corresponding to 28° frost in the fall. This period is from April 24 to October 25.

The procedure illustrated by sample calculation 2A–2 is the same as that described for corn in sample calculation 2A–1. The values of the crop growth stage coefficient (k_c) shown in column 8 are taken from the curve for alfalfa shown in figure 2A–1.

Sample calculation 2A–2 Estimate of average daily, monthly, and seasonal consumptive use by alfalfa at Denver, Colorado

(1) Month or period	(2) Midpoint of period	(3) Days in period	(4) Mean air temp, t (°F)	(5) Daylight hours, p (%)	(6) Cons. use factor, f	(7) Climatic coeff., k_t	(8) Growth stage coeff., k_c	(9) Cons. use coeff., k	(10) Monthly cons. use, u (in/mo)	(11) Daily cons. use, u (in/d)
April 24										
	April 27	6	51.1	1.87	0.96	0.57	1.03	0.59	0.57	0.095
May										
	May 15	31	56.3	9.99	5.62	0.66	1.08	0.71	3.99	0.129
June										
	June 15	30	66.4	10.07	6.69	0.84	1.13	0.95	6.36	0.212
July										
	July 15	31	72.8	10.20	7.43	0.95	1.11	1.05	7.80	0.252
August										
	August 15	31	71.3	9.54	6.80	0.92	1.06	0.98	6.66	0.215
September										
	Sept. 15	30	62.7	8.39	5.26	0.77	0.99	0.76	4.00	0.133
October										
	Oct. 12	25	53.5	6.31	3.38	0.61	0.91	0.56	1.89	0.076
Oct. 25										
Seasonal total									31.27 inches	

Figure 2A-15 Crop growth stage coefficient curve for pasture grasses



RICHARDSON GROVE ST PK, CALIFORNIA (047404)

Period of Record Monthly Climate Summary

Period of Record : 11/9/1961 to 8/31/2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	50.1	54.6	59.5	64.3	71.5	78.0	86.1	86.6	83.2	70.3	55.7	49.3	67.4
Average Min. Temperature (F)	37.3	38.5	39.5	41.0	45.3	49.9	53.1	52.9	49.3	44.7	40.9	37.5	44.2
Average Total Precipitation (in.)	13.20	10.34	8.87	4.53	1.88	0.64	0.06	0.37	0.91	3.88	9.64	13.69	68.01
Average Total SnowFall (in.)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 98.6% Min. Temp.: 98.7% Precipitation: 99.6% Snowfall: 99.3% Snow Depth: 98.9%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

NOAA Atlas 14, Volume 6, Version 2
GARBERVILLE
Station ID: 04-3320
Location name: Redway, California, US*
Latitude: 40.1000°, Longitude: -123.8000°
Elevation:
Elevation (station metadata): 340 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.166 (0.147–0.190)	0.195 (0.172–0.224)	0.236 (0.207–0.271)	0.269 (0.234–0.313)	0.317 (0.265–0.383)	0.355 (0.290–0.441)	0.396 (0.313–0.505)	0.438 (0.336–0.578)	0.498 (0.364–0.690)	0.546 (0.383–0.788)
10-min	0.238 (0.210–0.273)	0.280 (0.247–0.321)	0.338 (0.296–0.388)	0.386 (0.336–0.448)	0.455 (0.380–0.550)	0.509 (0.415–0.631)	0.567 (0.449–0.724)	0.628 (0.481–0.829)	0.714 (0.521–0.989)	0.783 (0.549–1.13)
15-min	0.288 (0.254–0.330)	0.339 (0.298–0.389)	0.408 (0.358–0.470)	0.467 (0.406–0.542)	0.550 (0.459–0.665)	0.616 (0.502–0.764)	0.686 (0.543–0.875)	0.760 (0.582–1.00)	0.864 (0.630–1.20)	0.947 (0.664–1.37)
30-min	0.403 (0.355–0.461)	0.474 (0.417–0.543)	0.571 (0.501–0.657)	0.653 (0.568–0.758)	0.769 (0.642–0.930)	0.861 (0.702–1.07)	0.959 (0.759–1.22)	1.06 (0.814–1.40)	1.21 (0.881–1.67)	1.33 (0.928–1.91)
60-min	0.560 (0.494–0.641)	0.659 (0.580–0.755)	0.794 (0.697–0.913)	0.907 (0.789–1.05)	1.07 (0.892–1.29)	1.20 (0.976–1.48)	1.33 (1.06–1.70)	1.48 (1.13–1.95)	1.68 (1.23–2.33)	1.84 (1.29–2.65)
2-hr	0.873 (0.770–1.00)	1.03 (0.906–1.18)	1.24 (1.09–1.42)	1.41 (1.23–1.64)	1.65 (1.38–2.00)	1.84 (1.50–2.29)	2.04 (1.62–2.60)	2.25 (1.72–2.96)	2.53 (1.85–3.51)	2.76 (1.93–3.98)
3-hr	1.14 (1.01–1.31)	1.34 (1.18–1.54)	1.61 (1.41–1.85)	1.83 (1.59–2.13)	2.14 (1.79–2.59)	2.38 (1.94–2.95)	2.63 (2.08–3.36)	2.89 (2.21–3.81)	3.25 (2.37–4.50)	3.53 (2.47–5.08)
6-hr	1.80 (1.59–2.06)	2.12 (1.87–2.43)	2.54 (2.23–2.92)	2.89 (2.51–3.35)	3.36 (2.81–4.07)	3.73 (3.04–4.62)	4.11 (3.25–5.24)	4.50 (3.45–5.94)	5.04 (3.67–6.98)	5.46 (3.82–7.87)
12-hr	2.70 (2.38–3.09)	3.21 (2.83–3.68)	3.89 (3.41–4.47)	4.44 (3.86–5.16)	5.21 (4.35–6.30)	5.80 (4.73–7.20)	6.42 (5.08–8.19)	7.05 (5.40–9.30)	7.93 (5.78–11.0)	8.62 (6.04–12.4)
24-hr	3.94 (3.53–4.48)	4.75 (4.26–5.41)	5.82 (5.20–6.65)	6.70 (5.94–7.71)	7.90 (6.79–9.38)	8.84 (7.45–10.7)	9.80 (8.07–12.1)	10.8 (8.66–13.7)	12.2 (9.39–16.1)	13.3 (9.90–18.1)
2-day	5.48 (4.92–6.24)	6.69 (5.99–7.62)	8.24 (7.37–9.41)	9.49 (8.42–10.9)	11.2 (9.59–13.2)	12.4 (10.5–15.0)	13.7 (11.3–17.0)	15.0 (12.0–19.1)	16.7 (12.9–22.1)	18.1 (13.5–24.7)
3-day	6.67 (5.98–7.59)	8.17 (7.32–9.31)	10.1 (9.02–11.5)	11.6 (10.3–13.4)	13.6 (11.7–16.2)	15.1 (12.8–18.3)	16.6 (13.7–20.6)	18.1 (14.6–23.1)	20.1 (15.5–26.6)	21.7 (16.2–29.6)
4-day	7.48 (6.71–8.51)	9.19 (8.23–10.5)	11.4 (10.1–13.0)	13.1 (11.6–15.0)	15.3 (13.2–18.2)	17.0 (14.3–20.5)	18.6 (15.3–23.1)	20.3 (16.3–25.8)	22.4 (17.3–29.7)	24.1 (18.0–32.9)
7-day	9.38 (8.41–10.7)	11.5 (10.3–13.1)	14.1 (12.6–16.1)	16.2 (14.4–18.6)	18.9 (16.3–22.5)	20.9 (17.7–25.4)	22.9 (18.9–28.4)	24.9 (20.0–31.7)	27.5 (21.2–36.4)	29.5 (22.0–40.3)
10-day	10.8 (9.72–12.3)	13.2 (11.9–15.1)	16.2 (14.5–18.5)	18.6 (16.5–21.4)	21.7 (18.6–25.7)	23.9 (20.1–28.9)	26.1 (21.5–32.3)	28.3 (22.7–36.0)	31.1 (24.0–41.2)	33.3 (24.8–45.5)
20-day	14.3 (12.9–16.3)	17.6 (15.8–20.1)	21.6 (19.3–24.7)	24.6 (21.8–28.3)	28.5 (24.5–33.8)	31.2 (26.3–37.8)	33.8 (27.8–41.9)	36.3 (29.2–46.2)	39.5 (30.5–52.3)	41.8 (31.2–57.1)
30-day	17.4 (15.6–19.8)	21.4 (19.2–24.4)	26.2 (23.4–29.9)	29.8 (26.4–34.3)	34.2 (29.4–40.6)	37.4 (31.5–45.2)	40.3 (33.2–49.9)	43.1 (34.5–54.8)	46.5 (35.8–61.4)	48.9 (36.5–66.7)
45-day	22.7 (20.4–25.8)	27.9 (25.0–31.8)	34.1 (30.4–38.9)	38.5 (34.2–44.4)	44.0 (37.8–52.2)	47.7 (40.2–57.8)	51.2 (42.2–63.4)	54.4 (43.6–69.2)	58.2 (44.9–77.0)	60.9 (45.5–83.2)
60-day	27.0 (24.2–30.7)	33.2 (29.7–37.8)	40.3 (36.0–46.0)	45.5 (40.3–52.3)	51.6 (44.4–61.3)	55.8 (47.0–67.5)	59.5 (49.0–73.8)	63.0 (50.5–80.1)	67.1 (51.8–88.7)	69.9 (52.2–95.5)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

APPENDIX B

WATER SOURCE CAPACITY CALCULATIONS

SF Eel Flowrate = 152 cfs

68217.6 gpm

10% streamflow = 6821.76 gpm

Use 108 gpm

Source	Capacity (gpm)	Capacity (gpd)	Capacity (gal/mo)	Potable (Y/N)
1	107.0	77,040	2,343,300	N
*2	1.4	2,002	60,882	Y
3		-	-	Y
4	2.5	1,800	54,750	Y

*No draw allowed July 2 - Oct 31

Month	No. of Days	Source 1 Capacity (pump 12 hrs/day)	Source 2 Capacity	Source 4 Capacity (pump 12 hrs/day)
January	31	2,388,240	62,050	55,800
February	28	2,157,120	56,045	50,400
March	31	2,388,240	62,050	55,800
April	30	2,311,200	60,048	54,000
May	31	2,388,240	62,050	55,800
June	30	2,311,200	60,048	54,000
July	31	2,388,240	-	55,800
August	31	2,388,240	-	55,800
September	30	2,311,200	-	54,000
October	31	2,388,240	-	55,800
November	30	2,311,200	60,048	54,000
December	31	2,388,240	62,050	55,800

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
1	Stephanie Gould, EIT	Rebecca Crow, PE		Rebecca Crow, PE		9/2/2014

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APPENDIX H
BIOLOGICAL BACKGROUND STUDIES

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Southern Humboldt Community Park

Feasibility Study

Submitted
November 25, 2002

Prepared for: Southern Humboldt Working Together, Incorporated
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(707) 923-4022
Attention: Steve Dazey

Prepared by: Mad River Biologists
J. Brett Lovelace, Staff Biologist
Ron LeValley, Senior Biologist
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Table of Contents

List of Figures, Tables and Appendices

I. Summary

Two site visits were conducted by Mad River Biologists in order to characterize and document the biological resources of the Southern Humboldt Community Park near Garberville, California. The various plant communities and habitats were mapped and assessed for the potential to support sensitive plant species. All plant and wildlife species encountered were recorded and can be found in Appendices 2 and 3. Two occurrences of the rare epiphytic lichen, *Usnea longissima* were found and mapped. No other sensitive species were encountered at the time of the field visits. Additional seasonally appropriate field surveys that target the fifteen sensitive plant species identified in the rare plant habitat assessment should be conducted if any future development or land management plans could have the potential to negatively affect the habitats identified as being suitable for these species.

II. Introduction

The Southern Humboldt Community Park (a portion of what was formerly known as the "Tooby Ranch") is an approximately 475-acre property recently acquired by Southern Humboldt Working Together, Incorporated, a non-profit organization based in Garberville, California. The following document is a feasibility study designed to assist Southern Humboldt Working Together and the Humboldt County Planning Department in identifying the biological resources that exist on the property. The resulting information can be used in the planning of any future development of the property. Field visits to the property described herein were conducted on March 27, 2001 and October 23, 2001. Project personnel included Senior Biologist Ron LeValley, Associate Biologist Stephanie Morrissette and Staff Biologist J. Brett Lovelace. This document contains a description of the biological resources identified on the property, including maps of plant communities, lists of plant and animal species encountered, and an assessment of the potential for the identified habitats to host sensitive plant/animal species.

III. Methods

A field investigation of the Southern Humboldt Community Park occurred on March 27, 2001 by Senior Biologist Ron LeValley and Associate Biologist Stephanie Morrissette of Mad River Biologists. The site investigation consisted of walking through the property and recording the presence and potential presence of wildlife, including noting calls and songs, tracks, droppings, and other signs. Similarly, habitats were assessed for their suitability to support sensitive flora. A second site visit occurred on October 24, 2001 by Mad River Biologists Staff Biologist J. Brett Lovelace for the purpose of mapping habitats.

Compiled species lists for the ranch are included as Appendices 2 and 3. Since the appearance and identification of many species is seasonally dependent, these lists should not be considered complete. They are, however, very useful for characterizing the site. Plants were identified to species, except in a few cases when individuals were identifiable only to genus due to the absence of flower and/or fruit. Nomenclature used follows *The Jepson Manual* (Hickman 1993) for vascular plants and *Macrolichens of the Pacific Northwest* (McCune & Geiser 1997) for lichens.

IV. Site Description

The Southern Humboldt Community Park (formerly known as the "Tooby Ranch") is approximately a 475-acre property located less than ½ mile south of Garberville, in southern Humboldt County, California (Figure 1). The Eel River passes through the north and northwest sections of the property offering aquatic, riverine habitats bordered by riparian vegetation. Upland forests and grasslands interspersed with drainages also occur on the site. Historic uses of the property include cattle ranching (possibly haying), and some timber harvesting (Dazey pers. comm.).

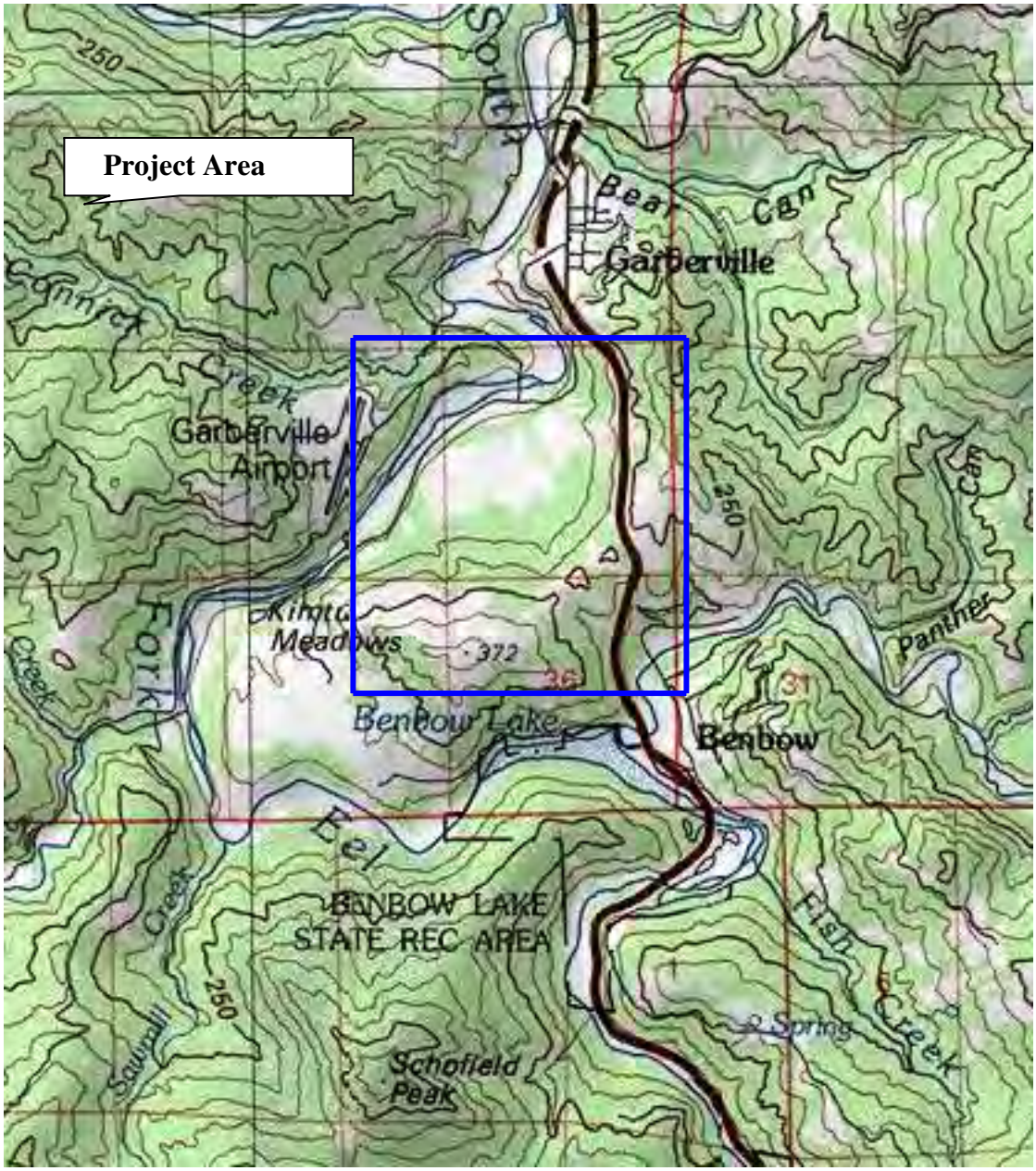

Figure 1. Site Location Map.

IV. a. Plant Community and Habitat Types

The following upland habitat descriptions are consistent with those described in *A Manual of California Vegetation* (Sawyer & Keeler-Wolf 1995). Wetland vegetation types were classified according to the *Classification of Wetlands and Deepwater Habitats* (Cowardin et al. 1979). Soil descriptions are consistent with *Soils of Western Humboldt County California* (McLaughlin & Harradine 1965). The gravel bar and associated riparian vegetation was previously mapped by Natural Resources Management Corporation (Golec 2000).

California Annual Grasslands

The large tract of open grasslands in the center of the property can be classified under the California annual grassland series. This series is composed of alien and native annual species. The species composition of this series varies among sites. At the Southern Humboldt Community Park, the dominant species include annual (and to a lesser extent, perennial) grasses and herbs such as colonial bent (*Agrostis capillaris*), silver European hairgrass (*Aira caryophyllea*), sweet vernal grass (*Anthoxanthum odoratum*), quaking grass (*Briza maxima),* brome (*Bromus* sp.), soap plant (*Chlorogalum pomeridianum* var. *pomeridianum*), hedgehog dogtail (*Cynosurus echinatus*), orchard grass (*Dactylis glomerata*), Queen Anne's lace (*Daucus carota*), California poppy (*Eschscholzia californica*), wild cucumber (*Marah* sp.), sweet-cicely (*Osmorhiza* sp.), shamrock (*Trifolium dubium*), vetch (*Vicia* sp.), buttercup (*Ranunculus* sp.), sheep sorrel (*Rumex acetosella*), and curly dock (*Rumex crispus*).

The substrates found in this habitat vary across the site, and the slopes range from 0-3%. Soils of the Ettersberg series occur immediately south of the stand of California bay (*Umbellularia californica*) trees that parallel Camp Kimtu Road (refer to Appendix 4), and in the western portion of the grasslands of the property. This soil type is also found in the meadow area to the southeast of the Tooby Memorial Park. Ettersberg soils are typically well drained, though this varies with the clay content of subsoils. They are derived from gravely river sediments of the Franciscan and Yager formations.

In the northeastern portion of the grasslands, the substrate is a Hookton silty clay loam. Hookton silty clay loams are imperfectly drained soils derived from the Hookton formation. Such soils typically have higher organic content, are subject to compaction, and as a consequence remain wet for extended periods.

Honeydew clay loams comprise the dominant soil type in the southeastern portion of the grasslands. These soils are derived from an alluvial greywhacke parent material from the Franciscan formation. These soils experience more surface compaction than other Honeydew soils.

Moderately well drained Arcata loam soils are found at the bottom of the north-facing slope near the southwestern edge of the grasslands. Arcata soils develop from young, softly consolidated alluvial deposits of the Hookton formation. The Arcata soils in this region often remain wet for extended periods due to compaction of the substratum.

Ferndale fine sandy loam forms the substrate of the grasslands located to the south of the Camp Kimtu Road and immediately north of the above-mentioned stand of California bay trees (refer to Appendix 4). The Ferndale series is composed of young sedimentary alluvial deposits from the Franciscan formation. They have good drainage and dry out relatively rapidly. These soils are considered to be well suited for agricultural use.

In the southeastern corner of the property, grasslands are found on a Usal clay loam. Usal clay loams are derived from a sandstone and shale parent material and are considered to be productive for timber and range use.

Redwood Series

This series is characterized as having redwood as the dominant tree in the canopy. It occurs in the area currently known as Tooby Memorial Park, which is located on the south bank of the Eel River and on the north side of Camp Kimtu Road. Associates encountered in this area include Pacific madrone (*Arbutus menziesii*), tanoak (*Lithocarpus densiflorus*), coyote brush (*Baccharis pilularis*), sword fern (*Polystichum munitum*), and the invasive scotch broom (*Cytisus scoparius*). Soils in the Tooby Memorial Park are an Ettersberg loam.

California Bay Series

This habitat type was found bordering much of the grasslands, oak woodlands, and/or Douglas-fir stands. It is characterized as having California bay (*Umbellularia californica*) as the sole or dominant tree in the canopy. Other associates include big leaf maple (*Acer macrophyllum*), black oak (*Quercus kelloggii*), and Pacific madrone (*Arbutus menziesii*). The understory in this habitat is typically lacking, although where this habitat type is found adjacent to Camp Kimtu Road, a moderate understory composed of Himalayan blackberry (*Rubus discolor*) exists. The stand of bay trees that bisects the grasslands appears to occur within a "terrace escarpment" between Ettersberg loam and Ferndale fine sandy loam. Other substrates that support this plant community are Hookton silty clay loams and Honeydew clay loams.

Black Oak Series

This habitat type occupies the lower to middle slopes along the southern portion of the property. It is characterized by a mixed species composition including black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepis*), Oregon white oak (*Quercus garryana*), California bay (*Umbellularia calfornica*), California buckeye (*Aesculus californica*), Pacific madrone (*Arbutus menziesii*), and Douglas-fir (*Pseudotsuga menziesii*). The understory is fairly open with low shrub cover made up primarily of hazelnut (*Corylus cornuta*), sword fern (*Polystichum munitum*), wood fern (*Dryopteris arguta)*, and young Douglas-fir saplings. The herbaceous cover is low to moderate, consisting of many mixed woodland species such as wood strawberry (*Fragaria vesca*), sanicle (*Sanicula* sp.), hedge nettle (*Stachys* sp.), exotic pea (*Lathyrus* sp.), hairy cat's ear (*Hypochaeris radicata*), maidenhair fern (*Adiantum aleuticum*), sweet-cicely (*Osmorhiza* sp.), vetch (*Vicia* sp.), buttercup (*Ranunculus* sp.), honeysuckle (*Lonicera* sp.), trail plant (*Adenocaulon bicolor*), starflower (*Trientalis* sp.), rose (*Rosa* sp.), (*Bellis perenne*), poison oak (*Toxicodendron diversilobum*), self-heal (*Prunella vulgaris*), bedstraw (*Gallium* sp.), Queen Anne's lace (*Daucus carota*), shooting star (*Dodocatheon* sp.), lousewort (*Pedicularis* sp.), Calypso orchid (*Calypso bulbosa*), tarweed (*Madia* sp.), gold back fern (*Pentagramma triangularis*), licorice fern (*Polypodium glycyrrhiza*), toothwort (*Cardamine* sp.), yerba buena (*Satureja douglasii*), sword fern (*Polystichum munitum*), and cow parsnip (*Heracleum lanatum*). The forested hillsides supporting this habitat type are Honeydew and Usal clay loams.

Douglas-fir Series

This series is characterized by a species composition where Douglas-fir (*Pseudotsuga menziesii*) is the sole or dominant tree in the canopy, occasionally coexisting with other associates such as black oak (*Quercus kellogii*), California bay (*Umbellularia californica*), canyon live-oak (*Quercus chrysolepis*), and Pacific madrone (*Arbutus menziesii*). The density of the understory is typically low but varies, and is dominated by hazelnut (*Corylus cornuta*), sword fern (*Polystichum munitum*), wood fern (*Dryopteris arguta*), and canyon live-oak (*Quercus chrysolepis*). This habitat type was encountered on the middle to upper slopes along the southern portion of the property. In the central region of this slope there is an increase in the dominance of Douglas-fir,

with an increase in the abundance of mature Douglas-fir trees and snags. This area exhibits a multi-layered canopy with frequent gaps, thus providing a greater degree of stand structural complexity. The substrates found in association with this habitat type are Usal clay loams.

Douglas-fir – tanoak Series

The Douglas-fir – tanoak series is composed primarily of Douglas-fir (*Pseudotsuga menziesii*) and tanoak (*Lithocarpus densiflorus*). Two areas were encountered on the site in which this habitat type existed. One of these locations is in the extreme southwest of the property and is a younger stand with a higher estimated stem density relative to the adjacent Douglas-fir series. The dominant species in this area are Douglas-fir (*Pseudotsuga menziesii*), California bay (*Umbellularia californica*), canyon live-oak (*Quercus chrysolepis*), and Pacific madrone (*Arbutus menziesii*) in the canopy, with sword fern (*Polystichum munitum*), wood fern (*Dryopteris arguta*), and canyon live-oak (*Quercus chrysolepis*) in the shrub layer. Melbourne loam/clay loams make up the substrate in this part of the property. These soils are derived from sandstone and shale and are rated high for timber production and range use.

This plant community also occurs in the northwestern corner of the property where the species composition is similar, with the addition of manzanita (*Arctostaphylos* sp.), toyon (*Heteromeles arbutifolia*) and California blackberry (*Rubus ursinus*). Here, there is an increase in the stand density and the density of the understory, which is composed of smaller individuals of the same species. The soils in this area are a Hugo gravely loam/stony clay loam and a Timmons clay loam. Hugo soils are derived from a sandstone and shale parent material. They are known to be productive for timber and to a lesser extent, for range use. Timmons clay loams are a well-drained alluvial soil derived from the Hookton formation. Such soils also have a high rating for timber production. This soil type is restricted to the north bank of the Eel River, adjacent (south) to Camp Kimtu Road.

Coyote brush series

This series exists primarily along the edges and banks of the Eel River channel. This habitat is characterized by disturbance from the fluctuations in water levels and meandering of the river, and also from gravel extraction, which occurs on the northern bank of the Eel River. The species associated with this habitat include coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), white sweetclover (*Melilotus alba*), pigweed (*Chenopodium* sp.), and black mustard, (*Brassica nigra*). This community is common along terrace escarpments adjacent to the river. The dominant substrate in this plant community is an unconsolidated river wash composed of gravels and sand.

IV. b. Wetland Habitat Types

These “Wetland Types” were used to characterize habitats that exist on the property where these habitats could not easily be assigned to an existing classification found in Sawyer & Keeler-Wolf (1995). These assignments were based primarily on the presence of hydrophytic plant species (species adapted to anoxic conditions caused by frequent inundation and/or saturation of the substrate). It is important to note that formal wetland delineations were not conducted at the Southern Humboldt Community Park and these assignments should not be construed to be wetlands under the definitions described by the U.S. Army Corps of Engineers (1987).

Palustrine Emergent Wetlands

This "habitat" type was used to characterize wet meadows and seeps found adjacent to upland grasslands and forested areas. In the wet meadows (refer to Appendix 4), soils appear to remain saturated, if not flooded, for long periods. The vegetation is composed primarily of sedges (*Carex* spp. and *Scirpus* spp.), rushes (*Juncus* spp.), knotweed (*Polygonum* sp.), Harding grass (*Phalaris aquatica*), and pennyroyal (*Mentha pulegium*). The substrate in this area is composed both of imperfectly drained Hookton silt loam and Ettersberg loam.

This habitat type was encountered in the southwestern and northeastern portions of the grasslands, where there was evidence of ponding and/or prolonged soil saturation. Stunted vegetation, soil mottling, and the presence of pennyroyal (*Mentha pelugium*), rush species (*Juncus* spp.), and other hydrophytes characterize this area. The substrate is an Ettersberg loam.

Palustrine Scrub-shrub Wetlands

The Palustrine scrub-shrub wetlands are characterized as having woody vegetation that is less than 6 meters tall. This habitat type is found intergrading into the Palustrine forested wetland in the area near the main entrance to the property and across the road from the Tooby Memorial Park, and most likely represents an earlier stage in the succession of these plant communities. The species that occur here are red alder (*Alnus rubra*), Sitka willow (*Salix sitchensis*), arroyo willow (*Salix lasiolepis*), Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), and cultivated pear (*Pyrus* sp.) The herbaceous layer is dominated by rushes (*Juncus* spp.) and sedges (*Carex* spp. and *Scirpus* spp.).

This habitat also occurs in a creek bed that flows through a culvert and under the driveway to the west of the existing structures. This area is dominated by both willow species (*Salix lasiolepis* and *S. sitchensis*) and Himalayan blackberry (*Rubus discolor*). Soils in these areas are Hookton silt loams and Ettersberg loams.

Palustrine Forested Wetlands

The palustrine-forested wetlands differ from scrub-shrub wetlands in that the height of the woody vegetation is greater than 6 meters. This habitat type is located near the main entrance to the property and is contiguous with the scrub-shrub wetland identified above. This area drains the wet meadows to the east of the structures that exist on the site, and it hosts tree species such as red alder (*Alnus rubra*), Sitka willow (*Salix sitchensis*), arroyo willow (*Salix lasiolepis*), Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), cultivated pear (*Pyrus* sp.), and to a lesser extent redwood (*Sequoia sempervirens*) and black oak (*Quercus kelloggii*). The herbaceous layer is dominated by rushes (*Juncus* spp.) and sedges (*Carex* spp. and *Scirpus* sp.). Soils in this area are Hookton silt loam and Ettersberg loam.

Upper Perennial Riverine System — Unconsolidated Shore

This system exists along, and immediately adjacent to the Eel River channel. This type of wetland system is associated with the upper sections of a perennial river system that is not influenced by tides, has a relatively high water velocity, and where there is little to no planktonic life. The vegetation is scarce and consists primarily of pioneering plants that establish only for a brief period due to fluctuations in the water level. The substrate is classified as river wash, which is unconsolidated and varies from a gravel or cobble to sand or silt. The dominant species represented in this habitat are arroyo willow (*Salix lasiolepis*), Sitka willow (*S. sitchensis*), black cottonwood (*Populus balsamifera* ssp. *Trichocarpa*), white sweetclover (*Melilotus alba),* radish (*Raphanus sativus*), black mustard (*Brassica nigra*), red alder (*Alnus rubra*), coyote brush (*Baccharis pilularis*), sedges (*Carex* spp.), and pigweed (*Chenopodium* sp.).

V. Assessment for Sensitive Flora and Fauna

Tables 1 and 2 list sensitive flora and fauna (respectively) that are known to occur, or for which potentially suitable habitat has been identified within the study area. In the discussion of each species, the legal or protection status is listed along with comments regarding the probability for each species to occur within the study area. Special attention was given to those regionally occurring species considered endangered, threatened, or of special concern by the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The state list was taken from the California Department of Fish and Game Natural Diversity Database of Special Status Plants, Animals and Natural Communities of California dated January 2002.

Special plant and animal taxa are generally defined as species, subspecies, or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- Officially listed by California or the Federal Government as Endangered, Threatened, Rare, or Sensitive;
- A candidate for state or federal listing as Endangered, Threatened, Rare or Sensitive;
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO).
- Taxa listed in the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California*;
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation;
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California; and
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, valley shrub-land habitats, vernal pool, etc.).

V. a. Plant Species Addressed

The California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) Inventory of Rare, Threatened and Endangered Plants were queried for the Garberville and surrounding eight quadrangles in March 2002. The database queries generated eighteen sensitive plant species for the nine quadrangles. A list of regionally occurring Special Status plants was compiled for the property based on the results of the data base queries, review of pertinent literature, and a reconnaissance-level assessment of the project area for potentially suitable habitat for the queried species. Some species generated from the database queries have low probability for occurring within the project area due to narrow habitat requirements for a specific soil type, host species, water regime or other environmental factor. Species (i.e. *Gilia capitata* ssp. *pacifica, Castilleja mendocinensis,* and *Castilleja affinis* ssp. *litoralis*) restricted to areas far outside the elevational range for the project area and/or not known from similar habitats (i.e. coastal habitats) as those found within the project area were considered to have a low probability of occurrence at the Southern Humboldt Community Park and are not addressed here. Table 1 summarizes the regulatory status and habitat requirements for the resulting fifteen Special Status species that were addressed in the rare plant assessment.

The California Native Plant Society (CNPS) *Inventory of Rare, Threatened, and Endangered Plants, Sixth Edition* (Tibor 2001) includes five lists for categorizing plant species of concern. The plants on the CNPS list

1A, 1B, and 2 are considered rare, endangered, and threatened plants pursuant to Section 15380 of the California Environmental Quality Act (CEQA). The plants on these lists meet the definitions under the Native Plant Protection Act and/or the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing.

- List 1A – Plants that are presumed extinct in California;
- List 1B –Plants that are rare or endangered in California and elsewhere;
- List 2 – Plants that are rare or endangered in California but are more common elsewhere;
- List 3 – Plants for which more information is needed for final listing to be undertaken;
- List 4 – Plants of limited distribution (a watch list), which are uncommon enough that their status warrants monitoring.

Species listed in the CNPS Inventory are further characterized by a rarity, endangerment and distribution code (R-E-D code), which was developed to increase the refinement of assigning plants to categories. The rarity component addresses the extent of the plant, both in terms of numbers of individuals and the nature and extent of distribution; endangerment refers to the plant's vulnerability to extinction; and distribution focuses on the overall range of the plants. The R-E-D system is summarized below as taken from page 55-60 of the CNPS *Inventory of Rare, Threatened, and Endangered Plants, Sixth Edition* (Tibor 2001):

R (Rarity)

1. Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.
2. Distributed in a limited number of occurrences, occasionally more if each occurrence is small.
3. Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported.

E (Endangerment)

1. Not endangered
2. Endangered in a portion of its range
3. Endangered throughout its range

D (Distribution)

1. More or less widespread outside of California
2. Rare outside of California
3. Endemic to California

In addition, the federal government has categorized some plants as Species of Special Concern. Species of Special Concern is a designation that was created for what used to be "C2" candidate species, and presently functions as a watch list. Species of Special Concern have no federal legal protection.

Table 1 summarizes the regulatory status and habitat requirements for the fourteen Special Status species that were addressed in the rare plant assessment for The Southern Humboldt Community Park. Table 2 summarized the regulatory status and habitat requirements for all regionally occurring Special Status animals.

Table 1. Sensitive Plant Species Addressed at the Southern Humboldt Community Park.

Rare Plant Species	Status	Habitat	Comments
Arabis macdonaldiana "McDonald's rock cress" Family: Brassicaceae	Federal: Endangered State: Endandgered CNPS: 1B R-E-D: 2-3-2	Lower montane coniferous forests, north coast coniferous forests, upper montane coniferous forests/serpentinite, 135-1800 m (Tibor 2001); rocky outcrops, ridges, slopes, and flats on serpentine in lower/upper montane coniferous forests, 135-1455 m (CNDDB 2001); steep slopes, dry ridges, serpentine areas, +/- 1200 m (Hickman 1993).	Blooms: May-July Perennial herb Endangered by mining (Tibor 2001) *Known from the adjacent Noble Butte quadrangle.
Arctostaphylos canescens ssp. *sonomensis* "Sonoma manzanita" Family: Ericaceae	Federal: None State: None CNPS: 1B R-E-D: 2-2-3	Chaparral and lower montane coniferous forests, sometimes serpentinite 180 to 1675 m, sometimes on serpentinite (Tibor 2001); chaparral and lower montane coniferous forests, sometimes found on serpentine, 180-1700 m (CNDDB 2001); ridges, slopes, chaparral, forest; 200-1500 m (Hickman 1993).	Blooms: January-April Evergreen shrub Threatened by development (Tibor 2001) *Known from the adjacent Noble Butte quadrangle, this species has the potential to occur in gravely, forested areas at higher elevations at the site.
Arctostaphylos stanfordiana ssp. *Raichei* "Raiche's manzanita" Family: Ericaceae	Federal: None State: None CNPS: 1B R-E-D: 2-3-3	Rocky (often serpentinite) habitat in chaparral, openings in lower montane coniferous forests, 450-1000 m (Tibor 2001); slopes/ridges in chaparral and lower montane coniferous forests, 450-1000 m (CNDDB 2001); rocky +/- serpentine soils in chaparral, 450-1000 m (Hickman 1993).	Blooms: February-April Evergreen shrub Threatened by urbanization *Known from the adjacent Noble Butte quadrangle

Rare Plant Species	Status	Habitat	Comments
Astragalus agnicidus "Humboldt milk-vetch" Family: Fabaceae	Federal: None State: Endangered CNPS: List 1B R-E-D: 3-3-3	Disturbed areas in broadleaved upland forest, northcoast coniferous forest, 575-750 m (Tibor 2001); disturbed areas in partially timbered forests, broadleaved upland forests, 575-750 m (CNDDB 2001); open soil in woodland +/- 750 m (Hickman 1993).	Blooms: June-September Perennial herb Threatened by grazing and logging *Only known from one area in Humboldt County (Bear Buttes Ranch, Miranda quadrangle).
Cardamine pachystigma var. *dissectifolia* "Dissected-leaf toothwort" Family: Brassicaceae	Federal: None State: None CNPS: List 3 R-E-D: ?-?-3	Chaparral, Lower montane coniferous forest / usually serpentinite, rocky, 255-2,500 m (Tibor 2001); serpentine outcrops < 900 m (Hickman 1993),	Blooms: February – May Perennial herb (rhizomatous) *More information is needed on location, rarity, and endangerment.
Erigeron biolettii "Streamside daisy" Family: Asteraceae	Federal: None State: None CNPS: 3 R-E-D: ?-?-3	Broadleaf upland forest, cismontane woodland, North Coast coniferous forest, rocky/mesic sites, 30 – 1100 m (Tibor 2001); dry slopes, rocks, ledges along rivers, <1100 m (Hickman 1993).	Blooms: June-September Perennial herb Potential habitat includes forested drainages.

Eriogonum kelloggii "Kellogg's buckwheat" Family: Polygonaceae	Federal: Candidate State: Endangered CNPS: 1B R-E-D: 3-2-3	Rocky, serpentinite areas in lower montane coniferous forests, 925-1220 m (Tibor 2001); rocky, serpentine sites in chaparral/lower montane coniferous forests, 925-1220 m (CNDDB 2001); serpentine soil, 1000-1200 m (Hickman 1993).	Blooms: May-August Perennial herb *Known from only one area in Mendocino County (adjacent Noble Butte quadrangle).

Rare Plant Species	Status	Habitat	Comments
Erythronium revolutum "Coast fawn lily" Family: Liliaceae	Federal: None State: None CNPS: 2 R-E-D: 2-2-1	Bogs & fens, broadleaved upland forest, North Coast coniferous forest, and mesic stream banks, 0-1065 m (Tibor 2001); stream banks and wet places in woodlands; 0-1000 m (Hickman 1993).	Blooms: March-June Perennial herb (bulbiferous) Potential habitat onsite includes areas of moderate to high canopy cover along forested drainages.

Gentiana setigera "Mendocino gentian" Family: Gentianaceae	Federal: None State: None CNPS: 1B R-E-D: 3-2-2	Wet areas, meadows, and seeps in lower montane coniferous forests, 490-1065 m (Tibor 2001); meadows, seeps, and bogs, meadows in lower montane coniferous forests, usually or always on serpentine, 490-1065 m (CNDDB 2001); wet mountain meadows +/- 1065 m (Hickman 1993).	Blooms: August-September Perennial herb *Known from the adjacent Noble Butte quadrangle
Monardella villosa ssp. *globosa* "Robust monardella" Family: Lamiaceae	Federal: None State: None CNPS: 1B R-E-D: 3-2-3	Openings in chaparral, cismontane woodland, coastal scrub; 185–600 m (Tibor 2001); oak woodland, chaparral, openings, 200-600 m (Hickman 1993).	Blooms: June-July Perennial herb (rhizomatous)
Montia howellii "Howell's montia" Family: Portulacaceae	Federal: Species of Concern State: Special Status Species CNPS: List 2 R-E-D: 3-2-1	Meadows, and seeps, and vernal pools/vernally mesic areas, North Coast coniferous forests; 0-595 m (Tibor 2001); often on compacted soils, meadows, vernal pools/vernally wet sites, north coast coniferous forests, 0-400 m (CNDDB 2001); wet shaded places near the coast in the redwood forest plant community (Munz & Keck 1965); around vernal pools, often on compacted soil, < 400 m (Hickman 1993).	Blooms: March – May Annual herb Previously thought to be extinct, this species has been recently documented growing in seasonally inundated, often-compacted soils in lightly disturbed areas or depressions that retain water (including cattle hoof prints and wheel ruts). Potentially suitable habitat includes moist meadows and roadsides within the study area. It is known from the Miranda, Briceland and other quadrangles in Humboldt county.
Rare Plant Species	Status	Habitat	Comments
Sedum eastwoodiae "Red Mountain stonecrop" Family: Crassulaceae	Federal: Candidate State: None CNPS: 1B R-E-D: 3-2-3	Lower montane coniferous forest, often on serpentinite, 600-1200 m (Tibor 2001); among rocks in serpentine soil in lower montane coniferous forests, 600-1200 m (CNDDB 2001); serpentine soils among rocks, 600-1200 m (Hickman 1993).	Blooms: May-July Perennial herb *Endemic to one area in Mendocino County (adjacent Noble Butte quadrangle).

Sidalcea malachroides "Maple-leaved checkerbloom" Family: Malvaceae	Federal: None State: None CNPS: 1B R-E-D: 2-2-2	Broadleaved upland forest, coastal prairie/scrub, and north coast coniferous forests, often on disturbed sites, 2-700 m (Tibor 2001); woodlands and clearings near the coast < 700 m (Hickman 1993).	Blooms: April-August Perennial herb Suitable habitat for this species includes coastal prairie, coastal scrub and openings and edges of the intermittent forested areas within the study area. It has been documented along Wildcat Ridge south of Ferndale. The presence of suitable habitat within the study area warrants further field investigation.
Tracyina rostrata "Beaked tracyina" Family: Asteraceae	Federal: None State: None CNPS: 1B R-E-D: 3-2-3	Valley and foothill grasslands, cismontane woodlands, 90-250 m (Tibor 2001); open and grassy meadows within oak woodland and grassland habitats, valley and foothill grasslands, cismontane woodlands, 150-500 m (CNDDB 2001); grassy slopes < 500 m (Hickman 1993).	Blooms: May-June Annual herb *This species is known from the Fort Seward quadrangle and potentially suitable habitat includes the California annual grasslands, and oak woodlands.
Viburnum ellipticum "Oval-leaved viburnum" Family: Caprifoliaceae	Federal: None State: None CNPS: 2 R-E-D: 2-1-1	Chaparral, cismontane woodland, lower montane coniferous forest, 215-1400 m (Tibor 2001); chaparral, yellow pine forests, generally on northfacing slopes, 300-1400 m (Hickman 1993).	Blooms: May-June Deciduous shrub

Table 2. Special Status Fish and Wildlife Species Addressed

Common Name	Scientific Name	Listing
Fish		
Coho Salmon (S. OR/N. CA Coastal ESU)	*Oncorhynchus kisutch*	**FT**
Chinook Salmon (California Coastal ESU)	*Oncorhynchus tshawytscha*	**FT**
Steelhead (Northern CA ESU)	*Oncorhynchus mykiss*	**CSC**
Amphibians		
Southern Torrent Salamander	*Rhyacotriton variegatus*	**CSC**
Tailed Frog	*Ascaphus truei*	**CSC**
Northern Red-legged Frog	*Rana aurora aurora*	**CSC**
Foothill Yellow-legged Frog	*Rana boylii*	**CSC**
Reptiles		
Northwestern Pond Turtle	*Clemmys marmorata marmorata*	**CSC**
Birds		
Great Egret	*Area alba (rookery)*	**CDF**
Great Blue Heron	*Ardea herodias (rookery)*	**CDF**
Cooper's Hawk	*Accipiter cooperi*	**CSC**
Northern Goshawk	*Accipiter gentiles (nesting)*	**CDF**
Sharp-shinned Hawk	*Accipiter striatus*	**CSC**
Golden Eagle	*Aquila chrysaetos*	**CSC, CP, CDF**
Northern Harrier	*Circus cyaneus (nesting)*	**CSC**
White-tailed Kite	*Elanus leucurus (nesting)*	**CP**
Bald Eagle	*Haliaeetus leucocephalus*	**CE, FT, CP, CDF**
Osprey	*Pandion haliaetus*	**CSC, CDF**
Merlin	*Falco columbianus (wintering)*	**CSC**
American Peregrine Falcon	*Falco peregrinus anatum*	**CE, CDF, CP**
Western Snowy Plover	*Charadrius alexendrinus nivosus*	**FT, CSC**
Marbled Murrelet	*Brachyramphus marmorata*	**CE, FT, CDF**
Northern Spotted Owl	*Strix occidentalis caurina*	**FT, CDF**
Vaux's Swift	*Chaetura vauxi (nesting)*	**CSC**
Willow Flycatcher	*Empidonax trailii*	**CE**
California Horned Lark	*Eremophila alpestris actia*	**CSC**
Purple Martin	*Progne subis*	**CSC**
Bank Swallow	*Riparia riparia*	**CT**
Black-capped Chickadee	*Parus atricapillus*	**CSC**
Yellow Warbler	*Dendroica petechia (nesting)*	**CSC**
Yellow-breasted Chat	*Icteria virens (nesting)*	**CSC**
Tricolored Blackbird	*Agelaius tricolor (nesting colony)*	**CSC**
Mammals		
Pallid Bat	*Antrozous pallidus*	**CSC**
Townsend's Western Big-eared Bat	*Plecotus townsendii townsendii*	**CSC**
California Red Tree Vole	*Arborimus pomo*	**CSC**

Legend

Definitions for Table 2.
FE - Listed as Endangered by the Federal Government
FT - Listed as Threatened by the Federal Government
CE - Listed as Endangered by the State of California
CT - Listed as Threatened by the State of California
CP - California Fully Protected Species
CSC - California Species of Special Concern
CDF – California Division of Forestry Sensitive
ESU - Evolutionarily Significant Unit

V. b. Wildlife Species Accounts

The species accounts below include an assessment of the status of the considered species on the proposed project site.

Coho Salmon - Southern Oregon/northern California ESU **(Oncorhynchus kisutch)**
Coho salmon are found in the North Pacific Basin from California to Alaska and from Russia to Japan. While populations seem relatively healthy in Alaska and parts of British Columbia, selected populations in the continental U.S. rivers have declined dramatically and a few of the Evolutionarily Significant Units (ESUs) have been designated Threatened or Endangered. The Southern Oregon/Coastal California ESU was designated Threatened by the Fish and Wildlife Service on June 5, 1997.

Coho Salmon are known to occur in the Eel River adjacent to the site. "Fall run" Coho enter the estuary as early as August with the peak occurring in November. Specific management strategies for this species would depend on the nature and extent of proposed projects, but would certainly involve maintaining water quality and healthy wetlands.

Steelhead - Northern California ESU **(Oncorhynchus mykiss)**
Steelhead are found in the North Pacific Ocean from the Kamchatka Peninsula in Asia to the northern Baja Peninsula. Many of the populations in California have been designated as Endangered or Threatened. The Northern California Province ESU was listed as Threatened by the federal government in August 2000.

Northern California Steelhead are known to occur in the Eel River adjacent to the site. The winter steelhead start moving into the river in November running through March, with peak activity during January. Specific management strategies for this species would depend on the nature and extent of proposed projects, but would certainly involve maintaining water quality and healthy wetlands

Chinook Salmon – California Coastal ESU **(Oncorhynchus tshawytscha)**
Chinook (or King) salmon were historically distributed along the coast of North America from the Ventura River in southern California to Point Hope, Alaska, and the Mackenzie River area in Canada. In the western Pacific they were found in Northeast Asia from Hokkaido, Japan, to the Anadyr River, Russia. While populations seem relatively healthy in Alaska and parts of British Columbia, selected populations in the continental U.S. rivers have declined dramatically and a few of the Evolutionarily Significant Units (ESU) have been designated Threatened or Endangered. The California Coastal ESU was listed as Threatened in November 1999.

Chinook are known to occur in the Eel River adjacent to the site. Chinook start coming into the river in August. They tend to hold in the waters below Fernbridge until rains allow them upstream. The Chinook run from August through December, with the peak in late October. Specific management strategies for this species would depend on the nature and extent of proposed projects, but would certainly involve maintaining water quality and healthy wetlands.

Southern Torrent Salamander (*Rhyacotriton variegatus)*
The Southern Torrent Salamander (recently distinguished from the Olympic Salamander (*Rhyacotriton olympicus)* is found primarily along the coast from the Olympic Peninsula to Sonoma County, California. It is an inhabitant of cold, clear streams, springs and seeps in Douglas-fir and redwood forests, rarely straying away from the splash zone. The Southern Torrent Salamander is a Species of Special Concern in California.

Suitable habitat for the Torrent Salamander does not occur at the assessed site.

Tailed Frog (*Ascaphus truei)*
Found in most of northwestern California, the Tailed Frog is probably fairly common in suitable habitat. It is found in and near clear, cold streams in conifer or hardwood/conifer forests. The Tailed Frog is more often found in wet stands than in moderately wet stands and is absent from dry stands. Their distribution may be limited by the presence of cold, year-round flowing streams. The larvae, which are restricted to an aquatic existence, take 2-3 years to transform into adults. A number of studies have indicated that Tailed Frogs disappear from logged areas, probably as a result of increased water temperatures and siltation. This effect may be more prominent inland than on the coast. The Tailed Frog is a Species of Special Concern in California.

Suitable habitat for this species does not occur at the assessed site.

Northern Red-legged Frog (*Rana aurora aurora)*
The Northern Red-legged Frog is typically found in ponded areas along the Coast and Cascade Ranges from northern California to southern British Columbia. Here on the north coast of California it is widespread in ponds and along rivers where there is quiet water and emergent aquatic vegetation providing cover. When not breeding this species wanders widely in damp woods, including riparian and coniferous forests. Breeding takes place in late winter and early spring. Red-legged frogs have a weak voice and are consequently inconspicuous. Egg masses consisting of up to 2-3,000 eggs are deposited in water up to 6" deep. Most young are completely transformed into adults by mid-summer or earlier. The diet of Red-legged Frogs consists primarily of insects captured near water. The Northern Red-legged Frog is considered a Species of Special Concern in California. The main reasons for concern in California are declining habitat and alleged predation by the introduced Bullfrog (*Rana catesbiana).*

It is likely that the Red-legged Frog occurs in the wetland areas at the assessed site. Management recommendations center on the maintenance of healthy wetland habitats and the control of introduced bullfrogs. Specific management strategies for this species would depend on the nature and extent of proposed projects.

Foothill Yellow-legged Frog (*Rana boylii)*
The Foothill Yellow-legged Frog is found in coastal and foothill habitats throughout northern California. Its preferred habitat is along streams and rivers, especially where riffles are present. The Yellow-legged Frog escapes into the water and hides among vegetation or in the bottom when disturbed. It is less likely to use the riparian forests and other adjacent habitats than other frogs. Breeding takes place later in the spring, when high water flows have subsided. Eggs are laid in a mass of up to 1,000 eggs and are attached to rocks in shallow, flowing water. Larvae transform into frogs during the summer.

The Foothill Yellow-legged Frog is considered a Species of Special Concern in California. The main reasons for concern in California are declining habitat and predation by the introduced Bullfrog. Along the north coast, Yellow-legged Frogs are found in most rivers and large streams.

Yellow-legged Frogs almost certainly occur along the Eel River at the project site. Project activities should avoid disturbing the river habitat, especially during the frog's summer breeding season. Proposed gravel mining activities should occur sufficiently far from the water's edge to prevent introduction of sediment into the river.

Northwestern Pond Turtle (*Clemmys marmorata marmorata)*
The Western Pond Turtle is the only native aquatic turtle in California. It is widely distributed west of the Cascades and Sierra Nevada. Pond Turtles are found near and in water, especially slow moving or quiet waters, primarily ponds, small lakes, reservoirs, and quiet streams and rivers. They can be found basking on rocks, logs or on the bank along aquatic vegetation. Basking perches seem to be an important component of their habitat needs. Females lay a clutch of 5-11 eggs between April and August in a small hole in a dirt bank, sometimes at a distance from their home water. The diet of Pond Turtles consists of aquatic plants, fish, invertebrates and carrion.

The Northwestern Pond Turtle is considered a Species of Special Concern in California and is a Category 2 Candidate for Federal Listing. Along the north coast of California, the Pond Turtle is sparsely distributed, mainly at ponds in the interior. This species, like the Yellow-legged Frog, seems to prefer sunny areas and so may avoid the coastal fog belt.

Western Pond Turtles probably occur along the Eel River at the project site. Project activities should avoid disturbing the river habitat, including sandy or silt banks where the turtle might nest, especially during the summer breeding season.

Great Egret (*Ardea alba*)
The Great Egret is a large, white heron with a yellow bill and long dark legs. In breeding plumage, ornate white plumes extend from their chest and rump. This species returns to communal roosting sites at night, and like many other herons will sometimes nest in mixed colonies. They roost and nest in undisturbed stands of trees. Once sought for their plumes, which were used to decorate women's hats, they were nearly extirpated by market hunters around the 1900's. Extending through most of North America, they have made a great comeback in recent years under protection. In northwestern California records suggest an invasion of Great Egrets to the area beginning about 1930. In recent times they are locally common residents and breeders. The Great Egret is a California Department of Forestry Sensitive Species.

This species is uncommonly found along the Eel River near the Project site and in adjacent wetland habitats. No nesting or roosting sites are known at the project site. If a nesting or roosting site were established at the project site, disturbances at such sites should be avoided.

Great Blue Heron (*Ardea herodias*)
As the name implies, this lanky wetland bird has an overall blue-gray plumage with pale under parts. Its long dark legs, flexible neck, and spear-like yellow bill, give an overall grand impression. Great Blue Herons are colonial nesters and sometimes nest in mixed colonies near wetland habitat. Nesting and roosting occur in undisturbed stands of trees or shrubs. They occur over much of North America and, despite degradation of their preferred wetland habitats, seem to be improving in overall numbers. The most widely distributed heron in northwestern California; this species is a locally common resident and breeder. The Great Blue Heron is a California Department of Forestry Sensitive Species.

This species is uncommonly found along the Eel River near the project site and in adjacent wetland habitats. No nesting or roosting sites are known at the project site. If a nesting or roosting site were established at the project site, disturbances at such sites should be avoided.

Cooper's Hawk *(Accipiter cooperi)*
The Cooper's Hawk is found throughout North America. It is found in a wide variety of forested and scrub habitats where it preys primarily on songbirds. Populations in North America have declined due to pesticide residues, habitat destruction, and the general decline of its major prey, songbirds. Locally, the Cooper's Hawk is an uncommon winter resident and rare summer breeder. The Cooper's Hawk is a Species of Special Concern in California.

A recent study (Nelson 2002) on private land not far from the project site showed a tendency for Cooper's Hawks to select nest sites in mixed mid-late successional conifer forests, usually on north-facing slopes and

near water. More than half of the nests were in grand fir (Abies grandis), even though that tree species was uncommon in the stands. Specific management strategies for this species would depend on the nature and extent of proposed projects and on the location of nests and would consist of reducing or eliminating disturbance during the nesting season.

Northern Goshawk (*Accipiter gentilis*)

The Northern Goshawk is a rare resident and breeder in middle and higher elevation mature coniferous forests in northern California. It hunts in wooded areas, using snags and dead-top trees for observation and plucking perches. The status of Northern Goshawks in the coastal mountains of southern Humboldt County is poorly known, but records at lower elevations along the Eel River are exceedingly scarce. The few records of goshawks nesting in the coast range have been associated with meadow edges. The species is not likely to be found breeding at the project site.

Specific management strategies for this species would depend on the nature and extent of proposed projects and on the location of nests and would consist of reducing or eliminating disturbance during the nesting season.

Sharp-shinned Hawk *(Accipiter striatus)*

The Sharp-shinned Hawk is found throughout North America. It is found in a wide variety of forested and scrub habitats where it preys primarily on small birds. Populations in North America have declined due to pesticide residues, habitat destruction, and the general decline of the hawks' major prey, songbirds. The Sharp-shinned Hawk is a Species of Special Concern in California.

Locally, the Sharp-shinned Hawk is an uncommon winter resident and rare summer breeder.

A recent local study (Nelson 2002) suggests that Sharp-shinned hawks select nest sites in young-mid seral forests with a prominent hardwood component, partial to moderate canopy closure, close to water. Specific management strategies for this species would depend on the nature and extent of proposed projects and on the location of nests and would consist of reducing or eliminating disturbance during the nesting season.

Golden Eagle (*Aquila chrysaetos*)

The Golden Eagle is a widespread bird of North America that is uncommon in the vicinity of the project. None were seen during the field investigation, but it is likely that the occasional individual would fly over the project site and rarely feed in the open portions. Typical nesting sites were not evident during the field visit, although it is possible that a nest could be established in the forested portion of the site.

Specific management strategies for this species would depend on the nature and extent of proposed projects and on the location of nests and would consist of reducing or eliminating disturbance during the nesting season.

White-tailed Kite (*Elanus leucurus*)

The White-tailed Kite is a white, falcon shaped raptor with black shoulder patches, for which it was formerly named. Kites forage mostly on rodents that they catch by hovering over a field and dropping down on an unsuspecting animal. They nest and roost in trees or small bushes in semi-open areas mostly on the coastal plain. Kite populations exhibit swings in abundance. Now numerous, persecution in the twentieth century brought them to the brink of extirpation in California. They are now uncommon to common throughout northern California, especially where open fields provide habitat for voles, their main prey. Nesting takes place in trees usually adjacent to open fields. The White-tailed Kite is a California Protected Species.

Specific management strategies for this species would depend on the nature and extent of proposed projects and on the location of nests and would consist of reducing or eliminating disturbance during the nesting season.

Northern Harrier *(Circus cyanus)*

The Northern Harrier is easily identified by its low, floppy, close-to-the-ground flight. The Northern Harrier cruises low across fields, meadows and marshes often hunting by sound. They typically nest on the ground in shrubs, cattails or tall vegetation. The Northern Harrier has declined almost everywhere in North America. Losses have been attributed to urbanization and pesticide exposure. In northwestern California this species is a common migrant and winter visitor, but uncommon as a breeder and summer resident. The only certain breeding records are around the immediate vicinity of Humboldt Bay. The Northern Harrier is a Species of Special Concern in California.

Northern Harriers might occasionally forage over the open habitats at the assessed project site, especially during winter, but are not expected to nest at the site. Specific management strategies for this species would depend on the nature and extent of proposed projects.

Bald Eagle *(Haliaeetus leucocephalus)*
The Bald Eagle is found throughout North America and occurs widely in California. Concentrations of Bald Eagles are found where their preferred food is concentrated, i.e. in major waterfowl wintering areas and along major salmon streams and rivers with adjacent snags for perching. Nesting takes place in large stick nests, usually high in a tree, living or dead. Eggs can be laid as early as January, incubation is 30-45 days, and the young take their first flight approximately 2 and 1/2 months after hatching. Their food consists largely of fish, either caught themselves or stolen from Ospreys. Bald Eagles also feed upon a wide variety of small mammals, aquatic birds, and even carrion.

The Bald Eagle has been proposed for removal from the federal Endangered Species list. It is a California Protected Species.

The closest known nest sites of the Bald Eagle are along the Mad River near Blue Lake, near the coastal lagoons near Orick, and along the South Fork of the Trinity River. An increase in the local population is due largely to increased winter sightings (Harris 1996). Bald Eagles would be expected to occur around the Eel River in winter. Given their apparent increase in numbers, this species could potentially nest near the project site in the future. Specific management strategies would depend upon the location and the nature of a nest site.

Osprey *(Pandion haliaetus)*
The Osprey is a well-known fish-eating bird found throughout the world. Locally it is a common nesting bird along all the major rivers, bays and lakes. Once considered in danger of extinction in North America, it has made an impressive comeback since the decline in use of DDT. The Osprey is a Species of Special Concern in California.

No Osprey nests were found during the assessment visit, but Ospreys could establish a nest in the forested portion of the project site. Management recommendations depend on the location of nests and consist of reducing or eliminating disturbance during the nesting season.

Merlin *(Falco columbianus)*
The Merlin is found throughout North America. It is found in a wide variety of open habitats where it preys primarily on shorebirds and songbirds. Populations in North America have declined due to pesticide residues and habitat destruction. The Merlin is a Species of Special Concern in California.

Merlins are occasionally seen in winter in Humboldt County and may use the project site for winter foraging. Management recommendations consist of protecting riparian habitats and songbird populations in general. Specific management strategies for this species would depend on the nature and extent of proposed projects.

American Peregrine Falcon *(Falco peregrinus anatum)*
The Peregrine Falcon is found throughout North America. It is often found in aquatic habitats where it preys primarily on water birds, both shorebirds and ducks. Populations in North America had declined due to pesticide residues, nest disturbances (including the illegal removing of chicks for falconry) and habitat

destruction. Recovery of the species led to its removal from the federal endangered species list in August, 1999 however its status remains in a 5 year review period and it remains on the California endangered species list. Locally, the Peregrine Falcon is an uncommon winter resident and rare summer breeder.

Peregrines were recently discovered nesting in very large snag-top redwoods at two sites in Humboldt County. They are regularly seen in winter around Humboldt Bay and rarely in other parts of Humboldt County, but probably do not use the project site except for occasional foraging or roosting. No typical nesting sites (exposed cliffs inaccessible to ground predators) were noted during field inspection.

Western Snowy Plover *(Charadrius alexendrinus nivosus)*
The Western Snow Plover is a small shorebird that nests along sandy marine and estuarine, and alkali lake shores, and of North America. In California, their nesting and roosting habitats are distributed along the length of the coast and at scattered inland localities – including selected gravel bars of the lower Eel River. Along the coast, Snowy Plovers feed primarily in the dry sand of upper beaches for insects and amphipods. Concern for the species centers around the alteration of beach habitat due to the introduction of European Beach Grass and increased disturbance by recreational enthusiasts. Along the Eel River, large gravel bars provide a unique nesting habitat. The long-term effects of gravel mining on nesting habitat has not been adequately assessed. The Western Snow Plover is listed as Threatened by the United States and is a California Species of Special Concern.

Snowy Plovers occur on gravel bars in the lower Eel River. However, the gravel bar habitat along the Eel River at the project site is most likely too vegetated and small in extent to provide suitable habitat for Snowy Plover nests.

Marbled Murrelet *(Brachyramphus marmoratus)*
The Marbled Murrelet is an uncommon and reportedly declining marine bird that depends on old growth forests for nesting sites. In North America it is distributed between Alaska and central California. The Marbled Murrelet is a California Endangered and Federal Threatened species.

The Marbled Murrelet is a small seabird somewhat larger than a robin. It occurs from the Aleutian archipelago south to central California. It is unique among seabirds in nesting exclusively in trees (except where there are no trees). Nest sites have been detected up to 52 miles inland in Washington. Marbled Murrelets are associated with late successional /old-growth forests throughout most of their range. Almost all nests discovered in North America were in forests with old-growth characteristics. Most nests are placed under overhanging branches. Nesting habitat must be available within flight distance of the ocean.

There is no suitable nesting habitat at the assessed site.

Northern Spotted Owl *(Strix occidentalis caurina)*
The Northern Spotted Owl is a medium-sized forest owl that occurs along the Pacific Coast from southwestern British Columbia to central California. It is strongly associated with late successional/old-growth forests. In northern California the spotted owl also occurs in some types of relatively young forests, especially where those forests are structurally similar to late successional /old-growth forests. The Northern Spotted Owl is a federally Threatened species and a California Species of Special Concern.

The forested habitats at the project site are marginally suitable for Spotted Owl roosting and foraging, and possibly are suitable for nesting. Management recommendations include informal consultation with the Fish and Wildlife Service or protocol surveys for determining presence and breeding status prior to activities that would modify the forest habita,(e.g. timber harvest, road clearing in the forest or other similar actions). If Spotted Owls are found to be present, appropriate seasonal and habitat modification restrictions should be implemented.

Vaux's Swift *(Chaetura vauxi)*
The Vaux's Swift is a small, insect-eating, summer resident bird of the coastal forests of Northwestern California. It feeds high in the air, often above the canopy of the forests and over meadows, water, and many other habitats. It roosts and nests in hollow trees and snags, especially those that have been burned. The Vaux's Swift is a Species of Special Concern in California.

Nesting habitat is potential in larger trees in the forested portions of the project site. Management considerations of this species would be centered on maintenance of healthy forest habitats and maintaining or enhancing wetland areas preferred for feeding.

Willow Flycatcher (*Empidonax trailii)*
The Willow Flycatcher was listed as an endangered species by the State of California in 1990. Due to its rarity in northwestern California and the lack of breeding records, little attention has been paid to characteristics of nesting habitat in our region. The first record of possible nesting Willow Flycatchers historically was of egg sets taken along the Eel River near Miranda and Burlington in the southern part of Humboldt County. These egg sets were apparently taken in "typical" Willow Flycatcher habitat, described by Grinnel and Miller (1944) as:

> "In breeding season, strikingly restricted to thickets of willows, whether along streams in broad valleys, in canyon bottoms, around mountain-side seepages, or at the margins of ponds or lakes. The interiors of these thickets, through the annual period when full-foliaged, afford this species of flycatcher all the requirements of its existence; nest sites, perching and roosting places, abundant insect food, and short-radius air-ways are all there within a few cubic yards."

The only other confirmed nesting of this species in Humboldt County is a record from "atypical habitat" in northern Humboldt in the summer of 1998 (Fix pers. comm.). This record, along with observations of nesting Willow Flycatchers in Oregon and other anecdotal sightings during the breeding season, suggests that the species may use young second growth coniferous habitats and prompted an interest in the possible occurrence of the species elsewhere on the north coast.

Although Willow Flycatchers are not expected to use the project area for nesting it should not be disregarded. It is likely that this species could occur in the alder/willow habitats along the Eel River during migration. Management recommendations include maintaining healthy riparian habitat along the Eel River.

California Horned Lark (*Eremophila alpestris actia)*
The Horned Lark is a small ground-loving gregarious bird of open country. Horned Larks nest on the ground in shallow depressions lined with grass, plant fibers and roots. The California Department of Fish and Game designated this species as a Special Concern species which are in decline or vulnerable to extinction. The breeding range of the California Horned Lark is along the California coast north to Humboldt Bay. Locally, the only known breeding sites are along Bear River Ridge, in short-grass meadows, south of Humboldt Bay.

This species is not expected at the assessed site due to lack of suitable habitat.

Purple Martin *(Progne subis)*
The Purple Martin is a large swallow, uncommon to rare and locally distributed in northern California. It feeds and nests in a wide variety of habitats, including Douglas-fir forests. It nests in cavities (usually old woodpecker holes) in tall trees, often near water. The Purple Martin is a Species of Special Concern in California, largely due to loss of riparian habitat, removal of snags, and competition for nest cavities from Eurasian Starlings and House Sparrows.

No Purple Martins were detected during the assessment visit, but this species would be expected to use the assessed site for feeding and could potentially nest in nearby forests with snags and large trees. Management recommendations include avoiding disturbance of dead and dying trees (which form the snags for nesting sites) and preserving wetlands (which provide feeding habitat).

Bank Swallow *(Riparia riparia)*
The Bank Swallow is a scarce and local summer visitor to California. Although it is more widespread during migration, nesting localities are restricted to a few places, especially along riparian habitats. Bank Swallows excavate their own nesting holes in a dirt or sand bank. Nests are typically, but not always, in a colony and near water. Nesting requirements include vertical banks with soft-textured soil suitable for burrow excavation. The Bank Swallow is listed as Threatened in California.

Only two colonies of Bank Swallows are known in northwestern California – both in Del Norte County. Bank Swallows could rarely forage over the open fields near the project site, especially during migration. No suitable nesting sites were noted at the assessed site.

Black-capped Chickadee *(Parus atricapillus)*
The Black-capped Chickadee is possibly the most abundant and best-known chickadee in North America. In California it is found almost exclusively in willow/cottonwood habitats along the immediate north coast south to the vicinity of Ferndale, as well as a locally inland along the larger streams and rivers. The Black-capped Chickadee is a Species of Special Concern in California due to its restricted range in the state. The Black-capped Chickadee is a common species in the willow habitats of extreme northwestern California but is not known to occur south of Ferndale.

This species is not expected to occur at the project site.

California Yellow Warbler *(Dendroica petechia)*
Found throughout North America, the Yellow Warbler has been declining as a breeding bird in California due to habitat destruction and brood parasitization by the Brown-headed Cowbird. Its breeding habitat is in riparian deciduous forests of almost any size. The Yellow Warbler is a Species of Special Concern in California. Yellow Warblers are uncommon breeding birds of the coastal riparian habitats.

Occasional breeding birds could be expected in the alder/willow habitats at the project site. Management recommendations consist of maintaining healthy riparian woodlands and reducing the impact from cowbirds. Specific management strategies for this species would depend on the nature and extent of proposed projects.

Yellow-breasted Chat *(Icteria virens)*
Found throughout North America, the Yellow-breasted Chat has been declining as a breeding bird in California due to habitat destruction. Its breeding habitat is in riparian deciduous forests of moderate or larger size. The Yellow-breasted Chat is a Species of Special Concern in California.

Occasional breeding birds could be expected in dense blackberry/willow habitats at the assessment site. Management recommendations consist of maintaining healthy riparian woodlands and reducing the impact from cowbirds. Specific management strategies for this species would depend on the nature and extent of proposed projects.

Tricolored Blackbird *(Ageliaus tricolor)*
The Tricolored Blackbird is very closely related to the well-known Red-winged Blackbird but has a much more restricted range. With the exception of small scattered populations in southern Oregon, Washington and Baja California, its distribution is limited to California. Their decline is largely attributed to the draining of productive marsh lands for agriculture. A disjunct breeding population of less than 100 adults was discovered near Fortuna in blackberry brambles in 1992, but has not been documented since 1999. Occasionally, individuals are detected in mixed blackbird flocks.

Tricolored Blackbirds are not likely to use the project site for breeding due to the lack of developed freshwater marshes with open water, their typical breeding habitat.

Pallid Bat (Antozous pallidus)

Throughout California the pallid bat is usually found in low to middle elevation habitats below 6000 ft., however, the species has been found up to 10,000 ft. in the Sierra Nevada. Populations have declined in California within desert areas, in areas of urban expansion, and where oak woodlands have been lost. This species, like many other bats, is extremely sensitive to disturbance at roosting and nesting sites.

A variety of habitats are used, including grasslands, shrublands, woodlands, and coniferous forests. Pallid bats are most common in open, dry habitats that contain rocky areas for roosting. They are a yearlong resident in most of their range and hibernate in winter near their summer roost. Occasional forays may be made in winter for food and water. Pallid bats are unusual in that most of their food consists of large insects captured on the ground

Day roosts may vary but are commonly found in rock crevices and tree hollows; and have been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks. Cavities in broken branches of black oak are very important and there is a strong association with black oak for roosting. The site must protect bats from high temperatures, as this species is intolerant of roosts in excess of 104 degrees Fahrenheit. Night roosts are usually more open sites and may include open buildings, porches, mines, caves, and under bridges. The pallid bat is a California Species of Special Concern.

There is suitable habitat for the pallid bat within the project area. Specific management strategies for this species would depend on the nature and extent of proposed projects.

Townsend's Big-eared Bat *(Plecotus townsendii townsendii)*
The Townsend's Big-eared Bat is widespread in California. Small moths are its principal food. The flight is slow and maneuverable; this species is capable of hovering. It feeds in flight and by gleaning from foliage. Townsend's Big-eared Bats are most abundant in mesic habitats. They roost in caves, mines, tunnels, and buildings, feeding along habitat edges. They are extremely sensitive to disturbance of roosting sites. All known sites in limestone caves in California have been abandoned. The Townsend's Big-eared Bat is a California Species of Special Concern.

This species could occur at the project site. Management recommendations include maintaining the integrity of the existing forest and wetland areas. Buildings suitable for roosting might occur on the assessed site.

California Red Tree Vole *(Arborimus pomo)*
The Red Tree Vole is a little-known rodent of the coastal fog belt in California from Sonoma County north. It occurs in old growth and other Douglas-fir and redwood forests. Its diet is almost exclusively needles of Douglas-fir and grand fir. Nests are built of Douglas-fir needles in trees, sometimes at considerable heights. The Red Tree Vole is a Species of Special Concern in California.

This species could occur at the project site in the forested habitats. Appropriate surveys should be conducted prior to habitat altering activities in the forested portions of the project site.

VI. Results & Management Recommendations

The lands assessed in this document contain a wealth of diverse flora and fauna. Portions of the properties have been degraded as a result of previous management activities but would naturally rebound if given adequate time and protection. Responsible management of these lands would contribute to the conservation of the species that occur there. A variety of special status species may occur on these lands; hence an opportunity to manage for the preservation of associated habitats is strongly warranted. We recommend low impact use of all habitats, with special consideration and added sensitivity to wetlands and riparian areas. Cattle especially, should be controlled near all streams and other wet areas to prevent the degradation of these watercourses. The forested areas, if allowed to continue maturing would become even more suitable for threatened and endangered species such as the marbled murrelet and spotted owl. Under proper management, the open grasslands would continue to offer prime habitat for many species, especially predators. As

development projects are identified and proposed, seasonally appropriate surveys will need to be conducted for the special status plant and wildlife species potentially affected habitats.

The following section summarizes the sensitive flora and fauna that have the potential to occur in each of the plant communities and habitat types identified based on the field visits to the Southern Humboldt Community Park and database queries described above. The rare lichen, *Usnea longissima* was encountered on the property (refer to Appendix 4). These two occurrences are characterized, and this species' special status is addressed below.

There are no documented occurrence records for any additional special species within the study area. However, suitable habitat for some sensitive species is present at the site and some of the listed species are known from adjacent properties. A complete list of plant and wildlife species encountered is included in Appendices 2 and 3 (respectively). Since the appearance of many species is dependent on the season, this list should not be considered complete. It is, however, very useful for characterizing the site.

California annual grassland series

The California annual grassland habitat found on the site is potentially suitable for beaked tracyina, *Tracyina rostrata* (CNPS list 1B). The maple-leaved checkerbloom, *Sidalcea malachroides* (CNPS List 1B), and Howell's montia, *Montia howellii* (federal species of concern, state special status species, CNPS List 2) could occur in the transitional areas between California annual grassland and Palustrine emergent wetlands (wet meadows). Streamside daisy, *Erigeron bioletti* (CNPS List 3) could also be found in this habitat. Great Egret (CDF Sensitive) and Great Blue Heron (CDF Sensitive) might occasionally use this habitat for foraging, however, only nesting and roosting habitats are listed as "sensitive" by the California Department of Forestry CDF.

Redwood series

The redwood series found on the property has suitable habitat for the coast fawn lily, *Erythronium revolutum* (CNPS List 2), primarily along forested stream banks and drainages. The forested edges and disturbed areas within this habitat are potentially suitable for Humboldt milk-vetch, *Astragalus agnicidus*, (state endangered, CNPS List 1B) and maple-leaved checkerbloom, *Sidalcea malachroides,* (CNPS List 1B). Vernally wet or moist depressions in this habitat could be suitable for Howell's montia, *Montia howellii,* (federal species of concern, state special status species, CNPS List 2). The dissected-leaved toothwort, *Cardamine pachystigma* var. *dissectifolia* (CNPS List 3) could also be found in this plant community.

This habitat could potentially support nesting Cooper's Hawk, Northern Goshawk, Sharp-shinned Hawk, Bald Eagle, White-tailed Kite, Osprey, Northern Spotted Owl, Vaux's Swift, Purple Martin, Pallid Bat, Townsend's Western Big-eared Bat, and California Red Tree Vole.

California bay series

The California bay series found on the property provides suitable habitat for the coast fawn lily, *Erythronium revolutum*, (CNPS List 2) primarily along forested stream banks and drainages. Vernally wet or moist depressions in this habitat could also be suitable for Howell's montia, *Montia howellii* (federal species of concern, state special status species, CNPS List 2). Sensitive wildlife species that could utilize this habitat include Cooper's Hawk, Sharp-shinned Hawk, and Northern Spotted Owl.

Black oak series

The black oak habitat found on the site is potentially suitable for the beaked tracyina, *Tracyina rostrata* (CNPS list 1B), oval-leaved viburnum, *Viburnum ellipticum* (CNPS List 2), and robust monardella, *Monardella villosa* ssp. *globosa* (CNPS List 1B), especially in areas where there is a greater abundance of oak species. The latter species prefers openings and areas with less canopy cover. The coast fawn lily, *Erythronium revolutum* (CNPS List 2) could potentially be found in forested areas near drainages and streams

that drain this habitat type. The streamside daisy, *Erigeron biolettii* (CNPS List 3) appears to have a more broad habitat tolerance and could be found throughout this habitat type. The maple-leaved checkerbloom, *Sidalcea malachroides* (CNPS List 1B) might inhabit disturbed areas and openings in the black oak series. Vernally wet or moist depressions in this habitat could be suitable for Howell's montia, *Montia howellii* (federal species of concern, state special status species, CNPS List 2). The dissected-leaved toothwort, *Cardamine pachystigma* var. *dissectifolia* (CNPS List 3) could also be found in this plant community. Sensitive wildlife species that could utilize this habitat include Sharp-shinned Hawk, Cooper's Hawk, and Northern Spotted Owl.

Two occurrences of the rare lichen *Usnea longissima* were encountered on the property (refer to Appendix 4). Each occurrence was confined to a few isolated trees. One host tree was a young Douglas-fir (*Pseudotsuga menziesii*) and the other was an Oregon white oak (*Quercus garryana*). The former tree supported only a few individual strands of the lichen and appears to be a recently colonized tree. The Oregon white oak hosts a substantial sub-population and represents an important source for the dispersal of the species throughout the forested landscape. In light of the dispersal mechanisms (refer to Appendix 1) for this species it is possible that other source populations exist further up slope.

The California Lichenologist Society has *Usnea longissima* on the Lichen Red List and recommends that the species be afforded the status of a California Native Plant Society list 1B species with a R-E-D code of 2-2-2. In the California Department of Fish and Game's *Special Vascular Plants, Bryophytes, and Lichens List* (2002), *Usnea longissima* is awarded a Global Rank of "G3". A Global Rank is a reflection of the overall condition of a species throughout its global range. A Global Rank of G3 is defined as having 21-100 occurrences; or 3,000-10,000 individuals; or occupying 10,000-50,000 acres. *U. longissima* has also been awarded a State Rank of "S2.1". The State Rank is similar to the Global Rank, but includes a threat designation. A State Rank of S2.1 is defined as having 6-20 occurrences; or 1,000-3,000 individuals; or occupying 2,000-10,000 acres, and is considered "Very Threatened". This species is considered to be threatened throughout a significant portion of its range and requires consideration under the California Environmental Quality Act (CEQA) sections 15206 & 15380.

Disturbances to the two occurrences of the rare lichen *Usnea longissima* should be avoided in any future land management decisions. Forest edges effectively create a dispersal barrier to species such as *Usnea longissima* that extend their populations throughout the forest landscape via heavy propagules such as thallus fragments. Where feasible, connections between these occurrences with contiguous "dispersal corridors" of intact forest should be maintained in order to enable these populations to disperse throughout the forested landscape. Additional detailed information regarding the biology and distribution of this species can be found in Appendix 1.

Douglas-fir series

The more open areas of the Douglas-fir habitat found on the site are potentially suitable for the beaked tracyina, *Tracyina rostrata*, (CNPS list 1B), and robust monardella, *Monardella villosa* ssp. *globosa* (CNPS List 1B), especially in areas where there is a greater abundance of oak species. The oval-leaved viburnum, *Viburnum ellipticum* (CNPS List 2) has the potential to inhabit this habitat type, especially along north-facing slopes in areas that are more densely forested. The coast fawn lily, *Erythronium revolutum* (CNPS List 2) has the potential to occur in forested areas near drainages and streams that drain this habitat type. The streamside daisy, *Erigeron biolettii* (CNPS List 3) appears to have a more broad habitat tolerance and could be found throughout this habitat type. The more disturbed areas (e.g. areas with canopy gaps, etc.) might possibly support the Humboldt milk-vetch, *Astragalus agnicidus* (state endangered, CNPS List 1B) and the maple-leaved checkerbloom, *Sidalcea malachroides* (CNPS List 1B). Vernally wet or moist depressions in this habitat are potentially suitable for Howell's montia, *Montia howellii* (federal species of concern, state special status species, CNPS List 2). The dissected-leaved toothwort, *Cardamine pachystigma* var. *dissectifolia* (CNPS List 3) could also be found in this plant community.

This habitat has the most potential for hosting nests of Cooper's Hawk, Sharp-shinned Hawk, Northern Spotted Owl, Osprey, Golden Eagle, Bald Eagle, Vaux's Swift, Purple Martin, Pallid Bat, Townsend's Western Big-eared Bat, and California Red Tree Vole.

Douglas-fir—tanoak series

Open areas of the Douglas-fir—tanoak habitat found on the site are potentially suitable for the beaked tracyina, *Tracyina rostrata* (CNPS list 1B), and robust monardella, *Monardella villosa* ssp. *globosa* (CNPS List 1B), especially in areas where there is a greater abundance of oak species. The oval-leaved viburnum, *Viburnum ellipticum* (CNPS List 2) has the potential to inhabit this habitat type, especially on north-facing slopes in areas that are more densely forested. The coast fawn lily, *Erythronium revolutum* (CNPS List 2) might occur near drainages and streams that drain this habitat type. The streamside daisy, *Erigeron biolettii* (CNPS List 3) appears to have a more broad habitat tolerance and could be found throughout this habitat type. Though no serpentine soils were encountered during the field visits, exposed rocky substrate found along the top of the slope above the Eel River where gravel extraction occurs, and the exposed ridge in the extreme southeast of the property could be considered potential habitat for Kellogg's buckwheat, *Eriogonum kelloggii* (federal candidate species, state endangered, CNPS List 1B), McDonald's rock cress, *Arabis macdonaldiana* (federal endangered, state endangered, CNPS List 1B), Red Mountain stonecrop, *Sedum eastwoodiae* (federal candidate species, CNPS List 1B), Sonoma manzanita, *Arctostaphylos canescens* ssp. *sonomensis* (CNPS 1B), dissected-leaved toothwort, *Cardamine pachystigma* var. *dissecifolia* (CNPS List 3), and Raiche's manzanita, *Arctostaphylos stanfordiana* ssp. *raichei* (CNPS List 1B). Disturbed areas within this habitat type could host the maple-leaved checkerbloom, *Sidalcea malachroides* (CNPS List 1B). Vernally wet or moist depressions in this habitat are potentially suitable for Howell's montia, *Montia howellii* (federal species of concern, state special status species, CNPS List 2). Sensitive wildlife that could occur here includes Cooper's Hawk, Sharp-shinned Hawk, Northern Spotted Owl, and California Red Tree Vole.

Coyote brush series

It is unlikely that any sensitive species exist in this plant community due to the significant amount of natural and human induced disturbance in this habitat. Yellow-breasted Chat could occur in the dense thickets along the river banks. Northern Red-legged Frog, Foothill Yellow-legged Frog, and Northwestern Pond Turtle could occur along the edge of the river.

Palustrine emergent wetlands

The Maple-leaved checkerbloom, *Sidalcea malachroides* (CNPS List 1B) and Howell's montia*, Montia howellii* (federal species of concern, state special status species, CNPS List 2) could occur in transitional areas between the Palustrine emergent wetlands (wet meadow) and California annual grasslands. The Northern Red-legged Frog could potentially utilize this habitat type.

Palustrine scrub—shrub wetlands

The Maple-leaved checkerbloom, *Sidalcea malachroides* (CNPS List 1B) and Howell's montia*, Montia howellii* (federal species of concern, state special status species, CNPS List 2) could occur in the Palustrine scrub-shrub wetlands. Yellow Warbler and Yellow Breasted Chat are likely breeders in this habitat. Willow Flycatcher is a possible breeder but is more likely to occur during migration. Northern Red-legged Frog could also be found in this habitat.

Palustrine forested wetlands

The Maple-leaved checkerbloom, *Sidalcea malachroides* (CNPS List 1B) and Howell's montia*, Montia howellii* (federal species of concern, state special status species, CNPS List 2) could occur in the Palustrine forested wetlands. Sensitive wildlife species in this habitat could include Cooper's Hawk, Sharp-shinned Hawk, White-tailed Kite, Yellow Warbler, Yellow-breasted Chat, and Northern Red-legged Frog.

Upper Perennial Riverine System — Unconsolidated Shore

It is unlikely that any sensitive species exist in this plant community due to the significant amount of natural and human induced disturbance in this habitat. Northern Red-legged Frog and Foothill Yellow-legged frog likely use this habitat.

VII. References & Literature Cited

Ahti, T. 1977. Lichens of the Boreal Coniferous Zone. Pages 145-181 *in* M. R. D. Seaward, editor. Lichen Ecology. Academic Press, London, UK.

Becking, R. Personal Communication. Humboldt State University, Arcata, California.

California Department of Fish and Game, Habitat Conservation Division, Wildlife & Habitat Data Analysis Branch. March 2002. Natural Diversity Data Base report for sensitive species and habitat occurrence records for the Garberville and surrounding eight USGS quadrangles.

California Department of Fish & Game, Natural Diversity Database. January, 2002. *Special Vascular Plants, Bryophytes, and Lichens List*. Biannual publication, Mimeo. 141 pp.

California Lichenologist Society Website. http//:ucjeps.berkeley.edu/rlmoe/cals.html

Cowardin L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats*. United States Fish and Wildlife Service, Washington, D.C.

Dazey, Steve. October, 2001. Personal Communication. Southern Humboldt Working Together, Incorporated, Garberville, California.

Dettki, H. 1998. Dispersal of fragments of two pendulous lichen species. Sauteria 9:123-132.

Dettki, H., P. Klintberg, and P.-A. Esseen. 2000. Are epiphytic lichens in young forests limited by local dispersal? Ecoscience 7(3): 317-325.

Ellyson, W. J. Personal Communication. Eco-Ascension. Arcata, California.

Esseen, P.-A., K.-E. Renhorn, and R. B. Pettersson. 1996. Epiphytic lichen biomass in managed and old-growth boreal forests: effect of branch quality. Ecological Applications 6: 228-238.

Esseen, P.-A. 1984. Litter fall of epiphytic macrolichens in two old *Picea abies* forests in Sweden. Can. J. Bot. 63: 980-987.

Esseen, P.-A., & L. Ericson. 1982. Granskogar med langskagglav I Sverige. Statens naturvardsverk rapport PM 1513: 1-39.

Esseen, P.-A., L. Ericson, H. Linström, and O. Zackrisson. 1981. occurrence and ecology of *Usnea longissima* in central Sweden. Lichenologist 13(2): 177-190.

Fix, David and Andy Bezener. 2000. *Birds of Northern California*. Lone Pine Publishing, Renton, Washington.

Fix, David. 2001. Personal Communication. Mad River Biologists. McKinleyville, California.

Gauslaa, Y., M. Ohlson, and J. Rolstad. 1998. Fine-scale distribution of the epiphytic lichen *Usnea longissima* on two even-aged neighboring *Picea abies* trees. Journal of Vegetation Science 9: 95-102.

Golec, C. T. 2000. South Fork of the Eel River Riparian Vegetation Delineation. Natural Resources Management Corporation. Eureka, California.

Harmand, J. 1905. Note sur l'*Usnea longissima* (Ach.) recueilli à l' état fertile dans les Vosges. Bulletin des Séances de la Société des Sciences de Nancy. 1905(1): 12-13.

Harris, S.W. 1996. *Northwestern California Birds, A Guide to the Status, Distribution, and Habitats of the Birds of Del Norte, Humboldt, Trinity, northern Mendocino, and western Siskiyou counties, California.* Humboldt State University Press, Arcata, California.

Hickman, J.C., (ed.) 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California.

Keon, D. B. 2001. Factors limiting the distribution of the sensitive lichen *Usnea longissima* in the Oregon Coast Range: Habitat or Dispersal? MS Thesis (Abstract and Introduction). Oregon State University. Corvallis, Oregon.

Krempelhuber, A. 1853. *Usnea longissima* Ach. Flora 36(34): 537-541.

Kuusinen, M., H. Kaipiainen, A. Puolasmaa, and T. Ahti. 1995. Threatened lichens in Finland. Cryptogamic Botany 5: 247-251.

McCune, B., & L. Geiser. 1997. *Macrolichens of the Pacific Northwest*. Oregon State University Press, Corvallis, Oregon.

McLaughlin, J. and F. Harradine. 1965. *Soils of Western Humboldt County California*. University of California, Davis and the County of Humboldt, California.

Munz, P.A. and D.D. Keck. 1970. *A California Flora*, University of California Press. Berkeley, CA.

National Geographic, 1999, *Field Guide to the Birds of North America*, 3rd edition. National Geographic Society, Washington, D.C.

NatureServe. October 2000. An online encyclopedia of life [web application]. Version1.0, Association for Biodiversity Information, Arlington, VA.

Nelson, Laura C. 2002. Habitat characteristics surrounding nests of small accipiters on managed timberlands in Northwestern California. Presentation at the Western Section of The Wildlife Society Annual Meeting in March 2002, Visalia, California.

Peck, J., and B. McCune. 1997. Remnant trees and canopy lichen communities in western Oregon: a retrospective approach. Ecological Applications 7(4): 1181-1187.

Pojar, J. and A. MacKinnon (eds.). 1994. *Plants of the Pacific Northwest Coast*. Lone Pine Publishing, British Columbia, Canada.

Renhorn, K.-E., and P.-A. Esseen. 1995. Biomass growth in five alectorioid lichen epiphytes. Mitt. Eidgenöss. Forsch. anst. Wald Schnee Landsch. 70, 1: 133-140.

Sawyer, J. O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*, California Native Plant Society, Sacramento, California.

Thor, G. 1998. Red-listed lichens in Sweden: habitats, threats, protection, and indicator value in boreal coniferous forests. Biodiversity and Conservation 7: 59-72.

Tibor, D. P. 2001. *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California.* Special Publication No. 1. Sixth Edition, California Native Plant Society, Sacramento, California.

Tønsberg, T., Y. Gauslaa, R. Haugan, H. Holien, and E. Timdal. 1996. The threatened macrolichens of Norway – 1995. Sommerfeltia. 23: 1-258. University of Oslo. Oslo, Norway.

U.S. Army Corps of Engineers. 1987. *Wetlands Delineation Manual*. Technical Report Y-87-1. U. S. Army Corps of Engineers, Vicksburg, Massachusetts.

Appendix 1. Biology of the Rare, Epiphytic Lichen, *Usnea longissima*.

Species Description

Usnea longissima (Ach.) is an epiphytic, pendulous chlorolichen (lichens with a green alga as the primary photosynthetic component) that can reach lengths in excess of 2 meters. It is known to have an eroding cortex on the main axis that typically has very few points of branching. The diagnostic characteristic of this species is a violet-blue staining of the central cord in the presence of potassium iodide.

Reproduction and Dispersal

Usnea longissima has apparently all but lost the means to reproduce sexually and relies upon asexual means of reproduction. There are only two reports of specimens with apothecia (sexual, reproductive structures found in ascomycetous fungi) in Europe (Krempelhuber 1853; Harmand 1905) and recently one from the Oregon Coast Range (Keon 2001). Asexual reproduction occurs via propagules that contain both components of the symbiotic composite organism, the mycobiont and the photobiont. "Mycobiont" refers to the fungal component of the lichen, whereas "photobiont" refers to the photosynthetic partner. In *Usnea longissima*, these are fragments of the lichen thallus and soredia. Soredia are minute, powdery, decorticate structures containing both partners of the symbiosis. *U. longissima* reproduces primarily by thallus fragments that are born by wind and occasionally birds (Becking pers. comm.) and, to a lesser extent, soredia.

The physical nature of these asexual propagules has a dramatic effect on the dispersal abilities of this species throughout the landscape. The lighter the propagule, the greater the distance it can be dispersed. Thallus fragments are relatively heavy propagules, and dispersal via fragmentation is thought to be ineffective over 35 meters for alectorioid lichens in some forests in the Pacific Northwest (Peck & McCune 1997). Other studies from Scandanavia report similar dispersal distances for thallus fragments of *Alectoria sarmentosa* and *Bryoria* spp. (Dettki et al. 2000; Dettki 1998; Esseen et al. 1996), and Esseen (1984) suggests that *Usnea longissima* thallus fragments disperse over shorter distances than *A. sarmentosa* and *Bryoria* spp.. Although soredia are more effective than thallus fragments at long range dispersal and are produced in much greater quantities, sorediate populations appear to be uncommon in Europe and rare here on the Pacific coast of North America. Only one sorediate population is known from California (Ellyson pers. comm.; California Lichenologist Society). In light of these limitations, species such as *U. longissima* that rely on thallus fragmentation as a means of dispersal are at a significant disadvantage in dispersing across the forested landscape.

Forest Stand-Level Distribution

This species appears to flourish in environments with ample sunlight and increased relative humidity (Gauslaa et al. 1998; Renhorn & Esseen 1995; Esseen et al. 1981). Gauslaa et al. (1998) found the highest abundance of *U. longissima* in the lower crown and towards the tips of *Picea abies* branches in Norway. One hypothesis that has emerged from the literature asserts that the stand and tree-level distribution of this species is primarily a result of its microclimatic requirements. Results from a recent study in the Oregon Coast Range seem to contradict the idea that microclimatic factors alone are responsible for the stand and crown-level distribution of this species (Keon 2001). Keon found that transplanted thalli of *Usnea longissima* grew equally well in habitat thought to be the most suitable for the species (i.e. old-growth forests) and in habitat thought to be unsuitable (i.e. clear-cuts). The author mentions, however, that his results do not address the microclimatic factors that could be acting on the establishment phase of this species, nor can these results necessarily be extrapolated to other forest types. The patchy and clumped distribution of *U. longissima* is indicative that dispersal limitations are a major factor driving such distribution patterns (Esseen et al. 1981; Esseen & Ericson 1982; Tønsberg 1996). *U. longissima*'s lower canopy stratum distribution is likely due to a combination of factors related to both microclimate and the dispersal limitations associated with this species.

Range and Distribution

Usnea longissima is mostly restricted to coastal regions that receive substantial amounts of precipitation in the form of fog and rain (Esseen et al. 1981; Ahti 1977). In California, occurrences of *U. longissima* are known to be restricted largely to forests along the coast dominated by redwood (*Sequoia sempervirens*), Douglas-fir (*Pseudotsuga menziesii*), and Sitka spruce (*Picea sitchesis*), but occasionally do occur further inland along riparian corridors and drainages that receive sufficient fog from large river systems. *U. longissima*'s original distribution was circumboreal including much of Europe and the Pacific Northwest. *U. longissima* is now primarily restricted to Norway and Sweden in Europe and in North America is still found from southern Alaska to northern California. The species' decline has been attributed primarily to timber harvest activities and, to a lesser degree, air pollution and development (Thor 1998; McCune & Geiser 1997; Kuusinen et al. 1995). Clerc et al. (1992) described the species as being threatened throughout Europe and it has been added to the European Red List as a "vulnerable species" (Tønsberg et al. 1996). "Vulnerable species" are those that have suffered drastic declines in known localities in the last few decades.

Appendix 2. Preliminary Compiled Plant Species List
The Southern Humboldt Community Park, May/October 2001

The following list includes all species encountered within the assessed area. It should be noted that although this list is necessarily incomplete owing to the limited number of site visits and seasonal constraints, it could serve as a baseline for further studies.

Species Name	Common Name	Family
Shrubs		
Baccharis pilularis	coyote brush	Rhamnaceae
Ceanothus sp.	California lilac	Rhamnaceae
Corylus cornuta	hazelnut	Betulaceae
Cytisus scoparius	Scotch broom	Fabaceae
Rosa sp.	rosa sp.	Rosaceae
Rubus discolor	Himalayan blackberry	Rosaceae
Rubus leucodermis	blackcap raspberry	Rosaceae
Salix sp.	willow sp.	Salicaceae
Toxocodendron diversilobum	poison oak	Anacardiaceae
Herbs		
Achillea millefolium	yarrow	Asteraceae
Adenocaulum bicolor	trail plant	Asteraceae
Adiantum aleuticum	five-finger fern	Pteridaceae
Agrostis capillaris	colonial bent	Poaceae
Agrostis stolonifera	creeping bent	Poaceae
Aira caryophyllea	silver European hair grass	Poaceae
Anaphalis margarticea	pearly everlasting	Asteraceae
Anthoxanthum odoratum	sweet vernal grass	Poaceae
Artemesia sp.	mugwort sp.	Asteraceae
Bellis perenne	English daisy	Asteraceae
Brassica nigra	black mustard	Brassicaceae
Briza maxima	quaking grass	Poaceae
Bromus sp.	brome sp.	Poaceae
Calypso bulbosa	calypso orchid	Orchidaceae
Cardamine sp.	bitter-cress, toothwort	Brassicaceae
Carex sp.	sedge sp.	Cyperaceae
Cerastium glomeratum	mouse-ear chickweed	Caryophyllaceae
Chenopodium sp.	pigweed, goosefoot	Chenopodiaceae
Chlorogalum pomeridianum var. *pomeridianum*	soap plant	Liliaceae
Cirsium vulgare	bull thistle	Asteraceae
Cirsium sp.	thistle sp.	Asteraceae
Claytonia perfoliata	miner's lettuce	Portulacaceae
Chlorogalum pomeridianum var. *pomeridianum*	soap plant, amole	Liliaceae
Collomia heterophylla	collomia	Polemoniaceae
Cynoglossum grande	hound’s tongue	Boraginaceae
Cynosurus echinatus	hedgehog dogtail	Poaceae

Species Name	Common Name	Family
Dactylis glomerata	orchard grass	Poaceae
Daucus carota	Queen Anne's lace	Apiaceae
Delphinium sp.	larkspur sp.	Ranunculaceae
Disporum hookeri	Disporum	Liliaceae
Dodecatheon sp.	shooting star	Primulaceae
Drypopteris arguta	wood fern	Dryopteridaceae
Epilobium sp.	fireweed, willow herb	Onagraceae
Eschscholzia californica	California poppy	Papaveraceae
Fragaria vesca	wood strawberry	Rosaceae
Galium aparine	goose grass	Rubiaceae
Geranium molle	cranesbill, geranium	Geraniaceae
Gnapthalium sp.	cudweed sp.	Asteraceae
Heracleum lanatum	cow parsnip	Apiaceae
Hieracium albiflorum	hawkweed	Asteraceae
Hypochaeris radicata	hairy cat's ear	Asteraceae
Juncus sp.	rush	Juncaceae
Lathyrus sp.	pea sp. (exotic)	Fabaceae
Linanthus grandiflorus	large flowered linanthus	Polemoniaceae
Lithophragma (parviflorum)	woodland star	Saxifragaceae
Lonicera ciliosa	honeysuckle	Caprifoliaceae
Lonicera hispidula	honeysuckle	Caprifoliaceae
Madia sp.	tarweed sp.	Asteraceae
Marah sp.	wild cucumber	Cucurbitaceae
Melilotus alba	white sweet clover	Fabaceae
Mentha pulegium	pennyroyal	Lamiaceae
Mimulus aurantiacus	monkeyflower	Scrophulariaceae
Osmorhiza sp.	sweet cicely	Apiaceae
Pedicularis densiflora	Indian warrior	Scrophulariaceae
Pentagramma triangularis	goldback fern	Pteridaceae
Perideridia	yampah	Apiaceae
Phalaris aquatica	harding grass	Poaceae
Phleum pratense	cultivated timothy	Poaceae
Plantago coronopsis	plantain	Plantaginaceae
Plantago lanceolata	English plantain	Plantaginaceae
Polygonum sp.	knotweed sp.	Polygonaceae
Polypodium glycyrrhiza	licorice fern	Polypodiaceae
Prunella vulgaris	self-heal	Lamiaceae
Polystichum munitum	sword fern	Dryopteridaceae
Raphanus sativus	wild radish	Brassicaceae
Rosa sp.	rose	Rosaceae
Ranunculus sp.	buttercup	Ranunculaceae
Rumex acetosella	sheep sorrel	Polygonaceae
Rumex crispus	curly dock	Polygonaceae
Sanicula sp.	sanicle	Apiaceae
Satureja douglasii	yerba buena	Lamiaceae
Saxifraga californica	saxifrage	Saxifragaceae
Scirpus microcarpus	small-flowering bulrush	Cyperaceae
Silybum marianum	milk thistle	Asteraceae

Species Name	Common Name	Family

Stachys sp.	hedge nettle	Laminaceae
Stellaria sp.	chickweed, starwort sp.	Caryophyllaceae
Trientalis latifolia	starflower	Primulaceae
Trifolium sp.	clover	Fabaceae
Trifolium dubium	little hop clover	Fabaceae
Verbascum blattaria	moth mullein	Scrophulariaeae
Vinca major	greater periwinkle	Apocynaceae
Vicia sp.	vetch	Fabaceae

Lichens
Usnea longissima

Appendix 3. Wildlife Species detected during the field visit March 27, 2001.

The following list includes all species detected on the field visit March 27, 20001. This list is not intended to be a complete list of species occurring on the site, but can be useful for characterizing habitat.

Amphibians
Pacific Tree Frog

Reptiles
Western Fence Swift

Birds
Common Merganser
Turkey Vulture
Osprey
White-tailed Kite
Sharp-shinned Hawk
Red-shouldered Hawk
American Kestrel
Wild Turkey
Allen's Hummingbird
Northern Flicker
Red-breasted Sapsucker
Tree Swallow
Violet-green Swallow
Steller's Jay
Scrub Jay
American Crow
Common Raven
Red-breasted Nuthatch
Brown Creeper

Birds (cont.)
Chestnut-backed Chickadee
Bewick's Wren
Winter Wren
Golden-crowned Kinglet
Ruby-crowned Kinglet
Wrentit
Hutton's Vireo
Orange-crowned Warbler
Black-throated Gray Warbler
Spotted Towhee
California Towhee
Song Sparrow
Hermit Thrush
Oregon Junco
Western Meadowlark
Lesser Godlfinch

Mammals
Vole sp. (cf. California)
Bottae Pocket Gopher
Western Gray Squirrel
Black-tailed Deer
Gray Fox (scat)

Appendix 4. Southern Humboldt Community Park Habitat Map.

BOTANICAL SURVEY, WETLAND DELINEATION, AND STREAM ASSESMENT RESULTS

SOUTHERN HUMBOLDT COMMUNITY PARK
HUMBOLDT COUNTY, CALIFORNIA

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October 2011

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

LIST OF APPENDICES

1.0. INTRODUCTION

This report presents the results of a botanical survey, wetland delineation, and stream assessment on a 186 acre portion of the Southern Humboldt Community Park (SHCP) near Garberville, California (Figure 1). The purpose of the study was to identify special status plants and natural communities, wetlands, streams, and riparian habitat that will constrain future development on the property. The SHCP proposes to change land use designations and zoning on portions of the park to accommodate recreation activities and development.

The Study Area includes portions of two parcels, APN 22209114 and APN 22224109. Both parcels are currently zoned Agricultural Exclusive. The land use designation on both parcels is proposed to be changed to Public Recreation. APN 22224109 will remain in Agricultural Exclusive zoning. A zoning change to Public Facilities is proposed on 96 acres and a change to Residential Multi-family is proposed for 3.5 acres on APN 22209114 (Appendix A).

The Study Area includes the areas proposed for zoning changes in addition to areas that could be used as alternative sites for future development. The Study Area excludes portions of the park where no future development or zoning changes are currently being considered, such as the Garberville Community Farm and upslope forested areas.

2.0. DEFINITIONS

2.1. Special Status Plants and Natural Communities

Special status plants include taxa that meet one or more of the following criteria:

- Plants listed or proposed for listing as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA) or candidates for possible future listing.

- Plants listed or candidates for listing by the state of California as threatened or endangered under the California Endangered Species Act (CESA).

- Plants that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA). This includes:
    - Species considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered in California. This includes plants on CNPS lists 1A, 1B, and 2.
    - Species that may warrant consideration on the basis of local significance or recent biological information.
    - Some species included on the California Natural Diversity Database's (CNDDB) *Special Plants, Bryophytes, and Lichens List.*

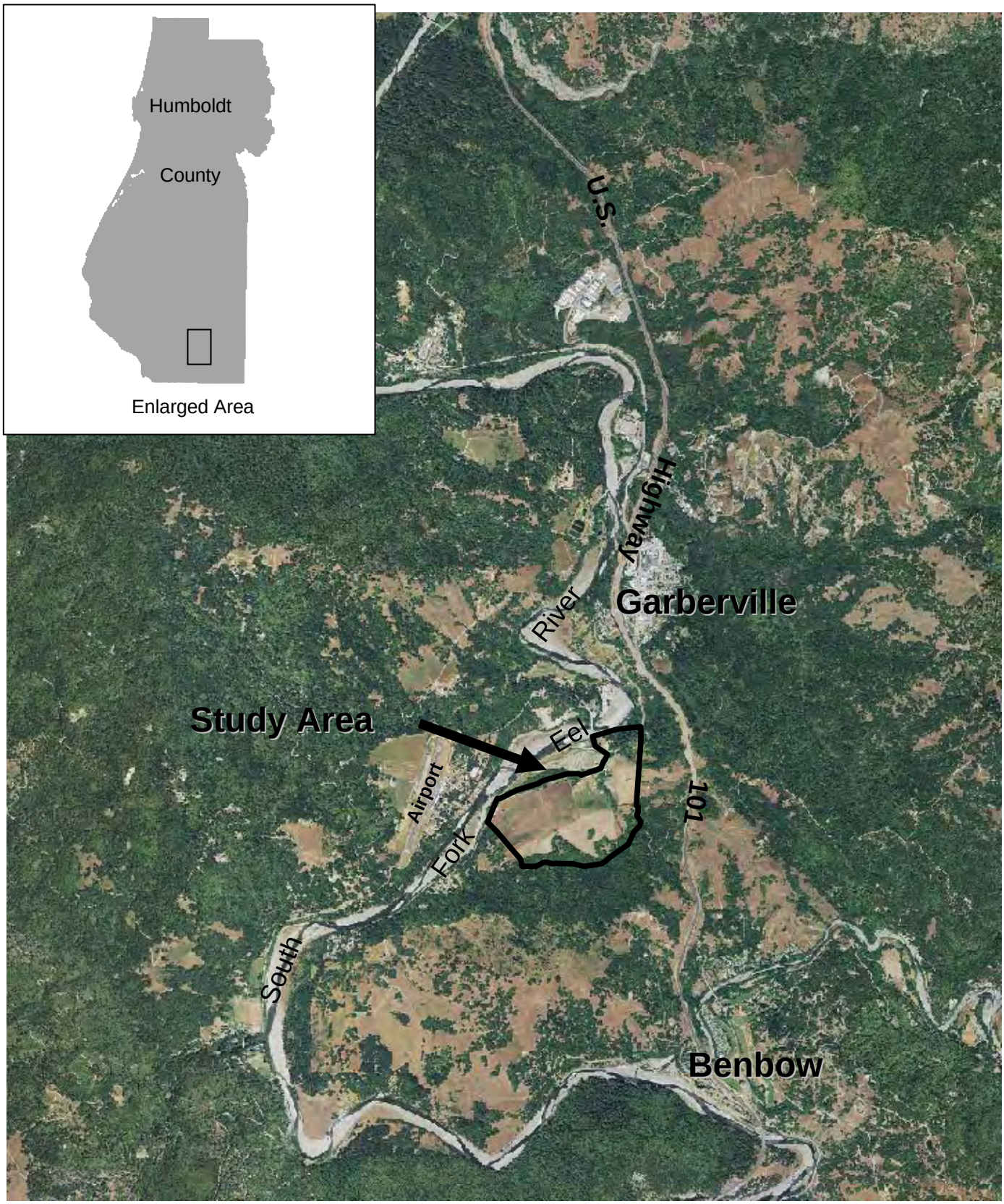


Figure 1. Study Area Location Map.

Southern Humboldt Community Park
Garberville, California

Special status natural communities are communities with limited distribution that may be vulnerable to environmental impacts. There are several sources of information on California natural communities and their rarity status including:

- The *CNDDB,* which includes plant communities and their Global (G) and State (S) rankings and is based on the Holland (1986) vegetation classification.

- The *List of California Vegetation Alliances* (DFG 2009a) includes vegetation alliances in California and their G and S ranks and is based on the most recent vegetation classification in *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009). This new classification has not yet been developed to the association level and does not include rare associations within more common vegetation alliances.

For the purposes of this report, special status natural communities are those with G or S ranks of 2 or lower.

2.2. Wetlands, Rivers, and Streams

Wetlands, rivers, and streams are regulated by the Army Corps of Engineers (ACOE), the State Water Resource Control Board, and the California Department of Fish and Game (CDFG).

The ACOE uses a three parameter approach to identifying wetlands and defines wetlands as:

> "…areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

With this approach, an area must have a minimum of one indicator from each of the three wetlands parameters: hydrophytic vegetation, hydric soil, and wetland hydrology to make a positive wetland determination.

CDFG currently uses the USFWS wetland definition:

> "…wetlands must have one or more of the following attributes: (1) at least periodically, the land supports predominantly hydrophytes (plants specifically adapted to live in wetlands); (2) the substrate is predominantly undrained hydric (wetland) soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year."

Using this one parameter approach, wetlands are identified by positive indicators from one or more of the three wetland parameters. Areas dominated by facultative plants that do not have hydric soil or wetland hydrology are generally not wetlands.

ACOE jurisdiction of rivers and streams includes area below the ordinary high water mark, which is the line on the bank established by fluctuations of water that leave physical characteristics such as distinct line on the bank, shelving, destruction of terrestrial vegetation, and presence of debris. CDFG and Humboldt County recognize the boundary of stream or river to be top of the bank or the edge the riparian vegetation, which ever is most landward.

3.0. STUDY AREA DESCRIPTION

3.1. Vegetation

Several vegetation types occur in the Study Area and are described below. Vegetation alliances, where provided, are according to *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009). Global (G) and State (S) rarity rankings are provided for native vegetation alliances.

Non-native grasslands

The grasslands occupying a majority of the Study Area are dominated by non-native grasses such as orchard grass (*Dactylis glomerata*), soft chess (*Bromus hordeaceus*), sweet vernal grass (*Anthoxanthum odoratum*), Italian ryegrass (*Lolium multiflorum*), rat's tail fescue (*Vuplia myuros*), harding grass (*Phalaris aquatica*), wild oat grass (*Avena fatua*), and colonial bent grass (*Agrostis capillaris*).

Western rush marsh (*Juncus* patens Provisional Alliance) [G4?S4?]

These marshes are dominated by western rush (*Juncus patens*). Other associated species include harding grass, and pennyroyal (*Mentha pulegium*).

Slough sedge swards (*Carex obnupta* Herbaceous Alliance) [G4 S3]

These areas are dominated by slough sedge. Western rush, diffuse rush (*Juncus effusus*), and California blackberry (*Rubus ursinus*) are common associated species. A portion of the study area includes stands of slough sedge that are under a canopy of Oregon ash (*Fraxinus latifolia*), redwood (*Sequoia sempervirens*), and other trees.

Riparian Vegetation

Riparian habitat along the South Fork Eel River includes a canopy of black cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*), and willows (*Salix* spp.). Understory species include California wild grape (*Vitis californica*) and Himalayan blackberry (*Rubus discolor*). This area is classified as Black cottonwood forest (*Populus trichocarpa* Forest Alliance [G5 S3]). The riparian canopy along the seasonal streams is often not well developed, but stands of willows and Oregon ash (*Fraxinus latifolia)* are present. Stands of willows and Oregon ash are also associated with portions of wetlands on the parcel.

California Bay Forest (*Umbellularia californica* Forest Alliance) [G4 S3]

The southern portion and the northern edge of the Study Area include forests dominated by California bay (*Umbellularia californica*). Black oak (*Quercus kelloggii*) and madrone (*Arbutus menziesii*) are also common. The understory is often relatively sparse; common

associated species include poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus discolor*), trail plant (*Adenocaulon bicolor*), and mountain sweet cicely (*Osmorhiza chilensis*).

Redwood Forest (*Sequoia sempervirens* Forests Alliance) [G3 S3.2].
The forest at Tooby Park is dominated by redwood (*Sequoia sempervirens*). Characteristic understory species include sword fern (*Polystichum munitum*), redwood sorrel (*Oxalis oregana*), and Hooker's fairy bells (*Disproum hookeri*).

Himalayan black berry brambles (*Rubus americanus* Semi-Natural Shrubland Stands)
These areas are characterized by near monotypic stands of Himalayan blackberry and are present throughout the Study Area.

3.2. Topography and Hydrology

The Study Area is on the Garberville USGS quadrangle. The majority of the Study Area is relatively flat and is located on a terrace in the lower portion of an approximately 565 acre watershed that drains through the Study Area into the South Fork Eel River (Appendix B). The watershed includes approximately 3,500 feet of U.S. Highway 101 upslope from the Study Area. The elevation ranges from approximately 320 to 500 feet above sea level. The Study Area is influenced by both ground water and surface water from ponding and several seasonal streams. Freshwater emergent wetlands and forested/shrub wetlands are identified within the Study Area in the National Wetland Inventory (USFWS 2011).

3.3. Soils

Recent draft data from the Natural Resource Conservation Service (NRCS November 2, 2009) identifies five soil types in the Study Area:

Gschwend-Frenchman complex
This well drained soil type underlies the California bay forests in the southern portion of the Study Area and redwood forest at Tooby Park. It is typically associated with stream terraces and is composed of alluvium derived from sandstone.

Parkland-Garberville complex
This soil type is moderately well drained and occurs in a band in the field north of the California bay forest. It is associated with river valleys and is composed of alluvium derived from sedimentary rock.

Garberville-Parkland complex
This well drained soil occurs in the field in the western portion of the Study Area. It is associated with alluvial fan terraces and is composed of alluvium derived from sedimentary rock.

Grannycreek-Parkland complex
This poorly drained soil underlies much of the fields south and southeast of the residential area. It is associated with alluvial fan terraces and is composed of alluvium derived from sedimentary rock.

Conklin
This soil type is well drained and occurs under portions of field in the northwest section of the Study Area. It is associated with terraces and is composed of alluvium derived from sedimentary rock.

3.4. Land Use History
The SHCP has been a working ranch for over 135 years and was once part of a larger 10,000 acre holding. It was used as a cattle and sheep ranch until it was acquired by SHCP in 2000. Since its acquisition, the park has been utilized for recreational activities and agriculture. The Study Area is currently used for hiking, mountain biking, Frisbee golf and special events. Portions of the Study Area are used for raising livestock and hay production. The Study Area also includes the caretaker residences, barns and other outbuildings, and a playground at Tooby Park.

3.5. Summary of Previous Studies
Previous studies that have been conducted at the SHCP related to natural resources of the park include:

- *Southern Humboldt Park Feasibility Study* (Mad River Biologists 2002). The document provides descriptions of vegetation and habitat types, descriptions of wetlands, assessments for special status plants and wildlife, lists of plants and wildlife encountered on the park, and management recommendations.

- A hydrogeology study (Winzler & Kelly, April 13, 2001). The study includes a summary of the hydrogeology of the park and vicinity, information on ground water and potential well drilling locations, a geologic map of the park, and a map of fault zones in the Garberville area.

- A plant list for the SHCP prepared by Rose Madrone (Madrone 2009). The list provides the native/non-native status and other information for the majority of plants that occur in the park.

4.0. METHODS

4.1. Botanical Surveys
A scoping list of special status plants that could potentially occur in the Study Area was generated by consulting the *California Natural Diversity Database* (DFG 2011) and the CNPS *Inventory of Rare and Endangered Plants* (CNPS 2011). The list includes all special status plants with documented occurrences on the Garberville USGS quadrangle or adjacent quadrangles in addition to other taxa for which the Study Area includes suitable habitat and is within or near the known range of the species (Appendix C).

A list of survey target taxa that occur in coniferous forest habitat similar to the Study Area was compiled from the initial scoping list and was used to determine seasonally appropriate

survey dates for the Study Area. The target taxa list excludes plants that occur in habitats not present on the Study Area, including coastal dunes, coastal prairie, coastal scrub, higher elevation montane forests, grasslands, oak woodlands, and chaparral in addition to species that occur on serpentine soil.

Table 1. Survey Target Taxa for the SHCP.

Taxon	Common Name	Listing Status	Blooming Period
Astragalus agnicidus	Humboldt County milk-vetch	CE, 1B.1	Apr-Sep
Carex arcta	northern clustered sedge	2.2	Jun-Sept
Carex praticola	northern meadow sedge	2.2	May-Jul
Carex viridula var. *viridula*	green yellow sedge	2.3	(Jun), Jul-Sep(Nov)
Didymodon norrisii	Norris' beard moss	2.2	
Erythronium oregonum	giant fawn lily	2.2	Mar-Jun(Jul)
Erythronium revolutum	coast fawn lily	2.2	Mar-Jul(Aug)
Gilia capitata ssp. *pacifica*	Pacific gilia	1B.2	Apr-Aug
Glyceria grandis	American manna grass	2.3	Jun-aug
Kopsiopsis hookeri	small groundcone	2.3	Apr-Aug
Montia howellii	Howell's montia	2.2	Mar-May
Packera bolanderi var. *bolanderi*	seacoast ragwort	2.2	(Jan), (Feg),(Apr), May-Jul
Piperia candida	white-flowered rein orchid	B.2	May-Sep
Sanguisorba officinalis	great brunet	2.2	Jun-Oct
Monardella villosa ssp. *globosa*	robust monardella	1B.2	Jun-Jul(Aug),
Tracyina rostrata	beaked tracyina	1B.2	May-Jun
Viburnum ellipticum	oval-leaved viburnum	2.3	May-Jun

The botanical surveys were conducted by Kyle Wear. The surveyor's qualifications are provided in Appendix D. The surveys were floristic in nature and followed methods outlined in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.* Surveys were conducted on April 21, May 13, 23, 24, & 29, July 8, and August 14 & 25, 2011 in conjunction with delineation and mapping of wetlands and streams on the parcel. The parcel was traversed extensively during the course of the study. Survey coverage was approximately 90% of the Study Area.

Surveys coincided with the blooming periods of all species identified during project scoping with moderate to high potential to occur in the Study Area. All species encountered in the Study Area were identified to the taxonomic level necessary to determine whether they are special status. Taxonomy generally the follows the *Jepson Manual* (Hickman 1993); in some cases more recent name changes are used.

4.2. Wetlands

Wetlands in the Study Area were delineated using methods described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual Western Mountains, Valleys, and Coast Region (Version 2.0)* (ACOE 2010) and the*1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) on the dates listed in Section 4.1.

Twenty six sample plots were evaluated for hydrophytic vegetation, hydric soil, and wetland hydrology in the Study Area. The sample plots were along transects crossing wetland boundaries and consisted of 2 to 3 data points per transect.

Hydrophytic Vegetation

The wetland indicator status of each plant species in the sample plots was determined using the *National List of Plants that Occur in Wetlands; 1988 National Summary* (Reed 1988). The indicator status of plants is based on the estimated probability of the species occurring in wetlands. The indicator status categories are:

Obligate Wetland Plants (OBL)	Almost always occur in wetlands	>99% frequency
Facultative Wetland Plants (FACW)	Usually occur in wetlands	67%-99%
Facultative Plants (FAC)	Equally occur wetlands and non-wetlands	33%-67%
Facultative Upland Plants (FACU)	Sometimes occur in wetlands	1%-33%
Obligate Upland Plants (UPL)	Rarely occur in wetlands	<1%

If more than 50% of the dominant plants are OBL, FACW, or FAC, the vegetation is considered to be hydrophytic. Dominance of plants within the plots was determined using the “50/20” rule.

Hydric Soil

Indicators of hydric soil include, but are not limited to, a strong hydrogen sulfide (rotten egg) odor, redox concentrations, depleted matrix, and high organic matter content. Soil colors were determined by using a standard Munsell soil color chart (Gretag Macbeth 2000).

Wetland Hydrology

Indicators of wetland hydrology include, but are not limited to, standing surface water, high water table, soil saturation, sediment deposits, soil cracks, and oxidized root channels along living roots. Wetland hydrology criteria is met if surface water or ground water within 12 inches of the surface is present for 14 or more consecutive days during the growing season.

4.3. Seasonal Streams and South Fork Eel River

All seasonal streams and the portion of the South Fork Eel River in the Study Area were delineated from the top of the bank or edge of the riparian vegetation, which ever was most landward.

5.0. RESULTS

5.1. Botanical Surveys

No special status plants were encountered in the Study Area. An uncommon lichen, long beard lichen (*Usnea longissima*) was encountered in vegetation along a seasonal stream. A list of all 225 plants encountered in the Study Area is provided in Appendix E.

5.2. Wetlands

A total of 48.6 acres of wetlands were identified in the Study Area (Figure 2). This included 47.1 acres of Freshwater Emergent Wetlands and 1.5 acres of Forested/Shrub wetlands. The wetland determination data forms are provided in Appendix F. The wetlands are predominately 3 parameter wetlands. Some of the data points were in areas that did not meet the hydrophytic vegetation criteria, but had indicators of hydric soil and wetland hydrology. These areas meet the CDFG wetland definition and were included in the wetland boundary. Once representative data points were established on each transect in upland and wetland areas, a series of soil pits was dug between them. The wetland boundary was marked at that point where all indicators of hydrophytic vegetation, hydric soil and wetland hydrology were no longer present. This process was repeated numerous times between sample plot transects to identify the wetland boundary.

The wetland boundary was mapped with a GPS receiver. Accuracy is approximately 1-3 meters. The number of acres within the wetland boundary was calculated with ArcView GIS software.

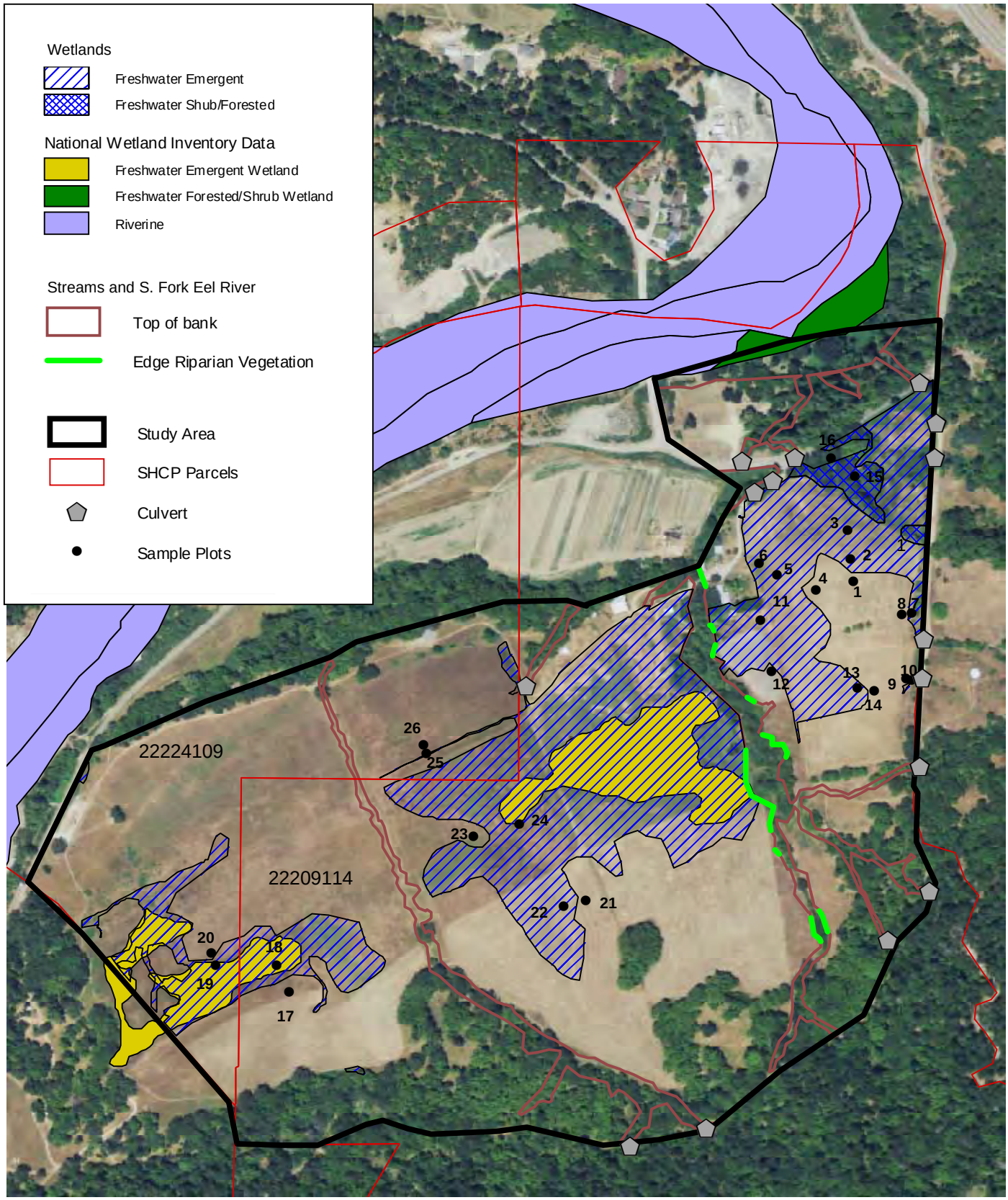
Hydrophytic Vegetation

The lower elevations in the wetlands are often dominated by western rush (*Juncus patens*), and pennyroyal (*Mentha pulegium*). There is often a zone of non-native grassland between these areas and the upland was dominated by FAC and FACW non-native grasses including, harding grass (*Phalaris aquatica*), Italian ryegrass, (*Lolium multiflorum*), and rough bluegrass (*Poa trivialis*). The upland grasslands are dominated by FAC, FACU, UPL grasses including orchard grass (*Dactylis glomerata*), soft chess (*Bromus hordeaceus*), sweet vernal grass (*Anthoxanthum odoratum*), Italian ryegrass (*Lolium multiflorum*), rat's tail fescue (*Vuplia myuros*), harding grass, and colonial bent grass (*Agrostis capillaris*).

The forested/shrub wetlands generally have an understory dominated by slough sedge (*Carex obnupta*), and a canopy of Oregon ash (*Fraxinus latifolia*) or willows (*Salix* spp.)

Hydric Soils

The majority of the wetlands identified in the Study Area are associated with the poorly drained Grannycreek-Parkland complex soil type shown on the draft NRCS soil map (NRCS November 2, 2009). The lower elevation areas in the wetlands often meet hydric soil indicatory F3 (Depleted matrix). The soil is generally 10yr 4/1 with 7.5yr 4/6 prominent redox concentrations. The majority of the soil in the wetlands meets hydric soil indicator F6 (Redox dark surface). The soils are generally 10yr 3/1 or 10yr 2/2 with prominent 7.5yr 4/6 prominent redox concentrations. Upland soils were 10yr 3/1, 10yr 3/2, or 10yr 2/2 with no redox concentrations.



Scale: 1:6,800

Base Map: 2009 NAIP

Figure 2. Wetland Delineation Map.

N
W E
S

500 0 500 Feet

Southern Humboldt Community Park
Humboldt County, CA

Wetland Hydrology

The wetlands in the Study Area are primarily influenced by ground water. There is evidence of surface water in drainage ditches and other concave areas. The most common wetland hydrology indicator observed was the presence of oxidized rhizospheres along living roots. Other indictors included surface soil cracks and sediment deposits.

5.3. Seasonal Streams and South Fork Eel River

A total of 13.4 acres of the Study Area are within riparian vegetation or below the top of the bank of seasonal streams or the South Fork Eel River (Figure 2).

6.0. RECOMMENDATIONS

Buffers

The *Humboldt County General Plan* requires a 50-foot buffer for intermittent streams and wetlands and a 100-foot buffer for perennial streams and wetlands (Streamside Management Areas) in areas outside of Urban Development and Expansion Areas. However, in an October 21, 2010 letter from CDFG to the Humboldt County Planning Department, CDFG recommends 100-foot buffer for all streams and wetlands and a150-foot buffer for the South Fork Eel River at the SHCP (CDFG October 21, 2010).

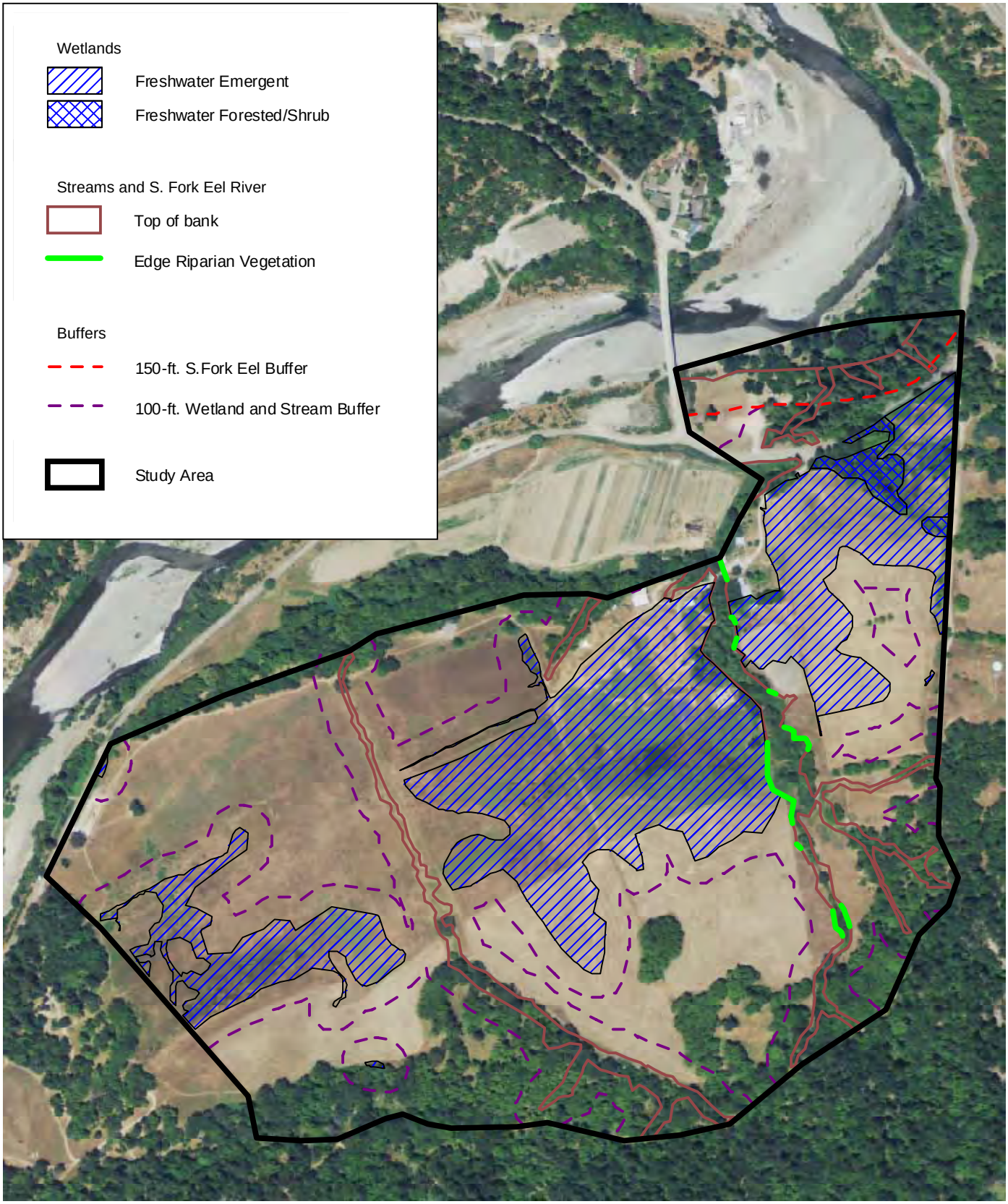
The CDFG recommended wetland, stream, and South Fork Eel River buffers area shown in Figure 3. If there is no feasible alternative to building within the recommended buffers, a reduced buffer may be appropriate if mitigation measures are taken to eliminate or minimize impacts. Mitigation measures would need to be developed based on assessment of potential impacts to wetlands, streams, native vegetation, and wildlife of specific development plans.

Marking of Wetlands, Streams, and Buffers

Because of the extent wetlands and streams in the Study Area, it was not feasible to mark them in the field. All wetlands, streams, and their buffers that are adjacent to future development shall be clearly marked in the field with stakes or other suitable material so they can be avoided during construction. It may be necessary for these boundaries to be mapped by a land surveyor.

Consider Alternative Building Areas

The extent of wetlands and streams in areas for proposed for zoning changes to Public Facilities and Multi-family Residential will significantly constrain development in those areas. The area currently being considered for Multi-family housing is almost entirely wetland. Development in the larger upland areas identified in the Study Area may be a more feasible alternative.



Scale: 1:6,800

Base Map: 2009 NAIP

Figure 3. Wetland, Stream, and S. Fork Eel River Buffer Map.

N
W E
S

500 0 500 Feet

Southern Humboldt Community Park
Humboldt County, CA

7.0. REFERENCES

California Department of Fish and Game (CDFG). 2011. *California Natural Diversity Database* (CNDDB), Wildlife and Habitat Data Branch, Sacramento, CA.

California Department of Fish and Game (CDFG). October 21, 2010. Letter from CDFG to the Humboldt County Planning Department. RE*: Notice of Preparation for the Southern Humboldt Community Park (SHC #2010092037), Humboldt County, California*. California Department of Fish and Game, Redding, CA.

California Department of Fish and Game (CDFG). 2009a. *List of California Vegetation Alliances*, Biogeographic Branch, Vegetation Classification and Mapping Program, Sacramento, CA.

California Department of Fish and Game (CDFG). 2009b. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.* California Department of Fish and Game, Sacramento, CA.

California Native Plant Society (CNPS) 2011. *Inventory of Rare and Endangered Plants* (online edition). California Native Plant Society, Sacramento, CA. (http://www.cnps.org/inventory)

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Engineer Waterways Experimental Station.

GretagMacbeth. 2000. *Munsell Soil Color Charts*. New Winsdor, NY

Hickman, J. C. ed., 1993. *The Jepson Manual*. University of California Press. Berkeley, CA.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Plant Communities of California*. Report Prepared for the Department of Fish and Game, Sacramento, CA.

Mad River Biologists. 2002. *Southern Humboldt Park Feasibility Study.* Mad River Biologists McKinleyville, CA.

Madrone, R. 2009. Community Park Species List. Vascular plant list for the SHCP.

Natural Resource Conservation Service (NRCS). November 2, 2009. Letter from Jonathan Hooper to Steve Dazey. Letter includes draft soil survey data for the SHCP vicinity.

Reed. P. B., Jr. 1988. *National List of Plants that Occur in Wetlands*: 1*988 national summary.*

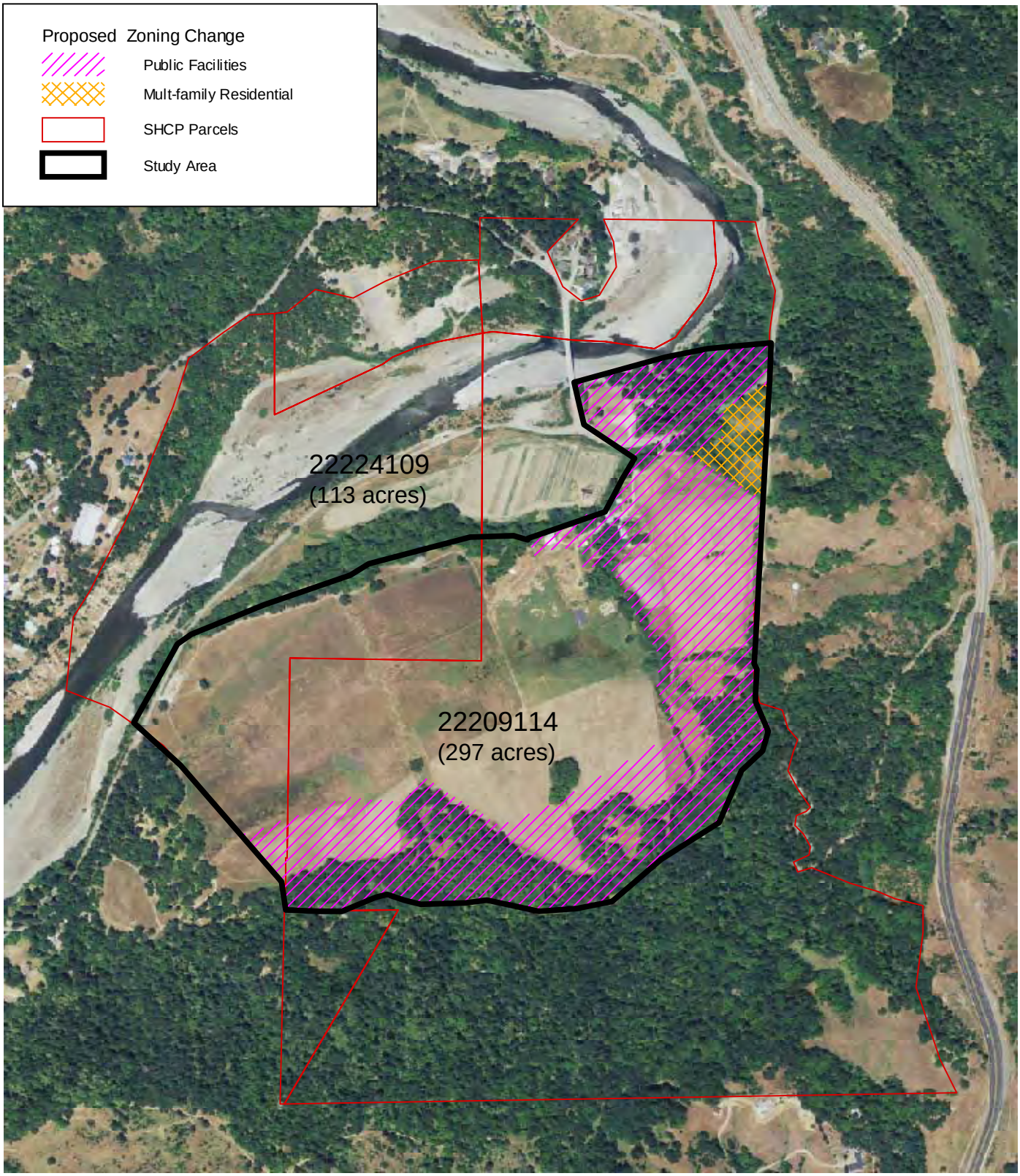
Sawyer, J.O., T. Keeler-Wolf and J.M Evans. 2009. *A Manual of California Vegetation 2nd Edition*. California Native Plant Society. Sacramento, CA.

U.S. Army Corps of Engineers (ACOE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual. Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/El TR-10-3. Vicksburg, MS. Army Corps of Engineer Research and Development Center.

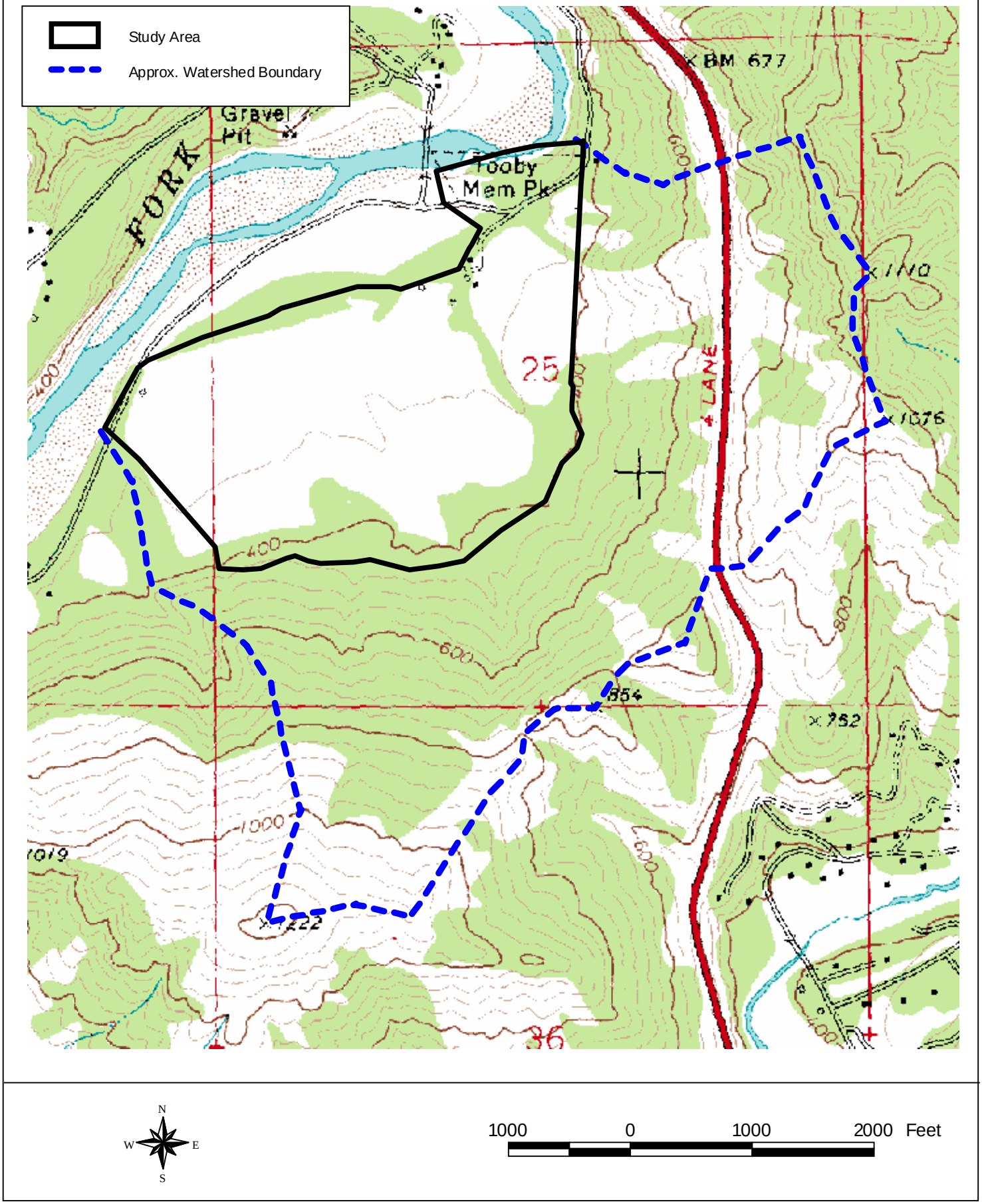
U.S Fish and Wildlife Service. 2011. *National Wetlands Inventory*. (http://www.fws.gov/wetlands)

Winzler & Kelly. April 13, 2001. Letter from Kenneth Thiessen to Steve Dazey, *RE: Letter of Transmittal, Hydrogeology of Proposed Tooby Park, Garberville, CA.* Winzler & Kelly Consulting Engineers, Eureka, CA

Appendix A. Proposed Zoning Change Map.



Appendix B. SHCP Watershed Boundary Map.



APPENDIX C. Special Status Plant Scoping List.

Taxon	Common Name	Listing Status	Habitat (Elevation [m])	Blooms	Potential to Occur in Study Area
Arabis mcdonaldiana	McDonald's rock cress	FE, CE, 1B.1	Lower montane coniferous forest, Upper montane coniferous forest/serpentinite (135-1800)	May-Jul	Low. Study area does not contain serpentine habitat.
Arctostaphylos canescens ssp. *sonomensis*	Sonoma canescent manzanita	1B.2	Chaparral, Lower montane coniferous forest/sometimes serpentinite(180-1675)	Jan-Jun	Low. Study area does not contain chaparral or lower montane coniferous forest.
Arctostaphylos stanfordiana ssp. *raichei*	Raiche's manzanita	1B.1	Chaparral, Lower montane coniferous forest(openings)/rocky, often serpentinite (450-1000)	Feb-Apr	Low. Study area does not contain chaparral or lower montane coniferous forest.
Astragalus agnicidus	Humboldt County milk-vetch	CE, 1B.1	Broadleafed upland forest, North Coast coniferous forest/openings, disturbed areas, sometimes roadsides (180-800)	Apr-Sep	Moderate. Potential habitat along roads & disturbed areas.
Carex arcta	northern clustered sedge	2.2	Bogs and fens, North Coast coniferous forest (mesic) (60-1400)	Jun-Sept	Moderate. Potential habitat in forested wetlands. Study area is south of current known distribution in CA.
Carex praticola	northern meadow sedge	2.2	Meadows and seeps (mesic) (0-3200)	May-Jul	Moderate. Potential habitat in wetlands. Study area is south of current know distribution in CA.
Carex viridula var. *viridula*	green yellow sedge	2.3	Bogs and fens, Marshes and swamps, North Coast coniferous forest (mesic)	(Jun), Jul-Sep(Nov)	Moderate. Potential habitat in forested wetlands.
Castilleja affinis ssp. *litoralis*	Oregon coast paintbrush	2.2	Coastal bluff scrub, Coastal dunes, Coastal scrub/sandy (15-100)	Jun	Low. Plant occurs in coastal habitats.
Castilleja mendocinensis	Mendocino Coast paintbrush	1B.2	Coastal bluff scrub, Closed-cone coniferous forest, Coastal dunes, Coastal prairie, Coastal scrub (0-160)	Apr-Aug	Low. Plant occurs in coastal habitats.
Didymodon norrisii	Norris' beard moss	2.2	Cismontane woodland, Lower montane coniferous forest/intermittently mesic, rock (600-1973)		Moderate. Potential habitat in bay forest.
Eriogonum kelloggii	Kellogg's buckwheat	CE, FE, 1B.2	Lower montane coniferous forest(rocky, serpentinite) (579-1250)	(May),Jun-Aug	Low. Study areas does not contain serpintine habitat.

APPENDIX C (Cont.). Special Status Plant Scoping List.

Taxon	Common Name	Listing Status	Habitat (Elevation [m])	Blooms	Potential to Occur in Study Area
Erythronium oregonum	giant fawn lily	2.2	Cismontane woodland, Meadows and seeps, sometimes serpentine, rocky, openings(100-1150)	Mar-Jun(Jul)	Moderate. Potential habitat in bay forest along streams.
Erythronium revolutum	coast fawn lily	2.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest/Mesic, streambanks (0-1350)	Mar-Jul(Aug),	High. Good habitat in bay forest along streams.
Gentiana setigera	Mendocino gentian	1B.2	Lower montane coniferous forest, Meadows and seeps/mesic (490-1065)	Aug-Sep	Low. Study areas does not contain lower montane coniferous forest, plant occurs at higher elevations.
Gilia capitata ssp. *pacifica*	Pacific gilia	1B.2	Coastal bluff scrub, Chaparral(openings), Coastal prairie, Valley and foothill grassland (5-869)	Apr-Aug	Moderate - Low. Some potential habitat in grasslands.
Glyceria grandis	American manna grass	2.3	Bogs and fens, Meadows and seeps, Marshes and swamps (streambanks and lake margins) (15-1980)	Jun-aug	High. Good habitat in wetlands.
Kopsiopsis hookeri	small groundcone	2.3	North Coast coniferous forest (90-885)	Apr-Aug	Moderate. Some habitat in bay forest, assoc w/ madrone.
Montia howellii	Howell's montia	2.2	Meadows and seeps, North Coast coniferous forest, Vernal pools/vernally mesic, sometimes roadsides (0-730)	Mar-May	High. Good habitat along roads, trails, & disturbed areas.
Packera bolanderi var. *bolanderi*	seacoast ragwort	2.2	Coastal scrub, North Coast coniferous forest/Sometimes roadsides (30-650)	(Jan), (Feg)	Moderate. Potential habitat along roads, trails, forest openings.
Piperia candida	white-flowered rein orchid	1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest/sometimes serpentinite (30-1310)	May-Sep	High. Good habitat in bay and redwood forests.
Sanguisorba officinalis	great brunet	2.2	Bogs and fens, Broadleafed upland forest, Meadows and seeps, Marshes and swamps, North Coast coniferous forest, Riparian forest/often serpentine	Jun-Oct	Moderate. Potential habitat in wetlands.

APPENDIX C (Cont.). Special Status Plant Scoping List.

Taxon	Common Name	Listing Status	Habitat (Elevation [m])	Blooms	Potential to Occur in Study Area
Sedum laxum ssp. *eastwoodiae*	Red Mountain stonecrop	FC, 1B.2	Lower montane coniferous forest(serpentinite) (600-1200)	May-Jul	Low. Study area does not contain serpentine habitat.
Monardella villosa ssp. *globosa*	robust monardella	1B.2	Broadleafed upland forest(openings), Chaparral(openings), Cismontane woodland, Coastal scrub, Valley and foothill grassland (100-915)	Jun-Jul(Aug),	High. Good habitat in/along margins of bay forest
Tracyina rostrata	beaked tracyina	1B.2	Cismontane woodland, Valley and foothill grassland	May-Jun	Moderate. Potential habitat along margins of bay forest.
Viburnum ellipticum	oval-leaved viburnum	2.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	May-Jun	Moderate. Potential habitat in bay forest.

Listing Status Codes:

California Native Plant Society (CNPS)
1A. Presumed extinct in California
1B. Rare or Endangered in California and elsewhere
2. Rare or Endangered in California, more common elsewhere
3. Plants for which we need more information - Review list
4. Plants of limited distribution - Watch list
Threat Code extensions:
.1 = seriously endangered in California (over 80% of occurrences threatened/high degree of immediacy of threat)
.2 = fairly endangered in California (20-80% of occurrences threatened)
.3 = not very endangered in California (<20% of occurrences threatened or no current threats known)

Federal: Includes species of concern (FC), rare (FR), threatened (FT), or endangered (FE)
State: State of California status includes rare (CR), threatened (CT), or endangered (CE)

APPENDIX D. Relevant Surveyor Qualifications.

The botanical surveys and wetland delineation were carried out by Kyle Wear. Mr. Wear has a M.A. in Biology and a B.S. in Environmental Biology with a minor in Botany from Humboldt State University. Mr. Wear has seventeen years of experience conducting rare plant surveys and other botanical work in northern California for a variety of projects including timber harvest plans, development projects, coastal dune restoration projects, salmonid habitat restoration projects, and rare plant research and monitoring projects. Mr. Wear completed a wetland delineation training course from the Wetland Training Institute and has been conducting wetland delineations for the past six years.

APPENDIX E. List of Plants Encountered in the Study Area.

TAXON	COMMON NAME
Trees	
Acer macrophyllum	bigleaf maple
Aesculus californica	California buckeye
Alnus rubra	red alder
Arbutus menziesii	Pacific madrone
Cedrus deodora	Deadora cedar (planted)
Fraxinus latifolia	Oregon ash
Lithocarpus densiflorus var. *densiflorus*	tanoak
Pseudotsuga menziesii	Douglas-fir
Populus trichocarpa	black cottonwood
Quercus garryana	Oregon white oak
Quercus kelloggii	California black oak
Quercus wizlizeni	interior live oak
Salix lasiolepis	arroyo willow
Salix lucida ssp. lasiandra	shining willow
Salix sitchensis	Sitka willow
Sequoia sempervirens	coast redwood
Umbellularia californica	California-bay
Shrubs	
Arctostaphylos columbiana	hairy manzanita
Baccharis pilularis	coyote brush
Ceanothus thyrsiflorus	blue blossom
Corylus cornuta var. *californica*	California hazelnut
Cytisus scoparius	Scotch broom
Gaultheria shallon	salal
Heteromeles arbutifolia	toyon
Mimulus aurantiacus	orange bush monkey-flower
Philadelphus lewisii	wild mock-orange
Ribes sanguinuem var. *glutinosum*	pink-flowering currant
Rosa gymnocarpa	wood rose
Rubus discolor	Himalayan blackberry
Rubus leucodermis	white-stemmed raspberry
Rubus parviflorus	thimbleberry
Sambucus racemosa var. *racemosa*	red elderberry
Symphoricarpos sp.	snowberry
Toxicodendron diversilobum	poison-oak
Vaccinium ovatum	evergreen huckleberry
Herbs	
Achillea millefolium	common yarrow
Adenocaulon bicolor	trail plant

APPENDIX E (Cont.). List of Plants Encountered in the Study Area.

TAXON	COMMON NAME
Adiantum aleuticum	five-fingered fern
Adiantum jordanii	California maidenhair fern
Agrostis capillaris	colonial bentgrass
Agrostis stolonifera	creeping bent-grass
Aira caryophyllea	European hairgrass
Allium triquetrum	escaped ornamental onion
Alopecurus pratense	meadow foxtail
Anagallis arvensis	scarlet pimpernel
Anthoxanthum odoratum	sweet vernal grass
Aquilegia formosa	crimson columbine
Artemesia douglasiana	mugwort
Asarum caudatum	wild ginger
Asclepias fascicularis	Mexican whorled milkweed
Athyrium filix-femina	lady fern
Avena fatua	wild oat grass
Avena sativa	wild oat grass
Baccharis douglasii	marsh baccharis
Bellis perennis	English daisy
Blechnum spicant	deer fern
Brassica nigra	black mustard
Briza maxima	rattlesnake grass
Briza minor	small rattlesnake grass
Bromus carinatus	California brome
Bromus diandrus	ripgut grass
Bromus hordeaceus	soft chess
Bromus laevipes	woodland brome
Bromus vulgaris	narrow-flowered brome
Calochortus tolmiei	pussy ears
Calypso bulbosa	calypso orchid or fairy slipper orchid
Calystegia sp.	Morning Glory
Camissonia ovata	coast sun cups
Cardamine californica	milk maids
Carduus pycnocephalus	Italian thistle
Carex deweyana ssp. *leptopoda*	short-scaled sedge
Carex gynodynama	Olney's hairy sedge
Carex obnupta	slough sedge
Carex subfusca	rusty sedge
Cerastium glomeratum	mouse ear chickweed
Chlorogalum sp.	soap plant
Cichorium intybus	chicory
Cirsium arvense	Canada thistle
Cirsium vulgare	bull thistle

APPENDIX E (Cont.). List of Plants Encountered in the Study Area.

TAXON	COMMON NAME
Claytonia perfoliata	miner's lettuce
Collomia heterophylla	varied-leaf collomia
Convolvulus arvensis	field bindweed
Cynodan dactylon	Bermuda grass
Cynoglossum grande	hound's-tongue
Cynosurus echinatus	hedgehog dogtail grass
Cyperus eragrostis	nut-grass
Dactylis glomerata	orchard grass
Danthonia californica	California oatgrass
Danthonia pilosa	hairy oatgrass
Daucus carota	wild carrot or Queen Anne's lace
Dichelostemma capitatum	blue dicks
Dichelostemma ida-maia	firecracker flower
Disporum hookeri	Hooker's fairy bells
Dryopteris expansa	wood fern
Eleocharis macrostachya	creeping spike-rush
Elymus glaucus ssp. *glaucus*	blue wildrye
Epilobium ciliatum	northern willow herb
Equisetum hyemale ssp. *affine*	scouring rush
Equisetum telmateia ssp. *braunii*	giant horsetail
Erechtites minima	coast fireweed
Eremocarpus setigerus	dove weed
Erodium botrys	long-beaked storksbill
Erodium cicutarium	red-stemmed filaree or common stork's bill
Erodium sp.	stork's-bill
Eschscholzia californica	California poppy
Festuca arundinacea	tall fescue
Filago gallica	narrow-leaved filago
Foeniculum vulgare	fennel
Fragaria vesca	wood strawberry
Galium aparine	goose grass
Galium sp.	bedstraw
Geranium dissectum	cut-leaved geranium
Geranium molle	dovefoot geranium
Gnaphalium luteo-album	weedy cudweed
Goodyera oblongifolia	rattlesnake plantain
Hedera helix	English ivy
Heuchera micrantha	small-flowered alumroot
Hierochloe occidentalis	vanilla grass
Holcus lanatus	common velvet grass
Hordeum brachyantherum	meadow barley
Hordeum jubatum	foxtail barley

APPENDIX E (Cont.). List of Plants Encountered in the Study Area.

TAXON	COMMON NAME
Hordeum marinum	Mediteranean barley
Horkelia californica	horkelia
Hypericum perforatum	Klamath weed or common St. John's-wort
Hypochaeris radicata	hairy cat's-ear
Iris douglasiana	Douglas iris
Iris purdyi	Purdy's iris
Juncus bufonius	common toad rush
Juncus effusus	common rush
Juncus patens	spreading rush
Juncus tenuis	slender rush
Kniphofla uvaria	redhot poker
Lactuca sp.	wild lettuce
Lathyrus polyphyllus	Oregon pea
Lathyrus sulfureus	sulphur pea
Lathyrus vestitus	wood pea
Leontodon taraxacoides	hawkbit
Leucanthemum vulgare	ox-eye daisy
Limnanthes douglasii	Douglas' meadowfoam
Linum bienne	western blue flax
Lolium multiflorum	Italian ryegrass
Lonicera hispidula	hairy honeysuckle
Lotus corniculatus	birdfoot trefoil
Lotus purshianus	spanish lotus
Lupinus rivularis	riverbank lupine
Luzula parviflora	small-flowered wood rush
Madia madioides	woodland madia
Medicago sp.	bur clover
Melica sublata	Alaska oniongrass
Melilotus alba	white sweetclover
Mentha pulegium	pennyroyal
Navarretia squarrosa	skunkweed
Nemophila parviflora	small-flowered nemophila
Osmorhiza chilensis	mountain sweet-cicely
Oxalis oregana	redwood sorrel
Paspalum dilatatum	dallis grass
Pedicularis densiflora	Indian warrior
Pentagramma triangularis ssp. *triangularis*	goldback fern
Phacelia bolanderi	Bolander's phacelia
Phalaris aquatica	harding grass
Phleum pratense	timothy grass
Phorodendron villosum	oak mistletoe
Picris echioides	bristly ox-tongue

APPENDIX E (Cont.). List of Plants Encountered in the Study Area.

TAXON	COMMON NAME
Plantago coronopus	cut-leaved plantain
Plantago lanceolata	English plantain
Plantago major	common plantain
Plectritis brachystemon	pink plectritis
Poa annua	annual bluegrass
Poa trivialis	rough bluegrass
Polygala californica	California milkwort
Polygonum aviculare	prostrate knotweed
Polypodium glycyrrhiza	licorice fern
Polystichum munitum	sword fern
Prunella vulgaris	self-heal
Psilocarphus sp.	woolly-heads
Pteridium aquilinum var. *pubescens*	bracken fern
Ranunculus muricatus	prickly-fruit buttercup
Ranunculus occidentalis	western buttercup
Ranunculus repens	creeping buttercup
Raphanus sativus	wild radish
Rorippa nasturtium-aquaticum	water cress
Rubus ursinus	California blackberry
Rumex acetosella	sheep sorrel
Rumex crispus	curly dock
Rumex pulcher	fiddle dock
Rumex salicfolius	willow dock
Sanicula crassicaulis	Pacific snakeroot
Satureja douglasii	yerba buena
Scirpus microcarpus	small-flowered bulrush
Scoliopus bigelovii	slink-pod
Scrophularia californica	coast figwort
Silybum marianum	milk thistle
Sisyrinchium bellum	blue-eyed-grass
Smilacina racemosa	branched Solomon's seal
Sonchus oleraceus	common sow thistle
Spergularia rubra	purple sand spurry
Stachys ajugoides	hedge nettle
Stellaria media	common chickweed
Taraxacum officinale	dandelion
Tellima grandiflora	fringe cups
Thalictrum fendleri var. *polycarpum*	meadow rue
Tiarella trifoliata var. *unifoliata*	sugar scoop or lace flower
Trientalis latifolia	Pacific star flower
Trifolium dubium	little hop clover
Trifolium glomeratum	clustered clover

APPENDIX E (Cont.). List of Plants Encountered in the Study Area.

TAXON	COMMON NAME
Trifolium repens	white clover
Trifolium subterraneum	subterranean clover
Trillim chloropetalum	giant trillium
Trillium ovatum	western trillium
Trisetum cernum	nodding trisetum
Triteleia laxa	Ithuriel's spear
Urtica dioica ssp. *holosericea*	stinging nettle
Usnea longissima	long beard lichen
Verbascum blattaria	moth mullein
Vicia hirsuta	hairy vetch
Vicia sativa	vetch
Vicia villosa	hairy vetch
Vinca major	greater periwinkle
Viola glabella	stream violet
Viola ocellata	two-eyed violet or western heart's ease
Viola sempervirens	evergreen violet
Vitis californica	California wild grape
Vulpia myuros	Rat's Tail Fescue
Whipplea modesta	modesty
Woodwardia fimbriata	giant chain fern

APPENDIX F. Wetland Determination Field Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-11-11
Applicant/Owner: SHCP State: CA Sampling Point: DP1
Investigator(s): Kyle Wear Section, Township, Range: Sec 25 T4S R3E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): ± none Slope (%): <5%
Subregion (LRR): A Lat: See remarks Long: Datum: NAD83
Soil Map Unit Name: Granny Creek – Parkland complex NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ~ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: UTM N 4437810.03
E 432153.35

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 10'-rad)			
1. Vulpia myuros	20	Y	FACU
2. Phalaris aquatica	20	Y	FAC
3. Trifolium subterraneum	20	Y	NI
4. Juncus tenuis	1	N	FACW
5. Rumex acetosella	5	N	NI
6. Lolium multiflorum	20	Y	FAC
7. Poa trivialis	5	N	FACW
8.			
9.			
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr3/1	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-11-11
Applicant/Owner: SHCP State: CA Sampling Point: DP2
Investigator(s): Kyle Wear Section, Township, Range: Sec 25 T4S R3E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): ~5%
Subregion (LRR): A Lat: See remarks Long: Datum: NAD83
Soil Map Unit Name: Grann-Creek Parkland NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: UTM N 4437810.03
E 432153.35

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10'-rad.)			
1. Phalaris aquatica	20	Y	FAC
2. Vulpia myuros	20	Y	FACU
3. Lolium multiflorum	20	Y	FAC
4. Trifolium subterraneum	20	Y	NI
5. Poa trivialis	20	Y	FACW
6. Briza maxima	2	N	NI
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/1	90	7.5yr 4/4	10	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-11-11

Applicant/Owner: State: CA Sampling Point: DP 3

Investigator(s): Kyle Wear Section, Township, Range: Sec 25 T4S R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): < 5%

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: Grann-Creek - Parkland NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
UTM N 4437846.54
E 432149.98

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Carex subfusca	30	Y	FAC
2. Juncus patens	20	Y	FAC
3. Trifolium repens	10	N	FACU
4. Poa trivialis	10	N	FACW
5. Festuca arundinacea	10	N	FAC
6. Mentha pelugium	10	N	OBL
7. Juncus tenuis	5	N	FACW
8. Picris ?	5	N	?
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: DP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10yr 4/1	90	7.5yr 4/6	10	C	M	-	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-11-11

Applicant/Owner: State: CA Sampling Point: DP4

Investigator(s): Kyle Wear Section, Township, Range: Sec. 25 T4S R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): ∠5%

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Grann-Creek-Parkland NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UTM N 4437772.27
E 432102.70

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-rad.)			
1. Vulpia myuros	30	Y	FACU
2. Poa trivialis	10	N	FACW
3. Trifolium subterranean	20	Y	NI
4. Lolium multiflorum	10	N	FAC
5. Avena fatua	2	N	NI
6. Convolvulus arvensis	2	N	NI
7. Bromus hordeaceus	20	Y	NI
8. Geranium dissectum	2	N	NI
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/1	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-11-11

Applicant/Owner: State: CA Sampling Point: DP 5

Investigator(s): Kyle Wear Section, Township, Range: Sec 25 T4S R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): <5%

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Grannycreek-Parkland ? NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No Y	**Is the Sampled Area within a Wetland?** Yes X (1) No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: (1) Considered wetland based on soil and hydrology

UTM N 4437789.39 E432058.59

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-rad)			
1. Vulpia myuros	20	Y	FACU
2. Bromus hordeaceus	20	Y	NI
3. Poa trivialis	20	Y	FACW
4. Juncus tenuis	5	N	FACW
5. Lolium multiflorum	20	Y	FAC
6. Avena fatua	2	N	NI
7. Briza maxima	2	N	NI
8. Phalaris aquatica	5	N	FAC
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	25	x 2 =	50
FAC species	25	x 3 =	75
FACU species	20	x 4 =	80
UPL species	24	x 5 =	120
Column Totals:	94 (A)		325 (B)

Prevalence Index = B/A = 3.46

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X (2)

Remarks: (2) May meet hyd. veg. criteria later in season when Vulpia dries up

SOIL

Sampling Point: DP 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/1	90	7.5yr 4/6	10	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-11-11

Applicant/Owner: State: CA Sampling Point: DP6

Investigator(s): Kyle Wear Section, Township, Range: Sec 25 T4S R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): <5%

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: Garberville-Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: UTM N 4437802.90 E 432036.40

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10'-r)			
1. Cyperus eragrostis	20	Y	FACW
2. Eleocharis macrostachya	20	Y	OBL
3. Poa trivialis	20	Y	FACW
4. Rumex crispus	5	N	FACW
5. Vulpia myuros	5	N	FACU
6. Lurdeum marinum	5	N	NI
7. Alopecurus aequalis	5	N	OBL
8. Carex subfusca	5	N	FAC
9. Trifolium gyrium	2	N	FACU
10. Phalaris aquatica	10	N	FAC
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: DP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr4/1	90	7.5yr4/6	10	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-11-11

Applicant/Owner: State: CA Sampling Point: DP 7

Investigator(s): Kyle Wear Section, Township, Range: Sec 25 T4S R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): in ditch Slope (%): ~ 5%

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: Granncreek – Parkland NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: UTM N 4437738.52
E 432232.87

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10 x 5' ①)			
1. Juncus patens	20	Y	FAC
2. Mentha pelugium	20	Y	OBL
3. Silybum mariagum	5	N	NI
4. Geranium dissectum	5	N	NI
5. Briza maxima	5	N	NI
6. Phalaris aquatica	30	Y	FAC
7. Vicia sativa	5	N	FACU
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: ① Plot in drainage ditch parallel to banks

SOIL

Sampling Point: DP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr3/1	95	7.5yr4/6	5	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-13-11

Applicant/Owner: State: CA Sampling Point: DP8

Investigator(s): Kyle Wear Section, Township, Range: Sec 25 T4S R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): < 5%

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Grannycreek-Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UTM N 4437737.92 E 432220.35

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-rad)			
1. Phalaris aquatica	20	Y	FAC
2. Dactylis glomerata	20	Y	FACU
3. Geranium dissectum	5	N	NI
4. Vulpia myuros	20	Y	FACU
5. Vicia sativa	2	N	FACU
6. Trifolium subterraneum	5	N	NI
7. Aira caryophyllea	5	N	NI
8. Hypochaeris radicata	5	N	NI
9. Trifolium dubium	5	N	FACU
10. Anthoxanthum odoratum	5	N	FACU
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-13-11

Applicant/Owner: State: CA Sampling Point: DP 9

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): ~5 %

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Grannycreek Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UTM N 4437654.14 E 432229.88

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-rad)			
1. Vulpia myuros	20	Y	FACU
2. Avena fatua	20	Y	NI
3. Trifolium subterraneum	15	Y	NI
4. Bromus hordeaceus	15	Y	NI
5. Geranium dissectum	2	N	NI
6. Poa trivialis	2	N	FACW
7. Lolium multiflorum	15	Y	FAC
8. Juncus tenuis	2	N	FACW
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-13-11

Applicant/Owner: State: CA Sampling Point: DP 10

Investigator(s): Kyle Wear Section, Township, Range: Sec. 25 T4S R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): 45

Subregion (LRR): F Lat: Long: Datum: NAD 83

Soil Map Unit Name: Grannycreek - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: UTM N 4437653.29
E 432232.72

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5'-rad.)			
1. Juncus patens	90	Y	FAC
2. Poa trivialis	3	N	FACW
3. Phalaris aquatica	3	N	FAC
4. Vicia sativa	3	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Plot in patch of Juncus below culvert

SOIL

Sampling Point: DP10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/1	95	7.5yr 4/6	5	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-13-11

Applicant/Owner: State: CA Sampling Point: DP 11

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slope (%): 25

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Grannycreek - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: UTM N 4437730.93
E 432036.33

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	25	Y	FAC
2. Lolium multiflorum	25	Y	FAC
3. Vulpia myuros	10	N	FACU
4. Rumex crispus	10	N	FACW
5. Poa trivialis	5	N	FACW
6. Hypochaeris radicata	5	N	NI
7. Hordeum marinum	5	N	NI
8. Cyperus eragrostis	5	N	FACW
9. Juncus tenuis	5	N	FACW
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: DP11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10yr3/1	85	7.5yr4/6	15	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: DP12 & 13

Applicant/Owner: State: CA Sampling Point: S-13-11

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slope (%): ~5%

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: Grannycreek - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No ____	
Wetland Hydrology Present?	Yes ____ No ____	

Remarks: UTM N 4437670.29 E 443049.98

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-rad)			
1. Vulpia myuros	20	Y	FACU
2. Avena fatua	5	N	NI
3. Trifolium dubium	5	N	FACU
4. Hordeum marinum	5	N	NI
5. Poa trivialis	5	N	FACW
6. Phalaris aquatica	10	Y	FAC
7. Lolium multiflorum	20	Y	FAC
8. Trifolium subterraneum	10	Y	NI
9. Briza maxima	10	Y	NI
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/1	99	7.5yr 4/6	1	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-13-11

Applicant/Owner: State: CA Sampling Point: DP 13

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slope (%): 5

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Granny Creek - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	Is the Sampled Area within a Wetland? (1) Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes No X	

Remarks: determination based on soil & hydrology
UTM N 4437642.13 E 432163.51

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10'-rad.)			
1. Trifolium subterraneum	20	Y	NI
2. Vulpia myuros	20	Y	FACU
3. Juncus tenuis	5	N	FACW
4. Lolium multiflorum	20	Y	FAC
5. Convolvulus arvensis	5	N	NI
6. Hordeum marinum	10	N	NI
7. Poa trivialis	5	N	FACW
8. Bromus hordeaceus	10	N	NI
9. Avena fatua	5	N	NI
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	10	x 2 =	20
FAC species	20	x 3 =	60
FACU species	20	x 4 =	80
UPL species	50	x 5 =	500
Column Totals:	100 (A)		660 (B)

Prevalence Index = B/A = 6.6

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Area may meet hyd. veg criteria later in season as Vulpia & Trifolium dry up

SOIL

Sampling Point: DP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	98	7.5YR 4/6	2	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-13-11
Applicant/Owner: State: CA Sampling Point: DP14
Investigator(s): Kyle Wear Section, Township, Range:
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): 15%
Subregion (LRR): A Lat: Long: Datum: NAD83
Soil Map Unit Name: Grannycreek - Parkland NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: UTM N 4437639.65
E 432177.46

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10' rad)			
1. Vulpia myuros	30	Y	FACU
2. Trifolium subterraneum	30	Y	NI
3. Bromus hordeaceus	10	N	NI
4. Avena fatua	20	Y	NI
5. Convolvulus arvensis	10	N	NI
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10yr 3/1	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-23-11

Applicant/Owner: State: CA Sampling Point: DP 15

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slope (%): 25%

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Grannycreek - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: utm N 4437918.06
E 432160.03

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus latifolia	10	Y	FACW
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Carex obnupta	40	Y	OBL
2. Juncus patens	20	Y	FAC
3. Rubus discolor	20	Y	FAC
4. Rubus ursinus	20	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: DP15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10yr 3/1	80	7.5yr 4/6	20	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 5-23-11

Applicant/Owner: State: CA Sampling Point: DP 16

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slope (%): 4.5%

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: Granny Creek - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UTM N 4437931.98 E 432135.59

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: Gen Habitat)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus kelloggii	40	Y	NI
2. Umbellularia californica	40	Y	FAC
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-rad)			
1. Melica subulata	15	Y	NI
2. Sanicula crassicaulis	5		NI
3. Osmorhiza chilensis	5		NI
4. Lonicera hispidula	5		NI
5. Rubus discolor	20	Y	FAS
6. Toxicoscordion venenosum	5		NI
7. Polystichum munitum	5		NI
8. Stachys ajugoides	5		OBL
9. Lathyrus vestitus	15	Y	NI
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 7-8-11

Applicant/Owner: State: CA Sampling Point: DP17

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slope (%): 25%

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Parkland-Gardenville NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: utm N 4437247.08
E 431426.07

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Anthoxanthum odoratum	20	Y	FACU
2. Eschscholzia cal.	20	Y	NI
3. Rumex acetosella	10	N	NI
4. Dactylis glomerata	5	N	FACU
5. Aira caryophyllea	5	N	NI
6. Avena fatua	20	Y	NI
7. Convolvulus arvensis	2	N	NI
8. Bromus diandrus	10	N	NI
9. Bromus hordeaceus	10	N	NI
10. Trifolium laxa	2	N	NI
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: DP17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 2/2	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 7-8-11

Applicant/Owner: State: CA: Sampling Point: DP 18

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): < 5%

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: Parkland Garberville NWI classification: Freshwater Emergent

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: UTM N 4437282.31
E 431408.71

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-rad)			
1. Juncus patens	20	Y	FAC
2. Carex subfusca	20	Y	FAC
3. Limnathes douglasii	15	Y	OBL
4. Mentha pelugium	10	N	OBL
5. Anthoxanthum odoratum	15	Y	FACU
6. Agrostis tenuis	10	N	NI
7. Phalaris aquatica	10	N	FAC
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: DP18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 2/2	90	7.5yr 5/6	10	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 7-8-11

Applicant/Owner: State: CA Sampling Point: DP 19

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ± none Slope (%): Ø

Subregion (LRR): A Lat: Long: Datum: NAD 8

Soil Map Unit Name: Parkland - Garberville NWI classification: Freshwater Emerg.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks: UTM N 4437282.66
E 431330.63

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 10'-r)			
1. Phalaris aquatica	40	Y	FAC
2. Mentha pekuigium	30	Y	OBL
3. Anthoxanthum odoratum	20	Y	FACU
4. Juncus tenuis	10		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: DP19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10yr3/1	80	7.5yr4/6	20	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 7-8-11

Applicant/Owner: SHCP State: CA Sampling Point: DP 20

Investigator(s): Kyle Wear Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): _____ Slope (%): Ø

Subregion (LRR): A Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Parkland - Garberville NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: UTM N 4437298.88
E 431324.02

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 10'-r)			
1. Dactylis glomerata	20	Y	FACU
2. Anthoxanthum odoratum	20	Y	FACU
3. Agrostis capillaris	20	Y	NI
4. Hordeum marinum	10		NI
5. Vulpia myros	10		FACU
6. Danthonia californica	20	Y	FACW
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: DP20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10yr 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 8-25-11

Applicant/Owner: State: CA Sampling Point: DP21

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slope (%): 0

Subregion (LRR): A Lat: Long: Datum: NAD83

Soil Map Unit Name: Grannycreek - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No ?	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks: Area recently mowed for hay

UTM N 4437365.76 E 431810.05

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Eschscholzia calif			NI
2. Rubus ursinus			FAC
3. Avena fatua			NI
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: Area recently mowed most plants not IDable

SOIL

Sampling Point: DP 21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10yr 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 8-25-11

Applicant/Owner: State: CA Sampling Point: DP 22

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ?, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ? No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: UTM N 4437360.04
E 431781.43

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10'-r)			
1. Mentha pelugium			OBL
2. Convolvulus arvensis			NI
3. Phalaris aquatica			FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ? No

Remarks: Area recently mowed for hay. Most plants not IDable.

SOIL

Sampling Point: DP 22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10yr 3/1	90	7.5yr 4/6	10	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 8-25-11

Applicant/Owner: State: CA Sampling Point: DP 23

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%):

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: Grannycreek Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UTM N 4437439.06
E 431665.23

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'-rad)			
1. Dactylis glomeratum	20	Y	FACU
2. Phalaris aquatica	30	Y	FAC
3. Agrostis capilaris	10		NI
4. Vulpia myuros	20	Y	FACU
5. Briza minor	10		FACW
6. Hypericum perforatum	2		NI
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)	(B)	

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: DP23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 8-25-11
Applicant/Owner: State: CA Sampling Point: DP 24
Investigator(s): Kyle Wear Section, Township, Range:
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: Long: Datum: NAD 83
Soil Map Unit Name: Granny Creek - Parkland NW classification: Freshwater Emerg.
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: UTM N 4437465.85
E 431724.11

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10' rad)			
1. Phalaris aquatica	50	Y	FAC
2. Agrostis capillaris	20	Y	NI
3. Juncus patens	20	Y	FAC
4. Bromus hordeaceus	2		
5. Briza minor	2		
6. Rumex pulcher	2		
7. Hypochaeris radicata	2		
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: DP 24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10yr3/1	90	7.5yr4/6	10	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 8-25-11

Applicant/Owner: State: CA Sampling Point: DP 25

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): ditch Slope (%): 0

Subregion (LRR): A Lat: Long: Datum: NAD 83

Soil Map Unit Name: Carlotville - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: utm N 4437559.38
E 431602.56

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Mentha pelugium	90	Y	OBL
2. Convolvulus arvensis	5		NI
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: DP25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10yr3/1	90	10yr4/6	10	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- Z Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: SHCP City/County: Humboldt Sampling Date: 8-25-11

Applicant/Owner: State: Sampling Point: 26

Investigator(s): Kyle Wear Section, Township, Range:

Landform (hillslope, terrace, etc.): A Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Granaycreek - Parkland NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UTM N 4,437,567.74
E 431,600.00

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Dactylis glomerata	30	Y	FACU
2. Agrostis capillaris	30	Y	NI
3. Phalaris aquatica	30	Y	FAC
4. Hordium marinum	10		NI
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 3/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Special-Status Wildlife Survey Report

Southern Humboldt Community Park
Humboldt County, California

Submitted: December 3, 2012

J.B. Lovelace & Associates
HC 69, Box 38
Covelo, CA 95428
www.jblovelace.com

TABLE OF CONTENTS

List of Figures

List of Tables

List of Appendices

Summary

The Southern Humboldt Community Park is in the process of developing an Environmental Impact Report in support of proposed changes to pertinent zoning classifications and amendments to the Humboldt County Plan land use designations to allow for increased public use and limited, phased development at the site. Wildlife surveys were conducted by J. Brett Lovelace (J. B. Lovelace & Associates) on June 1-2, 2012, to identify the presence of Special-Status wildlife species that may occur on the property in question and address relevant conservation issues. Eight (8) Special-Status wildlife species were observed utilizing various grassland and forested habitats on the property. Suitable habitat exists within the study area for an additional twenty (20) Special-Status wildlife species which were not observed during this fieldwork, but that have a high likelihood to occur based on habitat characteristics and local species occurrence data. No state or federally listed Threatened or Endangered species were encountered during this effort.

1.0 Introduction

The Southern Humboldt Community Park (SHCP) is developing an Environmental Impact Report (EIR) as part of their proposal to amend the Humboldt County General Plan to change current land use designations and zoning classifications of portions of the property, and to allow for limited physical development of the site. The proposed changes would allow for a more diverse public, private, and non-profit utilization of the Park, and would also provide for the on-going maintenance of existing facilities as well as the creation and/or expansion of new infrastructure.

Specific proposed amendments to the Humboldt County General Plan land use designations include the conversion of some portions of the Park currently designated as Agricultural Lands (AL) and Agricultural Rural (AR) to Public Recreation (PR). Additional modifications to pertinent zoning classifications would change portions of the property zoned as Agricultural Exclusive (AE) to Public Facilities (PF). Proposals also include the acquisition of Conditional Use and Special Use Permits for specific activities associated with various community events to be held within areas of the Park to be designated as Public Facilities (PF). A more detailed project description, including specific locations and quantifications of areas subject to these proposed changes can be found in SHCP's Environmental Impact Report (GHD in prep.).

In 2002, Mad River Biologists conducted a feasibility study, which characterized the biological resources on the property and included a general assessment of the range of sensitive botanical and wildlife concerns at the site (Lovelace et al. 2002). This document also addressed associated biological constraints important for consideration in future land management decisions. More recently, a botanical survey, wetland delineation, and stream assessment was conducted to more thoroughly document sensitive botanical, wetland, and riparian resources within the study area (Wear 2011). To further guide future management decisions for the Park, SHCP retained the services of J. B. Lovelace & Associates to conduct field surveys to document the current presence of Special-Status wildlife species, and assess their potential utilization of the property. This report documents that effort, the results of the field surveys, and provides recommendations to avoid and/or minimize disturbances to Special Status wildlife species encountered, and/or that have the potential to occur at the site.

2.0 Site Description

2.1 Study Area Location

The Southern Humboldt Community Park (Figure 1) consists of 405.7 acres, and is located between the communities of Garberville and Benbow in southern Humboldt County, California; in portions of Sections 25 and 26, T4S, R3E (Humboldt Base Meridian), in the Garberville U.S. Geological Survey

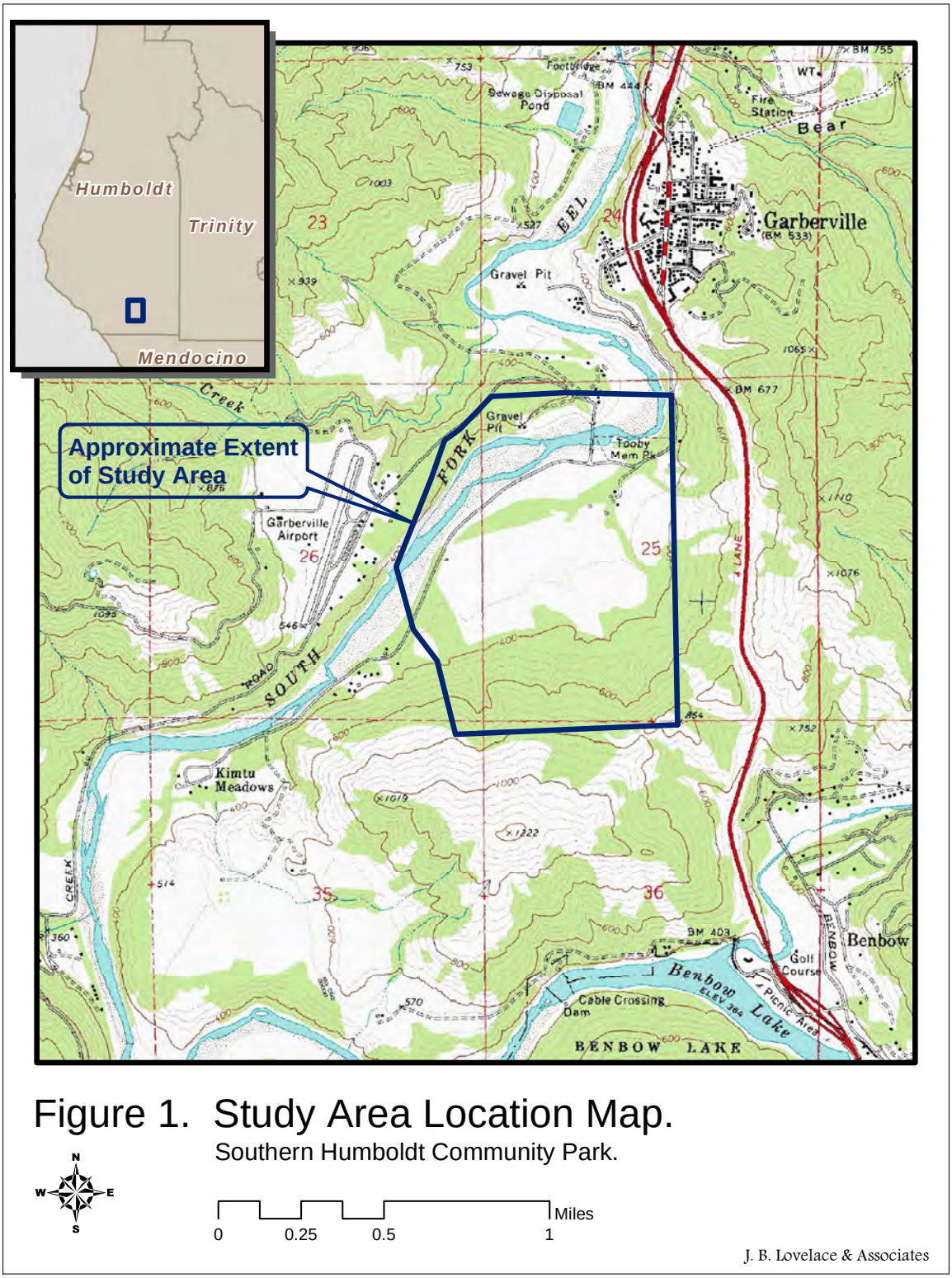


Figure 1. Study Area Location Map.
Southern Humboldt Community Park.

[USGS] Quadrangle. The Park is accessed by Sprowl Creek Road and Kimtu Road, and the South Fork of the Eel River flows through much of the western and northern portions of the property.

Elevation at the Park ranges from approximately 320-400 feet (97-122 meters) in the valley bottom along the South Fork of the Eel River, to ~1,000 feet (3,300 meters) at the highest locations on adjacent forested slopes. All zoning and land-use designation changes are proposed for portions of the property in the valley bottom and a short distance (< 350 feet) up the forested slope.

2.2 Historic & Current Land Use

The Southern Humboldt Community Park was formerly part of the larger 10,000-acre "Tooby Ranch," which was historically operated as a sheep and beef cattle ranch. Since its acquisition, the SHCP has sought to providing recreational opportunities to the public, in addition to continuing to dedicate some of the property to agricultural production. Current recreational use includes hiking, mountain biking, equestrian access, Frisbee-golf, a skate park, picnicking, river access at Tooby Memorial Park, and special events. The Park is also frequented by the public for bird-watching opportunities and wildlife viewing, and has been identified as a local birding "hotspot" owing to the diversity of bird species known to utilize various habitats associated with the property (eBird 2012).

Portions of the grassland-dominated valley bottom continue to be utilized for agricultural purposes such as organic row-crop production, hay production, and limited livestock grazing. Existing buildings and infrastructure include a caretaker residence, along with barns and associated outbuildings.

2.3 Vegetation & Habitat Characteristics

Vegetation in the study area was most recently described by Wear (2011), using the current vegetation classification system provided in *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009). Wear's (2011) description of the vegetation alliances is included below (some modifications to Wear's treatment reflect recent taxonomical reorganization introduced with the updated *The Jepson Manual: Vascular Plants of California, Second Edition* [Baldwin et al. 2012]).

Non-native Grasslands

The grasslands occupying a majority of the study area are dominated by non-native grasses such as orchard grass (*Dactylis glomerata*), soft chess (*Bromus hordeaceus*), sweet vernal grass (*Anthoxanthum odoratum*), Italian ryegrass (*Festuca perennis*), rat's tail fescue (*Festuca myuros*), Harding grass (*Phalaris aquatica*), wild oat grass (*Avena fatua*), and colonial bent grass (*Agrostis capillaris*).

Western Rush Marsh (*Juncus patens* Provisional Alliance)

These marshes are dominated by western rush (*Juncus patens*). Other associated species include Harding grass (*Phalaris aquatica*), and pennyroyal (*Mentha pulegium*).

Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance)

These areas are dominated by slough sedge (*Carex obnupta*). Western rush (*Juncus patens*), diffuse rush (*Juncus effusus*), and California blackberry (*Rubus ursinus*) are common associated species. A portion of the study area includes stands of slough sedge that are under a canopy of Oregon ash (*Fraxinus latifolia*), coast redwood (*Sequoia sempervirens*), and other trees.

Riparian Vegetation

Riparian habitat along the South Fork Eel River includes a canopy of black cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*), and willows (*Salix* spp.). Understory species include California wild grape (*Vitis californica*) and Himalayan blackberry (*Rubus armeniacus*). This area is classified as Black cottonwood forest (*Populus trichocarpa* Forest Alliance). The riparian canopy along the seasonal streams is often not well developed, but stands of willows (*Salix* spp.) and Oregon ash (*Fraxinus*

latifolia) are present. Stands of willows (*Salix* spp.) and Oregon ash (*Fraxinus latifolia*) are also associated with other wetland habitats on the property.

California Bay Forest (*Umbellularia californica* Forest Alliance)
The southern portion and the northern edge of the Study Area include forests dominated by California bay (*Umbellularia californica*). Black oak (*Quercus kelloggii*) and madrone (*Arbutus menziesii*) are also common. The sparse understory in these areas includes species such as poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus armeniacus*), trail plant (*Adenocaulon bicolor*), and mountain sweet cicely (*Osmorhiza berteroi*).

Redwood Forest (*Sequoia sempervirens* Forests Alliance)
The forest at Tooby Memorial Park is dominated by coast redwood (*Sequoia sempervirens*). Characteristic understory species include sword fern (*Polystichum munitum*), redwood sorrel (*Oxalis oregana*), and Hooker's fairy bells (*Disporum hookeri*).

Himalayan Blackberry Brambles (*Rubus armeniacus* Semi-Natural Shrubland Stands)
These areas are characterized by mostly monotypic stands of Himalayan blackberry (Rubus *armeniacus*) and occur throughout the study area.

Mixed Douglas-fir and Hardwood Forests
In addition to the vegetation alliances described by Wear (2011), are the forested slopes with a predominantly north or northwesterly aspect in the southern portion of the study area. California Black Oak Forests (*Quercus kelloggii* Forest Alliance) occurs along the lower to middle slopes in this portion of the property. It is characterized by a mixed species composition including black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepis*), Oregon white oak (*Quercus garryana*), California bay (*Umbellularia californica*), California buckeye (*Aesculus californica*), Pacific madrone (*Arbutus menziesii*), and Douglas-fir (*Pseudotsuga menziesii*). The understory is fairly open with low shrub cover made up primarily of hazelnut (*Corylus cornuta*) and poison oak (*Toxicodendron diversilobum*). Herbaceous cover in the understory consists of various woodland species such as wood strawberry (*Fragaria vesca*), sanicle (*Sanicula crassicaulis*), mountain sweet cicely (*Osmorhiza berteroi*), honeysuckle (*Lonicera hispidula*), trail plant (*Adenocaulon bicolor*), yerba buena (*Satureja douglasii*), sword fern (*Polystichum munitum*), and wood fern (*Dryopteris arguta*).

Beginning a short distance up the slope, the California Black Oak Forest transitions into Douglas-Fir Forests (*Pseudotsuga menziesii* Forest Alliance), which is the dominant forest type encountered in this part of the study area. This habitat type occurs on the middle to upper slopes in the southern, and south-eastern portion of the property. Douglas-fir (*Pseudotsuga menziesii*) is the dominant tree species of this alliance, though it does coexist with other associates such as black oak (*Quercus kelloggii*), California bay (*Umbellularia californica*), canyon live-oak (*Quercus chrysolepis*), tan oak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), and big leaf maple (*Acer macrophyllum*). The density of the understory varies, and is composed of California hazel (*Corylus cornuta*), canyon live-oak (*Quercus chrysolepis*), poison oak (*Toxicodendron diversilobum*), manzanita (*Arctostaphylos* sp.), toyon (*Heteromeles arbutifolia*), sword fern (*Polystichum munitum*), wood fern (*Dryopteris arguta*), and California blackberry (*Rubus ursinus*).

Some portions of this forested slope include stands with an increase in the dominance and frequency of mature Douglas-fir trees. These locations exhibit some late-seral and/or old-growth characteristics, including a multi-layered canopy with frequent gaps, broken-top trees, and snags, all of which provide a greater degree of stand structural complexity.

3.0 Methodology

3.1 Preliminary Research

The potential for the occurrence of Special-Status wildlife species at Southern Humboldt Community Park was evaluated using available database information, consultation with local resource agency personnel (Van Hattem pers. comm.), review of aerial photography, and site reconnaissance. Preliminary investigations included a query of the California Department of Fish & Game's Natural Diversity Database (CNDDB) occurrence records within the Garberville, and eight surrounding USGS quadrangles (CNDDB 2012), the U.S. Fish & Wildlife Service's (USFWS) list for special-status species for Humboldt County (USFWS 2012), the *Atlas of the Breeding Birds of Humboldt County, California* (Hunter et al. 2005), and occurrence data obtained from the Cornell Lab of Ornithology & the National Audubon Society's eBird online database (eBird 2012). A treatment of species' conservation status definitions and regulatory background is provided in Appendix A.

Using the results of this initial research, a comprehensive "target list" of Special-Status species identified for the study area was refined based on information obtained through site visits, the review of species account data, and correspondence with local experts. Some species resulting from database queries were omitted from the refined target list based on a lack of suitable habitat within the study area, or due to other relevant criteria that warranted their dismissal. Alternatively, some additional species were included based on distribution information in combination with known utilization of habitats similar to those found within the study area. The list of species generated from the aforementioned database queries is included as Appendix B.

3.2 Fieldwork

Focused wildlife field surveys were performed by J. Brett Lovelace, M.A. (J.B. Lovelace & Associates) on June 1 & 2, 2012 to assess the current suitability of habitat within the study area to support Special-Status wildlife species and to document the presence of any such species encountered. These focused wildlife surveys involved an intuitive, meandering transect (on foot) throughout each distinct habitat type found throughout the study area. Wildlife species were located and identified based on direct, visual and auditory (e.g., calls and songs) observations, as well as indirect observations of tracks, scat, feathers, etc. Binoculars were used to assist in visual identification. Surveys were conducted during the late afternoon and evening hours on June 1, and from early morning to mid-afternoon on June 2, 2012.

4.0 Results

No federal or state listed Threatened or Endangered species were encountered during this effort. Eight (8) Special-Status wildlife species were observed at Southern Humboldt Community Park during the field surveys (Table 1, Appendix D), as were a variety of migratory bird species protected under the Migratory Bird Treaty Act (refer to Appendix A). A complete list of wildlife species observed during the field surveys is included as Appendix C. Suitable habitat also exists within the study area for an additional twenty (20) Special-Status wildlife species (Table 1) that were not observed during the fieldwork, but that are determined to have a high likelihood of occurrence based on habitat characteristics at the site in combination with local species occurrence data.

Each of these species is briefly described in the species accounts below. Included in these accounts is a discussion of the species' occurrence, or potential for occurrence, specific to the study area, along with management recommendations for avoiding impacts to each (if applicable). Species accounts are arranged taxonomically: by class, order, family, genus, and species.

Table 1. Special-Status Wildlife Species Table. Included are Special-Status wildlife species observed at Southern Humboldt Community Park during June 1-2, 2012 fieldwork, or that were *not observed*, but *are likely to occur* based on the presence of suitable habitat within the study area. Species are arranged primarily by taxonomic class and secondarily by decreasing conservation status.

Common Name	Species	Conservation Status	Suitable Habitat
OBSERVED DURING JUNE 1-2, 2012 FIELDWORK			
Amphibians			
Foothill Yellow-legged Frog	*Rana boylii*	DFG:SSC	Exposed, slow-moving, shallow water and gravel/cobble substrata
Birds			
White-tailed Kite	*Elanus leucurus*	DFG:FP	Trees near forest/meadow edges, and water
Vaux's Swift	*Chaetura vauxi*	DFG:SSC	Hollow tree cavities and snags
Yellow-breasted Chat	*Icteria virens*	DFG:SSC	Riparian forest/thickets
Grasshopper Sparrow	*Ammodramus savannarum*	DFG:SSC	Grassland
Osprey	*Pandion haliaetus*	DFG:WL	Large mature trees/emergent platforms near water
Sharp-shinned Hawk	*Accipiter striatus*	DFG:WL	Coniferous-hardwood forest
Black-capped Chickadee	*Poecile atricapillus*	DFG:WL	Riparian forest/thickets
NOT OBSERVED, BUT LIKELY TO OCCUR BASED ON HABITAT SUITABILITY & OCCURRENCE DATA			
Amphibians			
Northern Red-legged Frog	*Rana aurora*	DFG:SSC	Freshwater wetlands (inundated/ponds)
Reptiles			
Western Pond Turtle	*Emys marmorata*	DFG:SSC	Exposed riparian and wetland habitat with emergent vegetation and basking surfaces
Birds			
Northern Spotted Owl	*Strix occidentalis caurina*	FT/DFG:SSC	Mature coniferous forest
Willow Flycatcher	*Empidonax traillii*	SE	Riparian forest/thickets
Bald Eagle	*Haliaeetus leucocephalus*	SE	Large mature trees/emergent platforms near water
Golden Eagle	*Aquila chrysaetos*	DFG:FP	Canyons/tall trees (breeding)/hunts in grasslands
Peregrine Falcon	*Falco peregrinus*	DFG:FP	Grassland and wetlands with emergent vegetation
Northern Harrier	*Circus cyaneus*	DFG:SSC	Grassland and wetlands with emergent vegetation
Merlin	*Falco columbarius*	DFG:SSC	Winters in area, likely forages in the study area
Olive-sided Flycatcher	*Contopus cooperi*	DFG:SSC	Forest edges and other ecotones, emergent trees
Purple Martin	*Progne subis*	DFG:SSC	Snags and cavities, forages over wetlands
Yellow Warbler	*Setophaga petechia*	DFG:SSC	Riparian forests/thickets
Cooper's Hawk	*Accipiter cooperii*	DFG:WL	Coniferous-hardwood forest
Great Blue Heron	*Ardea herodias*	Nesting Colony	Forages in riparian corridors and wetlands
Great Egret	*Ardea alba*	Nesting Colony	Forages in riparian corridors and wetlands
Snowy Egret	*Egretta thula*	Nesting Colony	Forages in riparian corridors and wetlands
Mammals			
Pacific Fisher	*Martes pennanti pacifica* DPS	FC, DFG:SSC	Mature coniferous forest (outside redwood zone)
Sonoma Red Tree Vole	*Arborimus pomo*	DFG:SSC	Mid-seral/late-seral forests with Douglas-fir
Pallid Bat	*Antrozous pallidus*	DFG:SSC	Sheltered crevices, cavities, etc./hunts in wetlands
Townsend's Big-eared Bat	*Corynorhinus townsendii*	DFG:SSC	Sheltered crevices, cavities, etc./hunts in wetlands
Conservation Status Codes Definitions - Refer to Appendix A for additional explanation.			
FT - Federal Threatened			
FE - Federal Endangered			
FCE/T- Federal Candidate Endangered/Threatened			
ST - California State Threatened			
SE - California State Endangered			
SCE/T- Federal Candidate Endangered/Threatened			
DFG:FP - California Dept. Fish & Game Fully Protected			
DFG:SSC - California Dept. Fish & Game Species of Special Concern			
DFG:WL - California Dept. Fish & Game Watch List			
Nesting Colony - California Dept. Fish & Game protected nesting colonies			

4.1 Special-Status Wildlife Species Accounts & Associated Management Recommendations

Amphibians (Amphibia)

Northern Red-legged Frog (*Rana aurora*)

Northern Red-legged Frog is a Species of Special Concern in California that typically breeds in ponds or in pools in slow-moving streams, with emergent vegetation. Adjacent wetland and upland habitats are often used for temporary foraging, refugia, and dispersal. In northern California, Northern Red-legged Frog breeding occurs in late winter and early spring. At lower elevations, most larvae are completely metamorphosed by late-spring. When not breeding, this species wanders widely in damp riparian and coniferous forests.

The diet of Red-legged Frogs consists primarily of insects captured near water. Factors contributing to the decline of Northern Red-legged Frog include loss of habitat, disease resulting from introduced fungal pathogens (e.g., chitdridiomycosis, etc.), and predation by introduced Bullfrogs (*Rana catesbeiana*).

Although this species was not observed during recent field surveys, it is likely that the Northern Red-legged Frog inhabits wetland habitats within the study area. Avoiding substantial disturbances to, and otherwise maintaining the integrity of, the existing wetland habitats on the property will help avoid and/or minimize impacts to this species.

Foothill Yellow-legged Frog (*Rana boylii*)

The Foothill Yellow-legged Frog is a California Species of Special Concern, and is found in northern California at inland locations along exposed streams and rivers with a significant gravel or cobble component. When disturbed, Foothill Yellow-legged Frog escapes into the water and relies on its cryptic coloration, hiding among vegetation or other substrate along the bottom. It is less likely for this species to travel far from the immediate riparian corridor, though it can occasionally be found along small, sheltered streams.

Breeding typically takes place in late spring, after high water flows have subsided. Eggs are laid in a mass of up to 1,000, and are attached to rocks in shallow, slow-moving water, and larvae transform into adult frogs during early-mid summer. Primary causes for the decline of this species in California are habitat loss, reduced stream-flows, and predation by the introduced Bullfrog (*Rana catesbeiana*).

Foothill Yellow-legged Frog was observed during recent field surveys along the gravel bar of the South Fork of the Eel River (Appendix D). It is likely that this species occurs elsewhere along the South Fork of the Eel River and the smaller riparian corridors within the study area. Avoiding disturbance to riparian habitats, particularly during the species' breeding season will minimize adverse impacts to the Foothill Yellow-legged Frog. Any gravel-extraction activities should occur sufficiently far from the water's edge to prevent introduction of sediment into the river and/or other watercourses.

Reptiles (Reptilia)

Western Pond Turtle (*Emys marmorata)*

The Western Pond Turtle is a Species of Special Concern in California, and is the only native aquatic turtle in California. It is primarily found west of the Cascade and Sierra Nevada Mountains, where it occurs in, or near, slow-moving waters such as ponds, small lakes, reservoirs, and quiet streams or rivers. Individuals can be found basking on rocks, logs or on the bank near concealing aquatic or emergent vegetation. Such basking perches are an important component of their habitat needs. Along the north coast of California, Western Pond Turtles are sparsely distributed, and found primarily at inland ponds or along rivers outside of the coastal fog belt, due to their thermoregulatory requirements.

Females lay a clutch of 5-11 eggs between April and August in burrows excavated from sandy or silty substrate (typically in a south-facing slope), and sometimes at surprising distance from their home water. The diet of Western Pond Turtles consists of aquatic plants, fish, invertebrates, and carrion.

No Western Pond Turtles were observed during recent field surveys, though it is highly likely that this species occurs within the study area, along the South Fork of the Eel River. This species has been documented further south (~6.5 miles) along the South Fork of the Eel River (CNDDB 2012). Avoidance of significant habitat alteration to wetland and riparian habitats where the species might nest, particularly during the summer breeding season should minimize disturbance and adverse impacts to this species.

Birds (Aves)

Great Blue Heron (*Ardea herodias*)

Great Blue Herons are colonial nesters, and fairly conspicuous birds. For this reason, nest-site selection often includes isolating factors making nests difficult to access by predators (e.g., trees on islands, isolated branches high above the ground, other forms of concealment, etc.). This species has historically suffered from extensive over-hunting in their nesting areas, and though in some instances some populations may be recovering (due to enforced protection of nesting sites), their current or historic declining trend, combined with their vulnerability during the breeding season warrant continued protection of nesting sites or "rookeries."

Great Blue Herons were not observed during the field surveys, but are occasionally observed inland along the Eel River and in adjacent wetland habitats. Although confirmed nesting has been reported from the vicinity (Hunter et al. 2005), no nesting or roosting sites are known from the immediate study area. In the unlikely event that a nesting or roosting site be established within the study area, disturbances near such sites should be avoided.

Great Egret (*Ardea alba*)

Great Egret is a large wading bird with striking plumage. Suffering massive over-hunting in North America around the turn of the twentieth century, this species has made a dramatic comeback. Though in some instances some populations may be recovering (due to enforced protection of nesting sites), their current or historic declining trend, combined with their vulnerability during the breeding season warrant continued protection of nesting sites or "rookeries." These nesting sites or "rookeries" are typically found in the tops of tall trees or those with few branches in the lower canopy to avoid predation by mammalian predators.

Great Egrets were not observed during the field surveys, but are occasionally observed inland along the Eel River and in adjacent wetland habitats. No nesting or roosting sites are known near the study area. In the unlikely event that a nesting or roosting site be established within the study area, disturbances at such sites should be avoided.

Snowy Egret (*Egretta thula*)

Snowy Egret is a medium-sized wading bird with striking plumage. Suffering massive over-hunting in North America around the turn of the twentieth century, this species has made a dramatic comeback. Snowy Egret is a gregarious bird and colonial nester. Although in some instances some populations of Snowy Egret may be recovering (due to enforced protection of nesting sites), their current or historic declining trend, combined with their vulnerability during the breeding season warrant on-going protection of nesting sites or "rookeries." These nesting sites or "rookeries" are typically found in the

tops of tall trees or those with few branches in the lower canopy to avoid predation by mammalian predators.

Snowy Egrets were not observed during the field surveys, but are occasionally observed inland along the Eel River and in adjacent wetland habitats. No nesting or roosting sites are known near the study area. In the unlikely event that a nesting or roosting site be established within the study area, disturbances at such sites should be avoided.

Northern Harrier *(Circus cyaneus)*
The Northern Harrier (*Circus cyaneus*) has declined throughout North America in recent history. Losses have been attributed to hunting, habitat loss resulting from urbanization, and pesticide exposure. In northwestern California this species is a common migrant and winter visitor, but uncommon as a breeder and summer resident, although breeding records do exist near Humboldt Bay. In addition to being a California Species of Special Concern, breeding Northern Harriers are further protected under Section 3503.5 of the California Fish & Game Code ("CDFG Code").

The Northern Harrier hunts while flying low across fields, meadows, and marshes, utilizing sound as well as sight to locate prey. They typically nest on the ground in shrubs or other emergent vegetation, and in northern California, their breeding season extends from April 15 – September 15.

Northern Harrier was not observed during the field surveys, but has regularly been reported foraging over the open, grassland-dominated habitats in the study area (eBird 2012, SHCP staff pers. com.). While this species is expected to utilize these habitats for foraging purposes, no nests are known from the vicinity. Management recommendations include the maintenance of open grasslands within the study area to provide for habitat for prey species, and pre-disturbance surveys early in the nesting season to assess the presence of breeding birds in these areas if any significant modification to breeding habitat will occur during the nesting period.

White-tailed Kite (*Elanus leucurus*)
This raptor is an occasional resident in much of northwestern California, favoring coastal lowlands, river bottoms, medium-intensity agricultural lands, and oak savannah. The White-tailed Kite hunts by hovering or "kiting," and then diving to catch its prey. They nest and roost in trees or tall shrubs, often near the ecotone between forests and grasslands. On the brink of extinction early in the twentieth century, the species now appears to be expanding its range. White-tailed Kites are currently considered to be moderately uncommon throughout northern California, and are most likely encountered where open fields provide habitat for voles, their primary prey. White-tailed Kite is a "Fully Protected" species in California.

A pair of White-tailed Kites was observed on both days during recent field surveys, foraging in the grassland habitats near the forest edge in the southern portion of the property and roosting at a mid-slope location in the adjacent Douglas-fir forest (Appendix D). Although no nest was located during the fieldwork, the persistent presence of an interacting pair of birds during the breeding season indicates that they are probably breeding within the suitable forested habitat along the forest/grassland edge. In addition to being a Fully Protected species in California, Section 3503.5 of the California Department of Fish & Game Code affords additional protection for nesting raptors. To minimize the risk of disturbance to breeding White-tailed Kites, significant disturbances should be avoided during the nesting period for the species (March 1 – August 15) in the vicinity of coniferous-forested habitats.

In the event that significant disturbances must take place during this time period, pre-disturbance surveys are recommended to assess the breeding status of White-tailed Kites within the study area. Such surveys should be conducted in all areas of suitable habitat early in the breeding season, and prior to any disturbance.

Cooper's Hawk *(Accipiter cooperii)*
The Cooper's Hawk occurs throughout North America. It is found in a wide variety of forested and shrub habitats where it preys primarily on songbirds. Populations in North America have declined due to pesticide residues, habitat destruction, and the general decline of its major prey: songbirds. Locally, the Cooper's Hawk is an uncommon winter resident and rare summer breeder. In addition to being on CDFG's Watch List, breeding Cooper's Hawks are further protected under Section 3503.5 of the CDFG Code.

In at least one investigation, Cooper's Hawks in northern California have been found to select nest sites in mixed, mid-late successional conifer forests, usually on north-facing slopes, and in close proximity to water (Nelson 2002). In this same study, more than half of documented nests occurred in grand fir (*Abies grandis*), even though this tree species was relatively uncommon in the stands.

At least seventeen nest sites have been reported from southern Humboldt County (Bradley *in* Harris 2006). Although no Cooper's Hawks were observed during recent field surveys, suitable breeding habitat, representative of that described by Nelson (2002) occurs within the study area along the forested slope adjacent to the grasslands. Significant disturbance to this species' breeding habitat should be avoided during the nesting season (March 1 – August 15) to avoid possible impacts to breeding pairs. If such disturbances must take place during the nesting period, pre-disturbance surveys are recommended early in the breeding season to assess the breeding status of this species. Additional management recommendations for this species include the protection and enhancement of riparian habitats to benefit prey (i.e., songbird) populations.

Sharp-shinned Hawk *(Accipiter striatus)*
A close relative of the Cooper's Hawk, the Sharp-shinned Hawk occurs throughout North America. It is found in a wide variety of forested and shrub habitats where it preys primarily on songbirds. Populations in North America have declined due to pesticide residues, habitat destruction, and the general decline of its major prey: songbirds. Locally, the Sharp-shinned Hawk is an uncommon winter resident and rare summer breeder. In addition to being on CDFG's Watch List, breeding Sharp-shinned Hawks are further protected under Section 3503.5 of the CDFG Code.

One study suggests that Sharp-shinned hawks in northern California select nest sites in young- to mid-seral conifer forests with a prominent hardwood component, moderate canopy closure, and in close proximity to water (Nelson 2002). Other references cite a preference for coniferous forests with a significant pine (*Pinus* spp.) and/or spruce (*Picea* spp.) component (Platt 1976, Snyder & Wiley 1976, Quinn 1991). At least seven Sharp-shinned Hawk nest sites have been reported from southern Humboldt County (Bradley *in* Harris 2006), and one has been confirmed within 3 miles of the study area (Hunter et al. 2005).

A single Sharp-shinned Hawk was observed during recent field surveys, flying above the forest--grassland edge along the base of the forested slopes in the southern portion of the study area (Appendix D). Although no nests of this species were observed during recent field surveys, suitable breeding habitat, representative of that described by Nelson (2002) occurs within the study area along the forested slope adjacent to the grasslands. Significant disturbance to this species' breeding habitat

should be avoided during the nesting season (March 15 – August 15) to avoid possible impacts to breeding Sharp-shinned Hawks. If such disturbances must take place during the nesting period, pre-disturbance surveys are recommended early in the breeding season to assess the breeding status of this species. Additional management recommendations for this species include the protection and enhancement of riparian habitats to benefit prey (i.e., songbird) populations.

Osprey (*Pandion haliaetus*)

The Osprey is a well-known fish-eating raptor found throughout the world. Locally, it is a common nesting bird along all major river systems, bays and lakes. Once considered in danger of extinction in North America due in large part to pesticide-related eggshell thinning, it has made an impressive comeback since the decline in use of DDT. In addition to being on CDFG's Watch List, breeding Osprey is further protected under Section 3503.5 of the CDFG Code. A single Osprey was observed flying over the South Fork of the Eel River during recent field surveys (Appendix D), and this species is expected to utilize the study area for foraging and roosting.

No Osprey nests were observed within the study area during this fieldwork, but nests have been reported elsewhere along the South Fork of the Eel River (Hunter et al. 2005), one of which is within 1.5 miles of the Southern Humboldt Community Park near Benbow (CNDDB 2012). Although no Osprey nests are known to occur within the immediate study area, they could establish a nest in the tall coniferous forests at the site, and significant disturbance to this species' breeding habitat should be avoided during the nesting season (March 1 – August 15) to avoid possible impacts to breeding pairs. If such disturbances must take place during the nesting period, pre-disturbance surveys are recommended early in the breeding season to assess the presence of breeding birds.

Golden Eagle (*Aquila chrysaetos*)

Golden Eagles are large raptors found in various geographical areas throughout the northern hemisphere, usually in regions with expansive views and at least some amount of open habitat (e.g., desert, meadows, prairie, etc.). This "Fully Protected" species is locally uncommon, and is afforded additional protection under the Bald and Golden Eagle Protection Act.

Having exceptional eyesight, these birds usually identify prey from great distances while perching or soaring at significant height. Although capable of taking much larger prey, their diet typically consists of smaller animals such as rabbit, ground squirrels, prairie dogs, turkey, fox, and snakes. Golden Eagles have also been observed consuming carrion such as road-killed black-tail deer (pers. obs.).

The breeding season for Golden Eagle extends from March 15 - September 1. Nest sites characteristically have commanding views, and have been documented from cliffs and tall trees, as well as human-created structures such as bridges, transmission towers, etc. Although no Golden Eagles were observed during recent field surveys, this species has been reported from the immediate vicinity (eBird 2012), and it is possible that individuals occasionally feed from the open grassland habitats within the study area. Records of known and suspected Golden Eagle nests exist within 5 miles of the Southern Humboldt Community Park (Hunter et al. 2005). Typical nesting sites were not observed during the fieldwork, although it is possible that a nest could be established in the forested portion of the site. Management recommendations include the maintenance of open grasslands within the study area to provide for habitat for prey species, and pre-disturbance surveys early in the nesting season to assess the presence of breeding birds in these areas if any significant modification to breeding habitat (e.g. timber harvest, road construction, clearing, or other significant disturbances) will occur during the nesting period.

Bald Eagle *(Haliaeetus leucocephalus)*
Although the Bald Eagle was de-listed in 2007 by the U.S. Fish & Wildlife Service, it remains on the California Endangered Species list, and is a "Fully Protected" species in California. Additional protection is also afforded this species under the Bald and Golden Eagle Protection Act.

The Bald Eagle is found throughout North America and occurs widely in California. Concentrations of Bald Eagles are found where their preferred food is abundant (i.e., in waterfowl wintering areas, and along major salmon streams and rivers with adjacent snags for perching). Large stick nests are usually built near the tops of living or dead trees. Eggs can be laid as early as January, and typical incubation periods range from 30-45 days. Young take their first flight approximately 2.5 months after hatching. Prey typically consists of fish that they catch themselves, or that they steal from Ospreys. Bald Eagles also feed upon a wide variety of small mammals, aquatic birds, and even carrion.

An increase in the local population has been attributed to increased winter sightings (Harris 1996). The closest known nest site of the Bald Eagle was reported in May of 2012 one mile south of the study area, along the South Fork of the Eel River, near Benbow (eBird 2012). Bald Eagles would be expected to occur along the South Fork of the Eel River during the winter, and individuals from the nearby nest likely forage and roost within the study area during the rest of the year. Although no nests were observed within the study area it is conceivable that Bald Eagles could establish a nest in the tall coniferous forests at the Southern Humboldt Community Park in the future.

Significant disturbance to this species' breeding habitat should be avoided during the nesting season (February 15 – September 1) to avoid possible impacts to breeding pairs. If such disturbances must take place during the nesting period, pre-disturbance surveys are recommended early in the breeding season to assess the presence of breeding birds.

Merlin *(Falco columbarius)*
The Merlin is a Species of Special Concern in California. This small falcon is found throughout North America, in a wide variety of open habitats where it preys primarily on smaller birds. Population declines have been attributed to habitat destruction, pesticide residues, and reductions in its primary prey populations (i.e., songbirds). Merlins are known to breed in more northerly latitudes; no known breeding records exist for California.

Merlins are occasionally seen in Humboldt County in the winter and have been reported at the Southern Humboldt Community Park (eBird 2012). This species likely utilizes the study area for foraging during winter months, and management recommendations for this species include the protection and enhancement of riparian habitats to benefit songbird populations.

Peregrine Falcon *(Falco peregrinus)*
Although the Peregrine Falcon was removed from the federal and California Endangered Species lists in 1999 and 2008 (respectively), it remains a "Fully Protected" species in California. Breeding Peregrine Falcons are further protected under Section 3503.5 of the CDFG Code.

The Peregrine Falcon is found throughout North America, usually near aquatic habitats where it preys primarily on water birds such as shorebirds and ducks. Historically, populations in North America have declined due to pesticide residues, nest disturbances (including the illegal removing of chicks for falconry), and habitat destruction. Locally, the Peregrine Falcon is an uncommon winter resident and rare summer breeder.

Although they usually nest in cliffs, they have also been known to nest on human-created structures (e.g., very tall buildings, bridges, etc.). Peregrine Falcons were also reported nesting in large redwood snags at two locations elsewhere in Humboldt County. The breeding period for Peregrine Falcons in northern California typically extends from February 15 – September 15.

No Peregrine Falcons were observed during recent field surveys, though numerous sightings from Southern Humboldt Community Park have been reported (eBird 2012). One documented nest has been reported further downstream, near the South Fork of the Eel River (CNDDB 2012). Peregrine Falcons are expected to utilize the study area for occasional foraging or roosting. Although some large conifer snags exist within and near the Project area, no nesting sites typically used by Peregrine Falcons (i.e., exposed cliffs) were observed during field surveys, and it is unlikely that the study area supports any Peregrine Falcon nests.

Northern Spotted Owl *(Strix occidentalis caurina)*
The Northern Spotted Owl is a federally listed Threatened species and is a California Species of Special Concern. This medium-sized forest owl occurs along the Pacific Coast of North America from central California to southwestern British Columbia. It is strongly associated with late successional/old-growth coniferous forests with a multi-layered canopy, dense canopy closure, a relatively open understory suitable for sub-canopy flight and foraging, and an otherwise "decadent" stand structure (e.g., snags, broken-topped trees, large woody debris, etc.). In northern California the Northern Spotted Owl also occurs in some relatively younger forests exhibiting elevated levels of stand structural complexity, similar to that found in late-successional/old-growth forests.

The coniferous-forested habitats within the study area are marginally suitable for Northern Spotted Owl roosting and foraging, and possibly for nesting. Some of these areas provide sufficient canopy closure and forest structure for cover, flight, and roosting as well as forest edges where Northern Spotted Owls are known to hunt for Dusky-footed Wood Rats (*Neotoma fuscipes*) and other prey (Franklin et al. 2000, Sakai & Noon 1997).

Six Northern Spotted Owl activity centers have been reported from within five miles of the study area (HUM0282, HUM0477, HUM0756, HUM0757, HUM0927, and HUM 0991); the nearest (HUM0991) being approximately two miles to the west-south-west (CNDDB 2012). Species-specific, protocol-level surveys for this species were not conducted as part of the recent fieldwork. Although some of this fieldwork did occur during the evening hours of June 1, 2012, no Northern Spotted Owls were detected.

Prior to any activities that would modify the forest habitat, (e.g. timber harvest, road construction, clearing, or other significant disturbances) protocol surveys should be carried out in consultation with the U.S. Fish & Wildlife Service to determine presence and breeding status of this species. Should Northern Spotted Owl be found to be present, appropriate seasonal and habitat modification restrictions should be implemented. Such restrictions may include avoiding disturbances during the breeding season (February 1- August 1) for this species.

Vaux's Swift (*Chaetura vauxi*)
This small, insectivorous bird breeds throughout the Pacific Northwest as well as in some parts of Mexico and Central America. In northern California however, it is largely restricted to coastal redwood forests, and coniferous forests in the Cascade Mountains. It feeds high in the air, often above the upper canopy, as well as over meadows, wetlands, open water, and other habitats. Vaux's Swift roosts and nests in hollow trees and snags, especially those that have been burned. This species has also been

known to nest in chimneys or other human-constructed structures (Hunter et al. 2005). The availability of suitable nesting habitat likely limits this species distribution. In addition to being a California Species of Special Concern, Vaux's Swift is further protected by the Migratory Breeding Bird Treaty Act.

Vaux's Swifts were seen foraging within the study area (Appendix D). Although no nesting colonies were observed, numerous large, mature, and declining Douglas-fir and oak trees and snags were observed during field surveys. Recruitment of such habitat features throughout the landscape can be uncommon, can take extended periods of time, and should be conserved wherever possible. Confirmed nesting of Vaux's Swifts has been reported within three miles of the Southern Humboldt Community Park (Hunter et al. 2005).

To avoid impacts to breeding Vaux's Swifts, significant disturbances should be avoided in the vicinity of suitable breeding habitat during the nesting season for this species (May 1 – September 1). Pre-disturbance surveys are recommended early in the breeding season to assess the presence of breeding birds in areas of suitable habitat if significant disturbance must take place during the nesting period. Maintenance of healthy wetland habitats and the retention of snags and decaying and dying trees (for nesting habitat) will also serve to provide optimum foraging habitat for this insectivorous species.

Olive-sided Flycatcher (*Contopus cooperi*)
Aggressive defenders of some of the largest breeding territories known for passerine birds (≤45 ha), Olive-sided Flycatcher (*Contopus cooperi*) tends to breed in ecotonal transitions between forested and more open landscapes. Tall perches (emergent trees or snags) with unobstructed views are often used by Olive-sided Flycatcher from which to forage for insect-prey or defend breeding territory. This species has one of the longest migrations of all Nearctic migrants: breeding in western North America and wintering from southern Central America to the northern South American Andes Mountains.

Olive-sided Flycatcher populations have declined significantly in recent years, causing it to be listed as a sensitive species by a number of states and regulatory agencies. Recent research demonstrates differential responses of populations in response to varying forest management techniques. Given declines in the overall abundance of this species throughout its breeding range, it is likely that the species is most affected by factors experienced in wintering areas (or during migration). It has also been hypothesized that pesticide effects on Olive-sided Flycatcher's food supply may play an important role in the decline of this species. In addition to being a California Species of Special Concern, Olive-sided Flycatcher is further protected by the Migratory Breeding Bird Treaty Act.

No Olive-sided Flycatchers were encountered during recent field surveys, though this species has been reported from the vicinity (eBird 2012). General strategies to avoid impacting this species include avoidance of significant disturbances during the breeding season (May 1 – August 15). Pre-disturbance surveys are recommended early in the breeding season to assess the presence of breeding birds in areas of suitable habitat if significant disturbance must take place during the nesting period. Additional management recommendations for this species include the protection and enhancement of riparian and other wetland habitats to benefit prey (i.e., insect) populations.

Willow Flycatcher (*Empidonax traillii)*
The Willow Flycatcher has been listed as an Endangered species in California since 1990. Although considered fairly abundant throughout the state as recently as 1940, population levels have dropped

precipitously since that time. This small flycatcher breeds in northern California from mid-May through mid-September, and winters in Central and South America.

Bombay et al. (2003) identify six vegetation/hydrology "types" associated with Willow Flycatcher breeding habitat throughout the range of the species. Although they recognize a wide degree of variation in habitat characteristics of known nest sites, habitat elements consistent throughout this spectrum include: open water or saturated soils within wetland habitats with a significant shrub component that is within (or near) a taller riparian-forested overstory. The main threats to this species include the degradation and loss of riparian-forested breeding habitat, alteration of hydrology at these sites, and brood-parasitism by Brown-headed Cowbird, *Molothrus ater* (which was observed within the study area during recent fieldwork).

In Humboldt County, the first nesting record of (possible) Willow Flycatchers ("Traill's Flycatchers") was of egg sets taken along the Eel River in the southern part of the county, near Miranda in 1930-1931 (Howatt *in* Harris 2006). Since then, very few confirmed nesting attempt of this species have been observed. Recent documented occurrences of Willow Flycatcher (eBird 2012) include riparian habitat surrounding Humboldt Bay, the Eel River Delta, and along the Mad River near Blue Lake, where, at the time of this writing, a singing male has been observed for at least six consecutive years in a row.

No Willow Flycatchers were observed during recent field surveys, though individuals have been seen elsewhere in southern Humboldt County in recent years (eBird 2012); one approximately 17 miles to the north along the main stem of the Eel River, and a more recent sighting within 5.5 miles of Southern Humboldt Community Park in late May of 2012. The nearest evidence indicating "probable breeding status" is approximately 36 miles away near the confluence of the Eel and Van Duzen Rivers (Hunter et al. 2005).

Although Willow Flycatchers are not expected to use the project area for nesting it should not be disregarded altogether. It is likely that this species could occur in the forested riparian habitats along the South Fork of the Eel River, particularly during migration. Management recommendations include the protection and enhancement of riparian and other wetland habitats for breeding and foraging purposes, and avoiding significant disturbance to riparian vegetation, particularly during the breeding season for Willow Flycatcher (May 15 – September 15). In the event that significant disturbance to forested riparian habitat must take place during this time period, protocol surveys to assess for the presence of breeding Willow Flycatchers should be conducted prior to any disturbance in all areas of suitable habitat, in consultation with the California Department of Fish & Game.

Purple Martin *(Progne subis)*

The Purple Martin is a large swallow, uncommon to rare in northern California. This gregarious migratory species nests and forages in a wide variety of habitats, including mosaic Douglas-fir forest and grassland habitats. Nests are constructed in cavities (usually old woodpecker holes) in tall trees or snags, often along ridgelines and near water. Occasionally this species is known to nest in human-created structures (artificial bird houses, bridges, etc.) as well. The Purple Martin is a Species of Special Concern in California, largely due to loss of riparian habitat, removal of snags, and competition for nest cavities from Eurasian Starlings and House Sparrows.

Although Purple Martin was not observed during recent field studies, this species has been documented in the Park (eBird 2012), and is expected to use the study area for foraging purposes, particularly in the Doug-fir forests with snags and large trees. Management recommendations include retention of, and avoiding disturbance to, dead and dying trees (which form the snags which provide suitable nesting

sites), particularly within the breeding season for Purple Martin (April 15-August 15). Pre-disturbance surveys are recommended early in the breeding season to assess the presence of breeding birds in these areas if any removal of breeding habitat will occur during the nesting period. Additional recommendations include the protection and enhancement of riparian and other wetland habitats to benefit prey (i.e., insect) populations.

Black-capped Chickadee *(Poecile atricapillus)*
The Black-capped Chickadee is abundant throughout northern North America. In California it is found almost exclusively in willow/cottonwood/alder habitats along the immediate north coast, south to the Ferndale area, as well as along the larger inland streams and rivers. Humboldt County is considered to represent the southern limit of the range of this species in California, though it has been observed recently in southern Trinity County near the North Fork of the Eel River (pers. obs. 2012). The Black-capped Chickadee was recently downgraded from a California Species of Special Concern to the CDFG's "Watch List," where its status retains an elevated level of scrutiny, largely due to its restricted range within the state.

Surprisingly, Black-capped Chickadee was observed foraging in the riparian-forested habitats within the study area during recent field surveys (Appendix D). Although no indication of breeding behavior for Black-capped Chickadee was observed during this effort, the riparian-forested habitat occurring throughout the project area may provide suitable nesting/breeding habitat for the rare breeding pair.

In the rare event that nesting Black-capped Chickadees are detected within the study area significant disturbances near riparian-forested habitats should be avoided during the breeding season for this species (April 15 – July 15). Pre-disturbance surveys are recommended early in the breeding season to assess the presence of breeding birds in these areas if any removal of breeding habitat will occur during the nesting period. Additional management recommendations for this species include the protection and enhancement of riparian and other wetland habitats for breeding and foraging purposes.

Yellow Warbler *(Setophaga petechia)*
Found throughout North America, Yellow Warbler (*Setophaga petechia*) populations are declining, primarily due to habitat destruction and brood-parasitism by the Brown-headed Cowbird, *Molothrus ater* (which was observed within the study area during recent fieldwork). Yellow Warblers are uncommon breeding birds of coastal and inland riparian habitats, and breed in deciduous riparian forests of varying size. In addition to being a California Species of Special Concern, Yellow Warbler is further protected by the Migratory Breeding Bird Treaty Act.

Although not encountered during the recent field survey effort, occasional breeding Yellow Warblers can be expected in the riparian-forested habitats within the study area. Probable Yellow Warbler breeding activity has been reported at Tooby Memorial Park (Hunter et al. 2005).

To avoid impacts to breeding Yellow Warblers, significant disturbances near riparian-forested habitats should be avoided during the breeding season for this species (May 1 – August 15). Pre-construction surveys are recommended early in the breeding season to assess the presence of breeding birds in these areas if any removal of breeding habitat will occur during the nesting period. Additional management recommendations for this species include the protection and enhancement of riparian and other wetland habitats for breeding and foraging purposes.

Yellow-breasted Chat (*Icteria virens*)
The Yellow-breasted Chat is a Species of Special Concern in California. Found throughout North America, Yellow-breasted Chat populations are declining, largely due to habitat destruction and brood-parasitism by the Brown-headed Cowbird, *Molothrus ater* (which was observed within the study area during recent fieldwork). Yellow-breasted Chats are very vocal and notably sing at night as well as during the day. Largest of the wood-warblers, this species feeds primarily on insects, fruits, and berries; and migrates from breeding grounds to winter in Mexico and Central America.

This riparian specialist breeds in riparian forests and thickets with a well-developed shrub layer. Vegetation typical of local breeding habitat includes white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus trichocarpa*), willows (*Salix* spp.), blackberry (*Rubus* sp.), and coyote bush (*Baccharis pilularis*). Three to five eggs are laid in nests composed of grasses, leaves, and bark. Nests are usually located low in a dense and tangled understory.

Singing male Yellow-breasted Chats were observed at two locations within the study area during recent field surveys (Appendix D): along a small riparian stream course within the grassland habitat near the southeastern portion of the project area, and along the riparian forested gravel bar along the South Fork of the Eel River in the northwestern portion of the study area. Given that these males appeared to be defending territories, it can be reasonably assumed that nesting is occurring in the vicinity of these locations.

To avoid impacts to breeding Yellow-breasted Chat, significant disturbances near riparian-forested habitats should be avoided during the breeding season for this species (April 15 – August 15). Pre-construction surveys are recommended early in the breeding season to assess the presence of breeding birds in these areas if any removal of breeding habitat will occur during the nesting period. Additional management recommendations for this species include the protection and enhancement of riparian and other wetland habitats for breeding and foraging purposes.

Grasshopper Sparrow (*Ammodramus savannarum*)
Grasshopper Sparrow is a California Species of Special Concern. This small, shy, plainly-colored migratory bird is soft-voiced and inhabits grasslands with both barren, exposed areas allowing for ease while foraging, and more densely vegetated areas, where it makes its nest of woven grasses and other gramminoids. Locally distributed throughout its range, it is likely often overlooked due to its unobtrusive nature. Hunter et al. (2005) characterized this species as an uncommon, but locally numerous, summer resident and breeder. Throughout its range, however, Grasshopper Sparrow populations are in decline, primarily as a result of development and conversion of native grassland habitats such as prairies, and low-moderately-stocked agricultural pasturelands into intensive agricultural operations.

During the breeding season, abundant insects and other invertebrates (e.g., grasshoppers, etc.) form the bulk of this species' diet, and in winter it relies more on seeds of grasses, sedges, and other herbaceous species. In California the species generally prefers habitats with high perennial grass cover and recently (>1 year) burned areas (Collier 1994 *in* Birds of North America 2012). The effects of grazing on Grasshopper Sparrow appear to vary with geography and the level of grazing intensity. Although in more arid locations, grazing appears to be detrimental to Grasshopper Sparrow (Saab at al. 1995 *in* Poole 2005), elsewhere, in less fragile and more resilient grassland habitats, low to moderate grazing

appears to increase habitat suitability (Herker at al. 1993 *in* Poole 2005). Mowing, particularly in the context of hay harvesting has been implicated in dramatically reducing nest success for this (and other ground-nesting bird) species. The trend towards earlier hay harvest cuttings over the last 50-60 years has had a profoundly detrimental effect on many ground-nesting species.

Singing male Grasshopper Sparrows were observed in at least four locations within the study area during recent field surveys (Appendix D). These occurrences were somewhat widely dispersed throughout the open grassland habitats to the south and southwest of the caretaker residence and associated outbuildings. Given that these males appeared to be defending territories, it can be reasonably assumed that nesting is occurring in the vicinity of these locations. No Grasshopper Sparrows were observed in similar habitats to the east and south east of this infrastructure. However, much of this latter area had been recently mowed prior the field surveys, and it is possible that Grasshopper Sparrows may have utilized this area prior to mowing.

In order to avoid impacts to Grasshopper Sparrow, land management strategies should avoid "stand replacement level" disturbances (e.g., hay harvest, mowing, burning, etc.) to grasslands during the breeding season for this species (May 1-August 1), while still allowing for limited and conservative low-intensity disturbance (e.g., low-moderate intensity grazing, etc.) to maintain some diversity and stand complexity in herbaceous vegetation (i.e., grasslands). Additional management recommendations pertaining to Grasshopper Sparrow should focus on maintenance of the existing grassland-dominated areas at Southern Humboldt Community Park and minimizing future conversion of low-intensity pasturelands to intensively managed (i.e., row-crop, etc.) agricultural production or similar habitat alteration.

Migratory Breeding Birds

A variety of migratory bird species were observed throughout the various habitats of the study area during recent field surveys. Numerous bird boxes attached to trees and fence posts hosted some of these migrants. It is reasonable to assume many of these individuals are breeding within the study area, given that their presence was observed during the general breeding season (early June).

Wherever possible, significant disturbances (e.g., habitat removal, etc.) to migratory breeding birds should occur outside the general migratory bird breeding season (February 15 – September 1) in order to avoid impacts to these species. Where avoidance of significant disturbance is not possible, pre-disturbance surveys for breeding birds is recommended. Appropriate buffers from disturbing activities will vary with the species of concern and the nature of corresponding disturbance. Additional mitigating measures could include removal of artificial bird boxes in the vicinity of the planned disturbance prior to the initiation of any breeding activity. Additional management recommendations to benefit migratory bird species include the protection and enhancement of riparian and other wetland habitats for breeding and foraging purposes.

Mammals (Mammalia)

Pacific Fisher (*Martes pennanti pacifica*) DPS

The Pacific Fisher is a candidate for Federal listing and is a California Species of Special Concern. Once more numerous throughout boreal forests, this species' populations are declining, due to habitat loss as a result of timber harvesting, development, and wildfire, and more recently due to poisoning attributed to remote marijuana cultivation operations. Pacific Fisher is found from southern Canada, south to Wyoming in the Rocky Mountains, and into the southern Klamath Mountains and North Coast Ranges, and even further south into the Sierra Nevada Mountains.

Pacific Fisher is a top carnivore, and is primarily nocturnal. This species requires intact forests, typically late-seral and mature coniferous forests. Home ranges can be as large as 75 miles (diameter), and individuals can travel widely, revisiting some locations only once every 2-3 weeks. Pacific Fishers are very agile tree climbers, and are opportunistic hunters. Diet consists of porcupines, squirrels, rodents, rabbits, grouse, small birds and animals, berries, nuts, carrion, and even fungi.

Dens are made in hollow trees and logs, brush piles, and cavities beneath boulders or rock ledges. Litters of 1-4 young are born in March or April. The mother breeds again shortly after giving birth, but implanting of the embryo is delayed form some time following copulation. Young become sexually mature at about two years of age, and can begin to hunt when only three months old.

Although no Pacific Fisher were observed during recent field surveys, there is some possibility that the species could occupy the more mature coniferous forested portions of the study area. Occurrences have been reported elsewhere in southern Humboldt County (CNDDB 2012). Appropriate surveys should be conducted prior to any habitat altering activities in the portions of the project area where suitable forested habitat exists for this species.

Sonoma Tree Vole *(Arborimus pomo)*

The Sonoma Tree Vole (*Arborimus pomo*) is a Species of Special Concern in California. This species is a little-known rodent of the mature Douglas-fir forests in coastal northern California. Its range extends northward from Sonoma County to the Oregon border where its distribution overlaps with the Oregon Tree Vole (*A. longicaudus*). Sonoma Tree Vole occurs primarily in mixed, old-growth Douglas-fir (*Pseudotsuga menziesii*) and coast redwood (*Sequoia sempervirens*) forests, but can occur in younger forest with increased stand structural complexity. Its diet is almost exclusively composed of needles of Douglas-fir and sometimes grand fir (*Abies grandis*). Nests are built of Douglas-fir needles in trees, sometimes at considerable heights.

Although no Sonoma Tree Vole nests were noticed during the recent field surveys, this species could occur at the study in the forested habitats that have a significant Douglas-fir component. Appropriate protocol-level surveys should be conducted prior to any habitat altering activities in the portions of the project area where suitable forested habitat exists for this species.

Pallid Bat (*Antrozous pallidus*)

The Pallid Bat is a California Species of Special Concern. This species is usually found in low to middle elevation habitats below 6,000 feet in California, however, it has been found up to 10,000 feet in the Sierra Nevada Mountains. Populations have declined in California within desert areas, in areas of urban expansion, and where oak woodlands have been lost. This species, like many other bats, is extremely sensitive to disturbance at roosting and nesting sites.

A variety of habitats are used by Pallid Bats, including grasslands, scrublands, woodlands, and coniferous forests. Pallid Bats are most common in open, dry habitats that contain rocky areas for roosting. They are a yearlong resident in most of their range and hibernate in winter near their summer roosts. Occasional forays may be made in winter for food and water. Pallid Bats are unusual in that most of their food consists of large insects captured on the ground.

Day roosts may vary but are commonly found in rock crevices and tree hollows. They have been documented in large conifer snags, inside basal hollows of coast redwoods (*Sequoia sempervirens*) and bole cavities in oaks (Fagaceae). Cavities in broken branches of black oak (*Quercus kelloggii*) appear to be very important refugia for this species and data from the literature suggest that there is a strong

association with this tree species for roosting sites. Roosts are selected to protect bats from high temperatures, as this species is intolerant of roosts in excess of 104° Fahrenheit (40°C). Night roosts are usually in more open sites and may include open buildings, porches, mines, caves, and under bridges.

Although this species was not observed during recent field surveys, suitable habitat for the Pallid Bat exists within the study area, particularly in forested stands with mature and aging coast redwood, Douglas-fir, and oak species. Buildings potentially suitable for roosting (e.g., barns, outbuildings, etc.) also occur within the study area. A documented occurrence of Pallid Bat has been reported within 4.5 miles of Southern Humboldt Community Park near the South Fork of the Eel River (CNDDB 2012). Avoiding substantial disturbance to forested habitat, and otherwise maintaining the integrity of the existing forest and wetland areas will help avoid and/or minimize impacts to this species.

Townsend's Big-eared Bat *(Corynorhinus townsendii)*
Although the Townsend's Big-eared Bat is widespread in California, its sensitivity to disturbance at nesting and roosting sites has contributed to it being listed as a California Species of Special Concern. All known occupied sites associated with limestone caves in California have been abandoned.

This species is capable of hovering, and its flight is slow and maneuverable. The principle food source for the Townsend's Big-eared Bat is small moths, and it feeds by gleaning from foliage, as well as in flight. These bats are most abundant near mesic habitats, such as wetlands and riparian areas, and frequently forage along habitat edges. Roosts are usually found in caves, mines, tunnels, and buildings.

Although this species was not observed during recent field surveys, suitable habitat for the Townsend's Big-eared Bat exists within the study area, particularly in forested stands with mature and aging coast redwood, Douglas-fir, and oak species. Buildings potentially suitable for roosting (e.g., barns, outbuildings, etc.) also occur within the study area. Avoiding substantial disturbance to forested habitat, and otherwise maintaining the integrity of the existing forest and wetland areas will help avoid and/or minimize impacts to this species.

5.0 References & Literature Cited

American Ornithologists' Union (AOU). 1998. Check-list of North American birds. Seventh edition. American Ornithologists' Union, Washington, D.C. 829 pp. Available at: http://www.aou.org/checklist/north/index.php.

Baicich, P. J., and C. J. O. Harrison 2005. Nests, Eggs, and Nestlings of North American Birds, Second Edition. Princeton University Press. Princeton, New Jersey.

Biswell, B., M. Blow, R. Breckel, L. Finley, and J. Lindt. 2002. Survey Protocol for the Red Tree Vole, v. 2.1.

Bombay, H. L, T. M. Benson, B. E. Valentine, & R. A. Stefani. 2003. A Willow Flycatcher Survey Protocol for California. Available at: http://www.dfg.ca.gov/wildlife/nongame/docs/wifl_2003_protocol.pdf.

CDFG. January 2011. Special Animals List (898 taxa). State of California, The Natural Resource Agency, California Department of Fish and Game, Biogeographic Data Branch, California Natural Diversity Database.

Chesser, R. T., R. C. Banks, F. K. Barker, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen Jr., J. D. Rising, D. F. Stotz, & K. Winker. 2011. 52nd Supplement to the American Ornithologists' Union Check-list of North American Birds. The Auk 128(3): 600-613. Available at: http://www.aou.org/checklist/north/print.php.

CNDDB. 2012. Query of CDFG's CNDDB for Garberville, Ettersburg, Miranda, Fort Seward, Harris, Noble Butte, Piercy, Bear Harbor, and Briceland quadrangles. California Natural Diversity Database (CNDDB), Biogeographic Data Branch, California Department of Fish and Game.

Collins & Taggert. 2012. Standard Common and Current Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians. Available at: http://www.cnah.org/.

eBird. 2012. eBird: An online database of bird distribution and abundance [web application]. Version 2. eBird, Ithaca, New York. Available: http://www.ebird.org.

Eder, T. 2005. Mammals of California. Lone Pine Publishing. Auburn, Washington.

Ehrlich, P. R., D. S. Dobkin, & D. Wheye. 1988. The Birder's Handbook. Simon & Schuster Inc., New York, NY.

Fix, D. and A. Bezener. 2000. Birds of Northern California. Lone Pine Publishing, Renton, Washington.

Franklin, A. B., D. R. Anderson, R. J. Gutierrez, and K. P. Burnham. 2000. Climate, habitat quality, and fitness in northern spotted owl populations in northwestern California. Ecological Monographs 70(4):539-590.

GHD. In Preparation. Southern Humboldt Community Park Environmental Impact Report. Eureka, California.

Harris, S. W. 2006. Northwestern California Birds. Living Gold Press. Klamath, California.

Herkert, J. R., R. E. Szafoni, V. M. Kleen, and J. E. Schwegman. 1993. Habitat establishment, enhancement and management for forest and grassland birds. Nat. Heritage Tech. Publ. no. 1. Illinois Dept. Conserv., Springfield.

Hunter, J. E., D. Fix, G. A. Schmidt, and J. C. Power. 2005. Atlas of the Breeding Birds of Humboldt County, California. Redwood Region Audubon Society. Eureka, California.

Lovelace, J. B., R. LeValley, S. Morrissette, and S. McAllister. 2002. Southern Humboldt Community Park Feasibility Study. Mad River Biologists. McKinleyville, California.

Nelson, Laura C. 2002. Habitat characteristics surrounding nests of small accipiters on managed timberlands in Northwestern California. Presentation at the Western Section of The Wildlife Society Annual Meeting in March 2002, Visalia, California.

Peregrine Nation. 2007. Checklist of the Birds of Southern Humboldt Community Park, Garberville, Humboldt County, California; Second Edition.

Platt, J. B. 1976. Sharp-shinned Hawk nesting and nest site selection in Utah. Condor 78:102-103.

Poole, A. (Editor). 2005. The Birds of North America Online: http://bna.birds.cornell.edu/BNA/. Cornell Laboratory of Ornithology, Ithaca, NY.

Quinn, M. S. 1991. Nest site and prey of a pair of Sharp-shinned Hawks in Alberta. J. Raptor Res. 25:18-19.

Saab, V. A., C. E. Bock, T. D. Rich, and D. S. Dobkin. 1995. Livestock grazing effects in western North America. Pages 311-353 in Ecology and management of neotropical migratory birds. (Martin, T. E. and D. M. Finch, Eds.) Oxford Univ. Press, New York.

Sakai, H. F. and B. R. Noon. 1997. Between-habitat movement of dusky-footed woodrat abundance in different-aged forests in northwestern California. Journal of Wildlife Management 61(2): 343-350.

Snyder, N. F. R. and J. W. Wiley. 1976. Sexual size dimorphism in hawks and owls of North America. Ornithol. Monogr. 20:1-96.

Van Hattem, Michael. 2012. Personal Communication. California Department of Fish and Game. Eureka, California.

Wear, K. S. 2011. Draft Botanical Survey, Wetland Delineation, and Stream Assessment Results, Southern Humboldt Community Park. Kyle S. Wear. Arcata, California.

Appendix A. Species Conservation Status and Associated Regulatory Environment.

Federal Level

Federal Endangered Species Act

The federal Endangered Species Act (ESA) protects plants and wildlife that are listed as Endangered or Threatened by the U.S. Fish and Wildlife Service (USFWS). Section 9 of the ESA prohibits the take of listed fish and wildlife, where take is defined as "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct..." (50 CFR 17.3).

Under Section 7 of the ESA, consultation with the USFWS is required if actions, including permit approvals or funding, could adversely affect an Endangered species or its Critical Habitat. Formal consultations determine whether a proposed action(s) is likely to jeopardize the continued existence of a listed species or destroy or adversely modify its designated Critical Habitat.

Migratory Bird Treaty Act (16 U.S.C. § 703–711)

The Migratory Bird Treaty Act (MBTA) of 1918 protects all migratory birds, including active nests and eggs. Birds protected under the MTBA include all native waterfowl, shorebirds, hawks, eagles, owls, doves, common songbirds such as, ravens, crows, swifts, martins, swallows and others, including their body parts (feathers, plumes etc.), active nests, and eggs. A complete list of protected species can be found at 50 CFR 10.13.

Bald and Golden Eagle Protection Act (16 U.S.C. § 668)

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 specifically protects bald and golden eagles and their nests from harm or trade in parts of these species.

California State Level:

California Endangered Species Act

Sections 2050-2098 of the California Fish and Game Code (CFGC) prohibit the "take" (i.e., hunt, pursue, catch, capture, or kill) of State-listed Endangered and Threatened species unless specifically authorized by the California Department of Fish and Game (CDFG). Section 2090 of CFGC requires compliance with Threatened and Endangered species protection and recovery efforts and the conservation of these species. Title 14, California Code of Regulations (Section 670.2 and 670.5) lists Threatened or Endangered animals in California.

Fully Protected Species CFGC Sections 3511, 4700, 5050, and 5515

California Fish and Game Code Sections 3511, 4700, 5050, and 5515 (Fully Protected Species) designates certain animal species as "Fully Protected" under sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Fully Protected species are species that are rare or face possible extinction, but are not listed as Threatened or Endangered and may not be taken or possessed at any time.

Protection for Birds: CFGC Section 3503 et seq.

California Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3513 makes it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

Special-Status Species
The California Environmental Quality Act (CEQA §15380) requires that Special-Status species be considered in the project development and implementation process. Special-Status wildlife includes species that:

- are listed, proposed for listing, or candidates for listing as Threatened or Endangered under the federal Endangered Species Act;
- are listed or candidates for listing as Threatened or Endangered under the California Endangered Species Act;
- are designated as Species of Special Concern by the California Department of Fish & Game (CDFG);
- are otherwise listed (Fully Protected, Watch List, etc.) on the CDFG "Special Animals" list (CDFG 2011); or
- otherwise meet the definition of rare, threatened or endangered, as described in the California Environmental Quality Act (CEQA) Guidelines, §15380.

Section 15380 of the CEQA guidelines also include consideration of non-listed species, if such species can be shown to meet the following criteria:

- a species' survival and reproduction in the wild are in immediate jeopardy from one or more causes;
- a species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment deteriorates; or
- a species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

California Species of Special Concern
California Species of Special Concern are known to have declining populations, have limited ranges, or are otherwise vulnerable to extinction. This status is intended by CDFG for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel, and to prevent the eventual listing of the species as Threatened or Endangered.

California "Watch List" Species
Watch Listed species are monitored by the California Department of Fish & Game to determine if increased protective conservation status becomes warranted. Species on DFGS's "Watch List" are:

- "not on the current Special Concern list but were on previous lists and they have not been state listed under CESA;
- were previously state or federally listed and now are on neither list; or
- are on the list of 'Fully Protected' species."

Appendix B. Results of Special-Status Wildlife Database Queries for Southern Humboldt Community Park (CNDDB 2012 and USFWS 2012)*. Additional Special-Status Wildlife Species not generated from these sources, but considered to have the potential to occur within the study area are addressed in the attached report.

Species	Status	General Habitat Description	Potential Occurrence at the Southern Humboldt Community Park
Amphibians			
Southern Torrent Salamander *Rhyacotriton variegatus*	SSC	Occurs locally in cool perennial streams and seeps in redwood, and lower montane coniferous forests.	Suitable habitat (perennial cold streams/seeps/etc.) does not occur within the study area.
Pacific Tailed Frog *Ascaphus truei*	SSC	Occurs locally in montane hardwood-conifer, redwood and Douglas-fir habitats. Restricted to perennial streams. Tadpoles require water below 15 degrees C°.	Suitable habitat (perennial cold streams/seeps/etc.) does not occur within the study area.
Northern Red-legged Frog *Rana aurora*	SSC	Occurs in humid forests, stream sides, and wetlands in northwestern California. Generally near permanent water, but can be found far from water in damp woods and meadows during non-breeding season.	Expected to occur in wetland habitats within the study area.
Foothill Yellow-legged Frog *Rana boylii*	SSC	Occupies exposed or partly-shaded, shallow streams and riffles with rocky substrates in a variety of habitats. Requires some cobble-sized substrates for egg-laying. Needs at least 15 weeks to metamorphose.	Suitable habitat does occur within the study area, along South Fork of the Eel River, and other riparian corridors.
Reptiles*			
Western Pond Turtle *Emys marmorata*	SSC	Associated with permanent or nearly permanent water in a variety of habitats. Requires basking sites. Nest sites may be found up to 0.5 km from water. Known to place nests in excavated burrow in soil (typically sandy) and fallen log debris.	Suitable habitat for basking, foraging, and breeding does occur within the study area, particularly along the South Fork of the Eel River, and other riparian corridors.
Birds*			
Bald Eagle *Haliaeetus leucocephalus*	FD, SE, FP	Nests in large trees near rivers, lakes, marshes, etc. Winter near open waters in areas with sufficient food and evening roost sites.	Some arboreal nesting habitat is present within the mature forested portions of the study area. Foraging likely occurs along the South Fork of the Eel River.
Osprey *Pandion haliaetus*	WL	Primarily along rivers, lakes, bays, and seacoasts. Nests in dead snags, living trees, utility poles, etc. usually near or above water.	Some arboreal nesting habitat is present within the mature forested portions of the study area. Foraging likely occurs along the South Fork of the Eel River.

Species	Status	General Habitat Description	Potential Occurrence at the Southern Humboldt Community Park
Sharp-shinned Hawk (nesting) *Accipiter striatus*	WL	Prefers coniferous or mixed forests for nesting. Prefers riparian areas and north-facing slopes with plucking perches. Nesting typically occurs near water.	Breeding habitat is present throughout forested portions of the study area.
Cooper's Hawk (nesting) *Accipiter cooperii*	WL	Occurs in open, interrupted, and/or marginal woodlands. Nest sites are often in riparian forests with some deciduous trees.	Breeding habitat is present throughout forested portions of the study area.
Golden Eagle (nesting and wintering) *Aquila chrysaetos*	FP, WL	Occurs locally in rolling foothills and mountain areas, nesting in cliff-walled canyons throughout most of its range and also in large trees in open areas.	Some marginal, arboreal nesting habitat is present within the mature forested portions of the study area. Foraging habitat exists in open grassland regions.
Peregrine Falcon (nesting) *Falco peregrinus*	FP, MB	Occurs locally as winter resident and an uncommon breeder. Typically nests in cliffs, escarpments, and occasionally cavities in very tall trees (coast redwoods).	Some marginal, arboreal nesting habitat is present within the mature forested portions of the study area.
Western Snowy Plover *Charadrius alexandrinus nivosus*	FT, SSC, MB	Sandy beaches, salt pond levees, shores of large alkali lakes and gravel bars.	Known to breed on along gravel bars of the lower Eel River, comparable habitat within the study area is not considered to be extensive enough this far inland to be suitable for breeding.
Marbled Murrelet *Brachyramphus marmoratus*	FT, SE	Feeds near-shore, and in California, nests along portions of the central and north coasts. Nests are nearly always on large diameter limbs (or other similar platforms) in old-growth forests, typically < 6 miles inland.	Although mature trees with large diameter limbs/platforms do occur within forested portions of the study area, suitable breeding habitat is not considered to be present at the site due to geographical location and associated climatic conditions (i.e., >12 miles inland with no obvious, direct, dispersal corridor [river valley, etc.], combined with associated elevated breeding season temperatures).

Species	Status	General Habitat Description	Potential Occurrence at the Southern Humboldt Community Park
Western Yellow-billed Cuckoo *Coccyzus americanus*	FC, SE, MB	Nests in well-developed and extensive riparian forest along broad, lower flood-bottoms associated with larger river systems.	Nearest nesting has been recorded on the lower Eel River, and riparian habitat on site, is not extensive enough/well-developed to be considered suitable.
Northern Spotted Owl *Strix occidentalis caurina*	FT, FP, SSC	Utilizes coniferous forests with increased stand-structural-complexity for foraging and nesting. Occasionally hunts along forest edges or in small clearings.	Moderately suitable habitat does exist for this species at SHCP. Study area is not within designated Critical Habitat.
Willow Flycatcher *Empidonax traillii*	SE, MB	Breeds and forages in riparian forested habitats and forested wetlands, typically with a significant shrub-layer.	Riparian forested habitat on site provides some, moderately suitable breeding habitat for the species.
Mammals*			
Pacific Fisher *Martes pennanti pacifica* DPS	FC, SSC	Intermediate to large tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs, and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Suitable habitat occurs for this species in more mature portions of the forested slopes within the study area.
Sonoma Tree Vole *Arborimus pomo*	SSC	Redwood and montane coniferous and hardwood forests from the Oregon border, south to Sonoma County. Feeds almost exclusively on Douglas-fir needles, but will occasionally take needles of grand fir, hemlock, or spruce.	Suitable habitat occurs throughout the coniferous-forested portions of the study area.
Pallid Bat *Antrozous pallidus*	SSC	Desserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Suitable breeding/roosting habitat exists within forested portions of the study area, and possibly abandoned outbuildings.

Species	Status	General Habitat Description	Potential Occurrence at the Southern Humboldt Community Park
Townsend's Big-Eared Bat *Corynorhinus townsendii*	SSC	Breeds and roosts within coniferous and deciduous-riparian forested areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Has also been reported to utilize buildings, bridges, rock crevices and hollow trees as roost sites.	Suitable breeding/roosting habitat exists within forested portions of the study area, and possibly abandoned outbuildings.

* The following species resulting from database queries that are limited to oceanic and/or marine habitats were omitted from this analysis due to the lack of such habitat within, or near, the study area: Loggerhead Turtle (*Caretta caretta*), Green Turtle (*Chelonia mydas* [incl. *agassizi*]), Leatherback Turtle (*Dermochelys coriacea*), Olive (=Pacific) Ridley Sea Turtle (*Lepidochelys olivacea*), Short-tailed Albatross (*Phoebastrus albatrus*), Xantus's Murrelet (*Synthliboramphus hypoleucus*), Sei Whale (*Balenoptera borealis*), Blue Whale (*Balenoptera musculus*), Fin Whale (*Balenoptera physalus*), Steller (= Northern) Sea Lion (*Eumetopias jubatus*), Humpback Whale (*Megaptera novaengliae*), Killer Whale (*Orcinus orca*), and Sperm Whale (*Physeter macrocephalus*).

Notes: Refer to Appendix A for additional explanation of conservation status.

[a] Taxonomy is consistent with: Collins & Taggert (2012), AOU (1998), and Eder (2005).

[b] Status is according to CDFG's *Special Animals List* (CDFG 2011).

Federal Status

FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Proposed Endangered
FPT	Proposed Threatened
FC	Candidate for listing as federally Endangered or Threatened
FD	Delisted from Federal Threatened or Endangered status
FSC	Federal Species of Special Concern
MB	Migratory Bird Treaty Act of 1918. Protects migratory birds, eggs, and their nests

California Status

SE	State listed as Endangered
ST	State listed as Threatened
SSC	California State Species of Special Concern
WL	California State Watch List
FP	Fully protected against take pursuant to the Fish and Game Code Sections 3503.5, 3511, 4700, 5050, 5515.

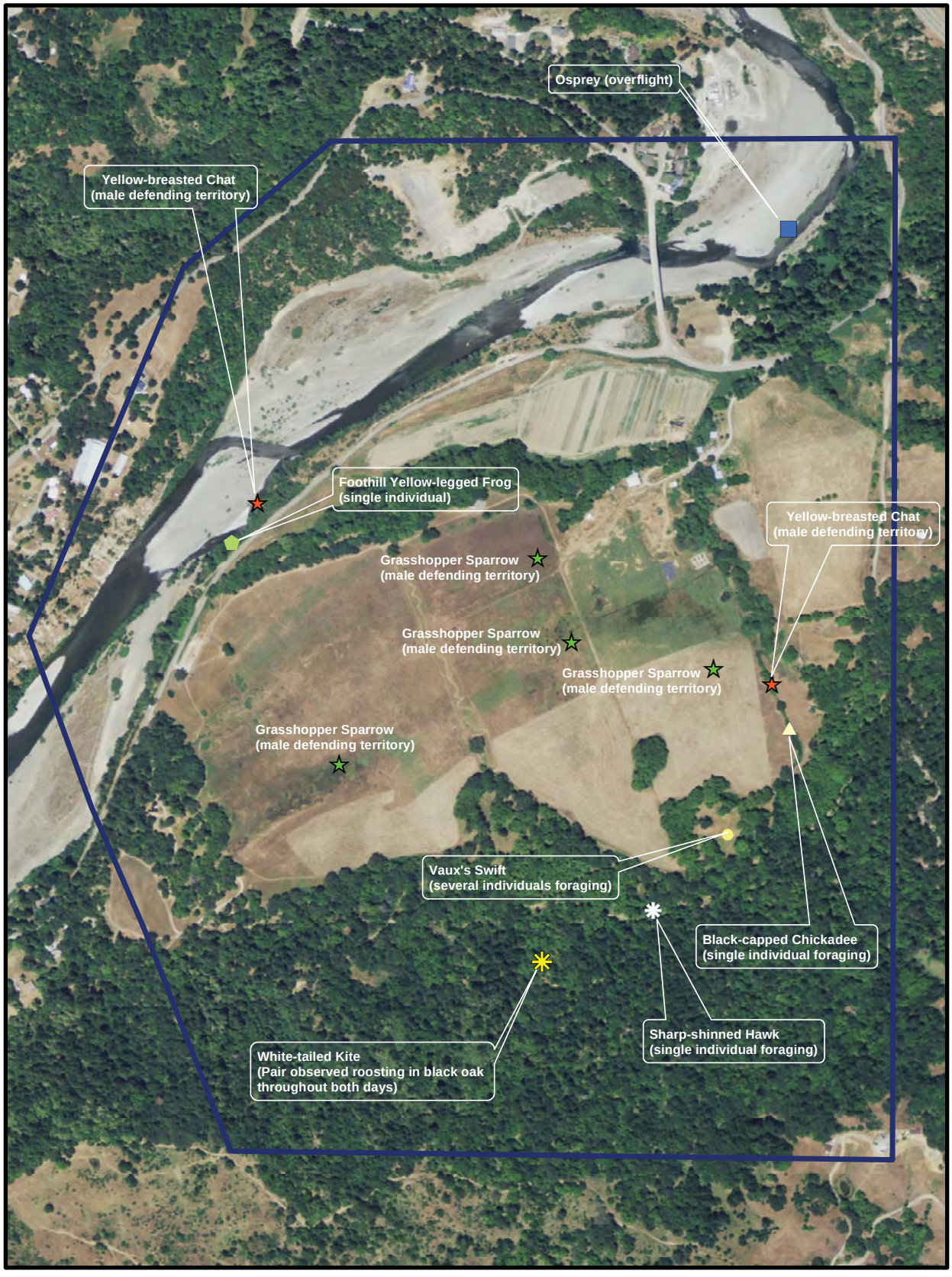
Other Status

DPS	Distinct Population Segment

Appendix C. List of Wildlife Species Observed During June 1-2, 2012 Fieldwork.

Common Name		Species	Conservation Status
Avian Species			
	California Quail	*Callipepla californica*	
	Domesticated Chicken	*Gallus gallus domesticus*	
	Turkey Vulture	*Cathartes aura*	
	Osprey	*Pandion haliaetus*	DFG:WL
	White-tailed Kite	*Elanus leucurus*	DFG:FP
	Sharp-shinned Hawk	*Accipiter striatus*	DFG:WL
	Red-shouldered Hawk	*Buteo lineatus*	
	Red-tailed Hawk	*Buteo jamaicensis*	
	American Kestrel	*Falco sparvarius*	
	Killdeer	*Charadrius vociferus*	
	Band-tailed Pigeon	*Patagioenas fasciata*	
	Mourning Dove	*Zenaida macroura*	
	Barn Owl	*Tyto alba*	
	Vaux's Swift	*Chaetura vauxi*	DFG:SSC
	Anna's Hummingbird	*Calypte anna*	
	Acorn Woodpecker	*Melanerpes formicivorus*	
	Pileated Woodpecker	*Dryocopus pileatus*	
	Pacific-slope Flycatcher	*Empidonax difficilis*	
	Ash-throated Flycatcher	*Myiarchus cinerascens*	
	Western Kingbird	*Tyrannus verticalis*	
	Cassin's Vireo	*Vireo cassinii*	
	Hutton's Vireo	*Vireo huttoni*	
	Warbling Vireo	*Vireo gilvus*	
	Steller's Jay	*Cyanocitta stelleri*	
	Western Scrub-Jay	*Aphelocoma californica*	
	American Crow	*Corvus brachyrhynchos*	
	Common Raven	*Corvus corax*	
	Violet Green Swallow	*Tachycineta thalassina*	
	Cliff Swallow	*Petrochelidon pyrrhonota*	
	Barn Swallow	*Hirundo rustica*	
	Black-capped Chickadee	*Poecile atricapillus*	DFG:WL
	Chestnut-backed Chickadee	*Poecile rufescens*	
	Bushtit	*Psaltriparus minimus*	
	Winter Wren	*Troglodytes hiemalis*	
	American Dipper	*Cinclus mexicanus*	
	Golden-crowned Kinglet	*Regulus satrapa*	
	Wrentit	*Chamaea fasciata*	
	Western Bluebird	*Sialia mexicana*	
	Hermit Thrush	*Catharus guttatus*	
	European Starling	*Sturnus vulgaris*	
	Orange-crowned Warbler	*Oreothlypis celata*	
	Nashville Warbler	*Oreothlypis ruficapella*	
	MacGillivray's Warbler	*Geothlypis tolmiei*	
	Common Yellowthroat	*Geothlypis trichas*	
	Wilson's Warbler	*Cardellina pusilla*	
	Yellow-breasted Chat	*Icteria virens*	DFG:SSC

Common Name		Species	Conservation Status
	Spotted Towhee	*Pipilo maculatus*	
	California Towhee	*Melozone crissalis*	
	Savanna Sparrow	*Passerculus sandwichensis*	
	Grasshopper Sparrow	*Ammodramus savannarum*	DFG:SSC
	Song Sparrow	*Melospiza melodia*	
	Dark-eyed Junco	*Junco hyemalis*	
	Western Tanager	*Piranga ludoviciana*	
	Black-headed Grosbeak	*Pheucticus melanocephalus*	
	Lazuli Bunting	*Passerina amoena*	
	Red-winged Blackbird	*Agelaius phoeniceus*	
	Western Meadowlark	*Sturnella neglecta*	
	Brewer's Blackbird	*Euphagus cyanocephalus*	
	Brown-headed Cowbird	*Molothrus ater*	
	Purple Finch	*Carpodacus purpureus*	
	Lesser Goldfinch	*Spinus psaltria*	
	American Goldfinch	*Spinus tristis*	
Reptile Species			
	Western Fence Lizard	*Sceloporus occidentalis*	
	Northern Alligator Lizard	*Elgaria coerulea*	
Amphibian Species			
	Foothill Yellow-legged Frog (adult)	*Rana boylii*	DFG:SSC
	Pacific Tree Frog (adults, larvae)	*Pseudacris regilla*	
Mammalian Species			
	Striped Skunk	*Mephitis mephitis*	
	Raccoon (tracks)	*Procyon lotor*	
	Columbian black-tailed deer	*Odocoileus hemionus columbianus*	
	Mountain Lion (scat)	*Puma concolor*	
	North American Black Bear (feces/tracks)	*Ursus americanus*	
	Common Grey Fox (tracks)	*Urocyon cinereoargentus*	
	Western Gray Squirrel	*Sciurus griseus*	
	Brush Rabbit	*Sylvilagus bachmani*	
	Virginia Opossum	*Didelphus virginiata*	
Conservation Status Code Definitions **Refer to Appendix A for additional explanation of conservation status.**			
FT - Federal Threatened			
FE - Federal Endangered			
FCE/T- Federal Candidate Endangered/Threatened			
ST - California State Threatened			
SE - California State Endangered			
SCE/T- Federal Candidate Endangered/Threatened			
DFG:FP - California Dept. Fish & Game Fully Protected			
DFG:SSC - California Dept. Fish & Game Species of Special Concern			
DFG:WL - California Dept. Fish & Game Watch List			



Base Imagery: NAIP 2009

Appendix D. Map of Wildlife Observations.

Southern Humboldt Community Park

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Date: January 12, 2016

MEMORANDUM

To: Kathryn Lobato
Southern Humboldt Community Park
P.O. Box 185, Garberville, CA 95542

From: Brad Job, P.E.
Senior Civil/Environmental Engineer
California Registered Civil Engineer #C55699
Pacific Watershed Associates, Inc.
P.O. Box 4433, Arcata, CA 95518

SUBJECT: Independent Review of Southern Humboldt Community Park Water Supply and Demand Analysis, and Potential Impacts on Surface Water and Aquatic Habitat

1. PROJECT SCOPE

Pacific Watershed Associates has been retained by the Southern Humboldt Community Park (The Park) to perform the following tasks:

- Review the Southern Humboldt Community Park Water Supply and Demand Analysis Memorandum dated September 2, 2014, prepared by GHD (GHD, 2014).
- Update the water demand analysis based on publicly available water application rates by similar users in the vicinity and turf-grass specific guidance established by non-profit organizations, researchers, and government agencies.
- Perform a field investigation to characterize existing hydrological and aquatic habitat conditions, consider the potential for creating fish barriers and adverse water quality conditions as a result of the Park's future water demands.
- Determine whether there are any significant adverse impacts on aquatic habitat of on-site drainages and the South Fork Eel River, as a result of anticipated Park demands.
- Make recommendations for adaptive management strategies to reduce water use and the adverse effects of the Park's future water demand.
- Identify modifications to the California Department of Fish and Wildlife (CDFW) Lake and Streambed Alteration Agreement (LSAA), including adaptive management measures that will conserve water to sustain the health of fish and other aquatic organisms and avoid adversely affecting downstream water rights holders.

2. BACKGROUND

2.1. Watershed setting

The Park project site is located along the mainstem South Fork Eel River (SF Eel River) with an upstream river basin catchment of 500 square miles (USGS, 2016). The Park is divided into seven distinct units: Tooby Memorial Park, Park Headquarters, Main Agricultural Area,

Community Commons, Community Facilities, Riverfront, and Forestland (see Figure 1 – Site Plan). The Park is located immediately west of Garberville on the right bank of the SF Eel River. The area has a Mediterranean climate with typically long, dry summers. For this reason, even though the watershed receives abundant precipitation during the wet season, water scarcity has and will almost certainly continue to be a driving concern affecting both park management as well as anthropogenic and in-stream beneficial water uses in the future. The Park has two sources of water, an infiltration gallery located on the right bank of the Eel River and a developed spring that contributes to a Class III stream that runs through the Park.

2.2. Common runoff and erosion issues in the Eel River Watershed

The vast majority of the anthropogenic changes that have occurred in the Eel River watershed over the last 150 years have served to reduce infiltration and expedite the flow of precipitation out of the basin. Watershed impacts associated with road building, logging, ranching, farming, road construction, and rural/urban development have modified the landscape in ways that have altered runoff patterns and groundwater conditions, resulting in a decreased hydraulic residence time for the average raindrop falling within the basin (USEPA, 1999).

Ranching and intensive agriculture have had significant hydrologic effects in the basin (USEPA, 1999; CDFW, 2014). In many locations, land management practices have tended to compact surface soils, thereby decreasing infiltration of precipitation and recharge of groundwater. In addition, tilling and disturbance of topsoil usually leads to oxidation of soil organic carbon, which further reduces infiltration rates. Decreased infiltration associated with agriculture, road building and timber harvest activities results in increased runoff, which can then exacerbate down slope gully erosion (Weaver et al., 1995; Weaver et al., 2015). Poorly designed and constructed roads tend to simplify stream networks by capturing drainages and emergent subsurface flows, and converting naturally occurring dendritic flow patterns into linear features with significantly shorter channel lengths, higher flow velocities, and lower hydraulic residence times.

Grading and sheet erosion resulting from land disturbance, including ubiquitous historic timber harvesting and tractor logging in our coastal watersheds and river basins, has reduced the thickness and tilth of soil and thereby reduced the volume of water the soil profile can retain. Erosion resulting from over-grazing and soil tilling also tended to result in loss or degradation of topsoil, which contains most of the soil organic carbon. Undisturbed top soils are more able to absorb precipitation and retain nutrients than the typically clayey silt subsoils that are exposed by management activities. Once compacted or depleted of organic carbon, soils likely take many decades or centuries to recover their native permeability (NRC, 1993).

2.3. Public water supply systems in the vicinity of the SHCP

There are two main public water systems near the Park, operated by the Garberville Sanitation District and the Redway Community Services District, that draw water from the SF Eel River, as well as other groundwater and surface water sources. The Garberville Sanitary District (GSD) water system is a state-regulated public water supply (PWS) that was purchased from private owners. It consists of two water sources, a treatment plant, four water tanks, three booster stations, and a water distribution network that currently serves about 180 connections. The water

sources include an infiltration gallery that withdraws surface water from the SF Eel River and one shallow well in downtown Garberville. The water treatment facility produces water that meets or exceeds State regulations for drinking water quality (Winzler and Kelly, 2007).

GSD's infiltration gallery[1] in the SF Eel River is located approximately 2,000 feet downstream of the Park's infiltration gallery and is their main water source. GSD produces about 80 million gallons of water per year. GSD holds a current water diversion permit from the State Water Resources Control Board to appropriate water from the SF Eel River at a maximum rate of 0.595 cubic feet per second or 10% of the stream flow, whichever is less. According to Mr. Emerson, the GSD manager, an 8" diameter potable water supply line runs along Camp Kimtu Road.

The Redway Community Services District (RCSD) also maintains and operates a public water supply, which lies about four river-miles downstream of GSD's intake. RCSD's potable water system consists of two water sources, a conventional drinking water treatment plant, three storage facilities, two pressure reduction vaults, and one booster pump station, as well as the transmission and distribution lines. In 1999, there were about 600 service connections (Winzler and Kelly, 2007). RCSD water sources include the SF Eel River and an unnamed spring. The water treatment plant design capacity is approximately 460,000 gallons per day. The water permit allows for a withdrawal of 1.05 cubic feet per second (cfs) from the SF Eel River and no more than 0.123 cfs and 52 acre-feet[2] per year from the spring. The maximum yield from the spring is 46,000 gallons per day, but according to Mr. John Rogers, the RCSD Manager, the spring has not been as productive during drought years.

3. REVIEW OF THE SOUTHERN HUMBOLDT COMMUNITY PARK WATER SUPPLY AND DEMAND ANALYSIS MEMORANDUM PREPARED BY GHD, INC.

In order to simplify analysis, hydrologists often segregate water resources into environmental compartments such as surface water, groundwater, precipitation, soil moisture, and biomass. Options for protecting water resources can then be evaluated in relation to altering the distribution of water between those environmental compartments. While this paradigm is very useful, one must recognize that environmental compartments are human constructs and water in the environment exists in a continuum from rain drop to groundwater to plant moisture, and finally, as water vapor evapotranspired by a forest that is blown eastward by the prevailing wind. Every watershed is subject to a variety of natural and anthropogenic environmental conditions that shape its hydrology. Though some factors affecting watershed hydrology are immutable (e.g., geology, tectonics), some are variable (e.g., climate changes, forest fire, timber harvest cycles, and road building). The environmental conditions determine the route that each water molecule ultimately takes on its journey out of the watershed.

PWA analyzed the Park's Water Supply and Demand Analysis Memorandum dated September 2, 2014, prepared by GHD, Inc. (the Memorandum). The Memorandum estimates future water

[1] An infiltration gallery is a sub-surface ground water collection system typically installed near rivers, streams, or ponds. It is comprised of horizontal open-jointed or perforated pipes, block drains, or gravel-filled trenches installed below the water table. Groundwater is collected and discharged to a sump or collection well, and then pumped to a storage tank.

[2] One gallon = 3.07×10^{-6} acre-feet; 1 acre-foot = 325,851 gallons.

demand for seven areas: Tooby Memorial Park, Park Headquarters, Main Agricultural Area, Community Commons, Community Facilities, Riverfront, and Forestland. In our opinion, the water demands identified by GHD are upper-bound estimates and do not reflect water conservation measures that have been mandated by the State in lieu of the declared drought emergency. Although GHD likely overestimated current demand, in general we concur with GHD's water demand estimates for the Park, with the exception of the Main Agricultural and the Community Facilities areas.

While the GHD water demand analysis is thorough, it is our opinion that some of the irrigation demand assumptions overstate the probable demand and do not consider the overall potential beneficial effects of the Park on the both the local and watershed scale water balance. The USDA water demand model used by GHD is based on the Blaney-Criddle equation and is not necessarily the best or most suitable approximation for sports turf. According to the United Nations Food and Agriculture Organization, the Blaney-Criddle method is "not very accurate; it provides a rough estimate or 'order of magnitude' only" (FAO, 2015). While this approach is technically acceptable, it overstates the projected irrigation water demand, especially for the sports field if adaptive management measures are incorporated. The GHD model estimates the amount of water needed to maximize biomass (grass) regardless of climate conditions. Their model assumes a near infinite supply of water is available for the turf grass to evapotranspire, which is significantly greater than the water needed to keep the grass alive during a drought period (Karlin, 2015).

A detailed analysis GHD's assumptions and methods used to calculate the effective irrigation demand calculations was conducted to determine potential factors that would contribute to an overestimation of water demand. The spreadsheet "Effective Irrigation Demand Calculations" (see Appendix 1), provides the assumptions, factor values, and Blaney-Criddle calculations used to determine the effective irrigation demand for the proposed (10 acres) and minimum (5.5 acres) areas of the Sports Field. The majority of factors and assumptions seem accurate for the SHCP location, with the exception of the crop coefficient, $k_{c,}$ used to calculate the climatic coefficient, k. The climatic coefficient, k, and the monthly consumptive use factor, f, are multiplied to give monthly consumptive use, U. Consumptive use is the water loss from an area of land by evapotranspiration. The crop coefficient, k_c, is a dimensionless number that reflects the percentage of potential evapotranspiration (ETo) needed to satisfy water needs of a specific crop or plant (Harivandi, et al., 2009).

The GHD analysis used relatively high crop coefficient values of 0.85, 0.9, 0.92, 0.92, 0.91, 0.87, and 0.79 for the months of April through October, respectively. According to Harivandi et al. (2009), crop coefficient, k_c, values may vary for California turfgrasses to meet restricted irrigation demands (Table 1).

Suggested crop coefficient values are provided for cool-season and warm-season turfgrasses. Turfgrasses in the SHCP would be classified as warm-season due to the hot and dry summer climate. The crop coefficient values for warm-season turfgrasses range from 0.60 for optimum performance to 0.20 for the driest conditions that allow crop survival. GHD's crop coefficient values are 1.3 to 1.5 times greater than the crop coefficient values suggested for warm-season turfgrasses. If the optimum crop coefficient value of 0.60 was used instead of the high values

used by GHD, the average and drought effective irrigation values would decrease by 32% to 48% (Table 2).

Table 1. Suggested K_c values (% ETo) for irrigation strategies resulting in optimum, deficit, and survival performance levels for selected turfgrasses grown in California[1]

Turfgrass performance level	Cool-season turfgrass	Warm-season turfgrass
	Kc[2]	Kc
Optimum	0.80	0.60
Deficit	0.60	0.40
Survival	0.40	0.20

[1]From Harivandi et al., 2009; [2] Kc (crop coefficient) is a dimensionless number that is multiplied by the ETo value to arrive at an estimate of crop ET, or water requirement (ET = Kc x ETo).

Table 2. Comparison between Average and Drought Effective Irrigation Demand calculated using GHD and the optimum crop coefficient for warm-season turfgrass.[1]

Month	Average Effective Irrigation Demand (in/mo)			Drought Effective Irrigation Demand (in/mo)		
	GHD k_c values	Optimum k_c value for warm-season turfgrass	Percent less than GHD estimate (%)	GHD k_c values	Optimum k_c value for warm-season turfgrass	Percent less than GHD estimate (%)
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	0.325	-0.454	39%	1.736	0.903	48%
May	3.468	2.009	42%	4.118	2.616	36%
June	5.574	3.561	36%	5.796	3.764	35%
July	7.402	4.856	34%	7.439	4.890	34%
August	6.368	4.106	36%	6.648	4.358	34%
September	4.357	2.845	35%	4.770	3.231	32%
October	0.410	-0.228	32%	1.771	1.090	38%
November	-	-	-	-	-	-
December	-	-	-	-	-	-

[1] GHD k_c values = 0.85, 0.9, 0.92, 0.92, 0.91, 0.87, and 0.79 between the months of April and October, respectively. Optimum k_c value for warm-season turfgrass = 0.60 (Harivandi et al., 2009).

3.1. Updated Water Supply and Demand Analysis Using Site-Appropriate Water Application Rates.

While parks and outdoor recreation opportunities are important components of a healthy and vibrant community, parkland irrigation demands must be considered secondary to the obligation to maintain stream flows to support downstream ecological and human consumption needs. To

maximize the beneficial use of water, we recommend a water allowance that is based on antecedent precipitation conditions. In wet years, the Park should be able to irrigate more and in drought years it will likely be necessary to irrigate less.

A holistic approach must be used to develop a water balance for the Park and the affected reach of the SF Eel River. First, it is important to identify consumptive use demands that result in out-of-basin water transport (e.g., ocean outflow, evapotranspiration, interception, and groundwater); and non-consumptive use demands that simply "borrow" water, use it beneficially, and then release that water back into the basin via percolation or direct discharge (e.g., domestic use, over-applied irrigation). When non-consumptive uses are constant over time and deep-rooted vegetation does not evapotranspire this water, the non-consumptive use component of the water budget operates at a near steady state condition, where water withdrawal is about the same as groundwater seepage back into the system. While non-consumptive use is an important element of water demand analysis, it must not be misunderstood; there are undoubtedly drought periods with the characteristic long dry summers when surface water and connected groundwater "loans" cannot be afforded.

We have updated GHD's water demand analysis based on publicly available water application rates by similar users and turf-grass specific guidance established by environmental non-profit organizations, researchers, and local and state agencies. Based on the Turf Grass Water Conservation Alliance (TWCA) guidelines for typical residential lawn water demand, a 0.11 acre lawn can subsist with between 8,000-16,000 gallons per 90 day period, depending on the soil and the grass species of the turf (Karlin, 2015). In terms of water application rates, this equates to 0.2 and 0.5 inches of water per week. In comparison, the GHD water demand estimate ranges from 2x to 4x higher than the high end of the TWCA values. The high values may be in response to heavy use, where playing fields generally require more irrigation water to grow biomass to recover from damage.

Estimates for the Sports Fields irrigation demands were updated using the optimum crop coefficient value of 0.6 for warm-season turfgrasses, as discussed in Section 3. Table 3 provides the updated monthly irrigation demands for the proposed Sports Field area (10 acres) and the minimum Sports Field area (5.5 acres). This analysis uses the same procedures as used by GHD in their report (see Section 2.2.2: Irrigation calculations: Table 4 and Table 5). The updated total irrigation demand for the proposed Sports Field area (10 acres) based on average and drought conditions are 4,718,663 ga and 5,662,079 ga, respectively. These values are 38% and 35% lower, respectively, as compared to the GHD values (Table 3). Updated estimates of total irrigation demand for the minimum Sports Field area (5.5 acres) based on average and drought conditions are 2,613,344 ga and 3,135,838 ga, respectively; which are 38% and 35% lower than the GHD values for the same area (Table 3).

Table 3. Updated proposed and minimum Sports Fields irrigation demands using an optimum crop coefficient value of 0.6 for warm-season turfgrasses.

Month	Proposed Sports Field – 10 acres		Minimum Sports Field – 5.5 acres	
	Average (ga)	Drought (ga)	Average (ga)	Drought (ga)
January	-	-	-	-

February	-	-	-	-
March	-	-	-	-
April	0	245,067	0	135,726
May	545,512	710,335	302,122	393,406
June	966,961	1,022,129	535,534	566,087
July	1,318,687	1,327,751	730,330	735,350
August	1,114,911	1,183,509	617,473	655,465
September	772,592	877,317	427,886	485,886
October	0	295,971	0	163,918
November	-	-	-	-
December	-	-	-	-
Updated Total (ga)	4,718,663	5,662,079	2,613,344	3,135,838
Updated Total (acre-ft)	14.48	17.38	8.02	9.62
GHD Total (ga)	7,576,727	8,764,113	4,196,499	4,853,841
GHD Total (acre-ft)	23.25	26.90	12.88	14.90

4. FIELD INVESTIGATION TO CHARACTERIZE EXISTING HYDROLOGICAL AND AQUATIC HABITAT CONDITIONS

PWA visited the Park on July 17 and July 29, 2015 to inspect the affected section of the SF Eel River and the drainage network within the Park boundary. During the July 29 visit, Brad Job, and Chris Herbst (PWA Civil Engineer Professional Geologist, respectively) discussed site drainage and farm management with Mr. John Finley, current farmer of the Main Agricultural Area. Mr. Finley is very familiar with the environs and the drainage patterns within the Main Agriculture area. He described the general irrigation water system and how the Farm operates.

Mr. Kyle Wear, the wetland biologist that delineated the jurisdictional wetlands on the Park, provided PWA with a map, included as Figure 2 - Jurisdictional Wetland Map, which identifies about 66 acres of jurisdictional waters (wetlands) within the Park. Mr. Wear and Messrs. Job and Todd Kraemer (PWA hydrologist) discussed his wetland delineation observations on August 4, 2015.

4.1. Findings

The majority of the Park is located on an alluvial terrace along the right bank of the SF Eel River with more than 66 acres of wetland habitat. The existence of extensive wetland habitat perched on the alluvial terrace implies the presence of a well-developed, less pervious soil substratum at some relatively shallow depth. This is indicative of the development of a “B” soil horizon with lower permeability than that of the topsoil “A” horizon. In such soils, the silt and clay fines have been washed through the surface soil where they plug some of the pores in the “B” horizon soil. These water-retaining soils appear to be locally intact and they slow the percolation of precipitation into the underlying alluvial water table. Restoring and enhancing wetland functions and water retention in the delineated wetlands in the Park could create both hydrologic and environmental benefits (Seiler and Gat, 2007).

Wetlands retain water following precipitation events and increase groundwater recharge. The water surfaces in these areas are typically in equilibrium with a shallow or perched water table. Where the phreatic surface emerges from the ground, the area becomes seasonally inundated (Bradley, 1996). Although no known subsurface or groundwater characterization has been performed on the Park wetlands, it is reasonable to assume that the conditions underlying the Park are similar to many other alluvial wetlands. In typical settings, a series of inter-braided deposits of varying material size classes ranging from course to very fine, gradation ranging from poor to well, and with varying percentages of clay, silt, sand, and gravel, comprise the terrace deposits. In general, the porosity of alluvium is in the 30%-35% range and, as a result, alluvium can hold a significant volume of water if subsurface drainage is restricted by a low permeability horizon beneath it. The flow of water through inter-braided alluvial deposits is controlled by material physical properties, where finer-grained alluvium yields water more slowly and open-graded gravel or cobble units yield relatively high groundwater flow velocities (Niswonger and Fogg, 2008).

On the simplest level, the velocity of flow via wetland seepage and subsequent groundwater discharge to the SF Eel River ranges from many hundreds to millions of times slower than occurs with overland flow (Chen and Chen, 2003). Measures that enhance water retention in the existing wetland areas will recharge the alluvial water table and eventually result in more groundwater discharging to the SF Eel River along the Park's affected reach. Significant characterization is necessary to estimate the parameters that dictate the rate of absorption and release of water, but the physical principles are irrefutable. We conservatively estimate that roughly 33 acre-feet, or about 10.8 million gallons of increased groundwater storage would result from prospective wetland enhancement. However, more refined analysis is necessary to estimate the duration and volume of the increased groundwater discharge to the SF Eel River.

4.1.1. Biological conditions

A field investigation was performed to characterize the existing hydrologic and aquatic habitat conditions in the Park and the adjacent segment of the Eel River, and to determine the potential for creating adverse impacts and/or fish migration barriers resulting from increased water demand and extraction. The field investigation involved examining each drainage that flows within the Park boundaries. The only water bodies that could be affected by the Park's water consumption are the SF Eel River and the one ephemeral drainage located closest to the Park's eastern boundary. The largest increase in proposed water use is for irrigation to service the agricultural area and the sports fields proposed for the Park. The future plans propose a several-fold increase in the amount of water to be drawn from the SF Eel River at the infiltration gallery during summer low-flow periods. Because of the timing and volume of this irrigation diversion, it represents a non-negligible, but easily mitigatable impact to aquatic habitat in the project area.

4.1.2. On-site drainages

The three ephemeral streams that transect the Park were assessed by traversing the channels and visually assessing limiting conditions such as absence of well-established riparian vegetation, lack of habitat complexity, lack of cover, and chronic sediment inputs. At the time of assessment, all of the channels were dry. The U.S. Geological Survey (USGS) quadrangle map dated 1970, shows no mapped stream channels within or adjacent to the Park other than the SF Eel River

itself. All three streams have very little sinuosity and have likely been realigned from their natural courses to maximize the agricultural production area.

The easternmost unnamed ephemeral tributary to the SF Eel River within the Park boundaries has about 205 acres of catchment area extending up to the ridge above Highway 101. It is the only channel in the Park that has well-established riparian vegetation along its entire length. A spring that is hydrologically connected to this drainage supplies the 50,000 gallon water tank and is the source of potable water for the Park. The LSAA allows diversion of up to 2,000 gallons per day or 10 % of the flow, whichever is less. It is our understanding that the spring had gone dry at the time of our July, 2015 stream assessment. Given the relatively low diversion rate from the spring, the size of the catchment, and the absence of surface water flow at the time of our site inspection, it is unlikely that the presence or absence of flow in this channel hinges on this one (and possibly the only) spring diversion near the top of this drainage. It is likely that the bottom portion of this channel, which discharges into the SF Eel River at Tooby Memorial Park, provides spawning and rearing habitat for steelhead and possibly coho during the wet season. However, utilization of this channel by fish almost certainly ceases soon after the conclusion of the rainy season. The channel is deeply incised and has virtually no in-channel woody debris.

The channel that more-or-less centrally bisects the Park is particularly linear, deeply incised, and has very few well-established riparian trees. This stream does not appear to have a well-defined channel on the lower floodplain terrace that connects it to the SF Eel River. It discharges into a wetland on the western margin of the lower floodplain terrace, which is drained by a 48” culvert under Camp Kimtu Road. Although wet season observations would be required to rule out utilization of the wetland by salmonids, it appears unlikely that it provides significant fish habitat except for in the most extreme high flow conditions. The wetland provides valuable habitat for a variety of other species, but regardless, there is no current or planned diversion from this channel and water utilization by the Park has very little or no impact on the flow conditions.

The westernmost channel skirts the Park’s boundary. There are small, delineated wetland pockets on Park property that contribute to this channel. Although the lower reach of this channel may provide some seasonal fish habitat and velocity refugia, similar to the central channel described above, water use by the Park will have very little or no effect on flow in this incised channel.

Thus, it appears highly unlikely that current or future water use by the Park will adversely affect fish habitat in any of the three minor stream channels within the Park. The primary benefits of these channels are seasonal and likely involve velocity refugia during peak flows and a limited amount of spawning in the short stream segments below the culverted crossings on Camp Kimtu Road.

4.1.3. SF Eel River

The SF Eel River channel is characterized as a pool-riffle channel type. Because there is a general lack of structural elements that can create the hydrologic conditions necessary to form deep pools, pools are scarce, relatively shallow and small. The sole exception is a six-foot deep pool near the left abutment of the Sproul Creek Road Bridge. In addition, riparian cover is absent that could provide shade for the relatively shallow low-flow channel. Under conditions at the

time of this assessment, water temperatures appear to approach the lethal zone for some salmonids. Along with the high water temperatures, abundant algae covered most of the wetted channel, which can cause large diurnal fluctuations in dissolved oxygen concentrations that often result in hypoxia and anoxia, conditions that are deleterious to fish.

Based primarily on water quality, especially the warm water temperatures we observed, it was PWA's opinion that flow in the SF Eel River was too low to allow turf grass irrigation at the river stage that was occurring at the time of our initial site visit. Based on the extreme low flows in the SF Eel River channel during current drought conditions, it is conceivable that flows in the SF Eel River will become hyporheic, creating isolated pools and possibly stranding fish. Certainly, any significant increase of water drawn from the infiltration gallery during summer low flow conditions will exacerbate, however slightly, the undesirable conditions that already exist (high water temperatures, low dissolved oxygen, elevated nutrient concentrations), and would contribute to the creation of conditions that could be lethal for salmonids.

The low-flow conditions that have existed for the past several summers are a limiting factor for survival of juvenile coho and Chinook salmon, and steelhead trout, which are listed as threatened species (NOAA, 2014). Based on the two site evaluations, the velocity of flow during summer drought conditions was about 0.56 feet per second. There were no observable fish barriers along the SF Eel's Park reach because the riverbed was very low gradient. We estimate that on July 29, the cross sectional area of the shallowest observed segment of channel was about 30 square feet with a minimum riffle crest depth of about 8 inches. The discharge at that time was about 16.9 cubic feet per second (cfs) per the record at USGS Gauge 11476500. The resultant flow velocity was about 0.56 feet per second.

To assess the potential for the Park's diversion to create fish migration barriers, we assume that the velocity of flow at this stage is mostly governed by the channel morphology and streambed longitudinal profile. If the Park's infiltration gallery was being pumped at its maximum diversion rate of 0.24 cfs, as directed by the CDFW LSAA, the riffle crest water surface elevation would drop roughly about 1/8" inch. This worst-case reduction in water depth is relatively unlikely to affect summertime juvenile fish passage along the SF Eel River. Even under the projected maximum diversion rate allowed by the Park's water rights would not lead to a break in surface flows. One can safely assume that the hydrologic effects of water consumption and human-caused hydrologic connectivity in the 500 square miles (320,000 acres) of upstream watershed have a vastly greater effect on fish passage than would the effects of irrigating five or ten acres of sports field on the mainstem South Fork Eel River.

Even with limitations imposed under the CDFW LSAA, water quality conditions in the SF Eel River were deemed unacceptable at the time of our site characterization visits and were clearly impaired, primarily due to low mainstem flow. No apparent irrigation diversion from the Park was ongoing at the time of our site visits. Water temperatures in the shallowest portions of the river were in the mid-sixties, which is too warm for salmonid juveniles to thrive. Water temperatures in the deep pool that lies under the Sproul Creek Road Bridge were moderately cooler than those in the shallowest segments of the Park reach.

Both GHD's and PWA's projected water demand under any scenario is unlikely to result in dewatering of any channel that is utilized by salmonids. Seasonal utilization of the lowest reaches of the three ephemeral streams by fish will almost certainly have ceased by the time irrigation demands start. Nor would water diversion, even at the maximum rates allowed by the LSAA, result in fish stranding. The water diverted from the SF Eel River infiltration gallery will support the vast majority of the projected increased water demand, and the diversion rates allowed by the LSAA are insignificant in relation to flow in the SF Eel River in all but the driest months: July, August, and September. During these months, turf grass irrigation rates should be adjusted based on the principles of good environmental stewardship and water conservation for this relatively small project area.

5. RECOMMENDATIONS AND ADAPTIVE MANAGEMENT STRATEGIES

As stated above, the water use associated with the Park in any future build-out scenario should be adjusted based on the availability of water necessary to support the beneficial uses while honoring senior water rights holders located downstream of the Park. For this reason, it is essential that the Park operate within the bounds of all relevant water rights and water quality laws and regulations. During this period of record drought it is apparent to all parties that irrigation of turf grass is a minor consideration relative to the SF Eel River's highest priority beneficial uses; protecting habitat for threatened salmonids, providing drinking water for people and wildlife, and irrigating food crops.

5.1. General Recommendations

- **Stream and riparian improvements**-The hay flat in the Main Agricultural area is more-or-less bisected by a linearized Class 3 stream. Maintaining and elevating the grade of this stream, while adding some sinuosity to the channel, will promote development of a more natural riparian corridor with increased potential for wildlife habitat, while increasing seepage of surface water into groundwater. It is apparent that this stream was ditched at some point in the past, and has since entrenched itself. Although the stream does not support anadromous fish populations, PWA believes that this creek would be a good candidate for riparian and wetland restoration funding, possibly as mitigation for wetland impacts associated with nearby construction projects.

- **Water storage** - Given that the project area typically receives an average of 58 inches of precipitation each year, water scarcity is more a matter of timing of precipitation rather than the amount that falls from the sky, even in a drought. Most precipitation occurs between mid-October and mid-May. Thus, retaining water on-site during the wet season and allowing it to discharge back into the river during the dry season is the most efficient means of reducing the dry season hydrologic footprint of the Park. Water can be retained on-site by enhancing wetlands, restoring riparian areas, constructing infiltration or water storage ponds, elevating stream grades, and storing water in tanks. It is likely that enhancing groundwater recharge by enhancing wetlands and restoring riparian areas will be the least expensive and infrastructure-intensive means of accomplishing this goal and they bring a suite of additional environmental benefits.

- **Drought-tolerant turf grass** - We recommend planting of drought-tolerant warm turf-grass species, likely among those shown in Table 4. Each species and cultivar has differing benefits and advantages. The factors that must be considered when selecting the type(s) of grass to be planted include evapotranspiration potential, drought tolerance, dormancy, soils structure and fertility, fertilizer demand, mowing height, invasive weed potential, and durability. PWA recommends consultation with a firm experienced in turf-grass cultivation in similar Mediterranean climate zones before the exact species and cultivars for this specific site and field are developed. Hybridized drought resistant grass species and cultivars typically use about 70% of the water required by non-hybridized species (Karlin, 2015).

- **Low-to-the-ground and subsurface irrigation systems** - We also recommend the use of best available irrigation technologies. Generally, sprinkler systems that apply water as close to the ground surface as possible will result in less evaporative loss. In addition, watering should occur at night or in the early morning hours, which also reduces evaporation. One recently developed subsurface irrigation system for sports fields could reduce water use could by up to 70%. Thus, even using GHD's maximum value of 1,117,873 gal/mo, the water demand could potentially be reduced to as little as 335,000 gallons per month by using high-efficiency irrigation methods. It is important to note that more efficient irrigation methods can also reduce power consumption, nutrient leaching through surface soils, and emissions of greenhouse gasses. At the same time, it is imperative to understand the potential for biofouling within the irrigation system before selecting and constructing one.

- **Know when and when not to irrigate** - Most importantly, the irrigation allowance should be determined based on the characteristics of each water year (when and how much precipitation falls, as well as dry season river flows and water quality) as that will influence how the Park's turf is managed. Deciding when to cease irrigating the sports park is one of the most critical adaptive management measures for mitigating the potential adverse impacts associated with turf irrigation.

Table 4: Examples of Drought-Resistant Turf Grass (Cruger, 2009).

Grass type and/or cultivar	Features	Downside	Drought tolerance
Native Bentgrass™ from Delta Bluegrass	"California native sod," medium leaf texture, thrives in full sun and partial shade, withstands low mowing heights, strong sod mat provides effective weed barrier, extremely drought tolerant, uniform growth habit, excellent wear recovery due to self-repairing rhizomes.	Less traffic tolerant than other species / cultivars. Can tolerate low mowing heights or left un-mowed.	Good
Zoysia 'De Anza'	Good traffic tolerance; some shade tolerance. 'De Anza' was developed for improved color retention.	Slow to establish by seed, so sod is better; slow to repair.	Excellent
Buffalo grass 'UC Verde'	Very low water needs; can survive in extreme drought conditions; low fertilizer needs; reduced or no mowing required; meadow-like, rather than a manicured look, when unmowed.	Longer winter dormancy period inland (also goes dormant in extreme drought in summer).	Superior
Bermuda grass	Best overall warm-season grass for California; high traffic tolerance; needs sun; recuperates well; very good drought and salt tolerance; available in sod, sprigs or seed	California Invasive Plant Council (CalIPC) ranked invasive weed (Moderate).	Superior
Kikuyagrass	High traffic tolerance; heat and drought tolerant; best color retention of the warm-season grasses; good for the coast; resembles St. Augustine.	Kikuyu grass is a CalIPC ranked invasive weed (Limited)	Good

5.2. Adaptive Management

There is a hierarchy of need for water in most communities during times of water scarcity. While sports fields are important for communities to congregate, turf grass can be replanted after a drought in which irrigation is halted and grass dies. Water needed for direct human consumption often overrides most other uses, trailed closely by irrigation for food crops, and water needed to support instream beneficial uses. However, while alternative water supplies may sometimes be available for human needs, requirements for aquatic organisms can only be met through maintenance of life sustaining minimum streamflows and viable water quality. Given the drought conditions that have been ongoing for at least three years (at the time of this writing), irrigation of the sports field during extended drought conditions is likely to be highly scrutinized and lower in priority compared to other needs.

For this reason, we propose establishment of a water budget for various irrigation demands on the Park property, as well as a triggering mechanism for the reduction or cessation of irrigation

during periods of water shortage, based on higher priority uses. There are likely to be several tiers of demand within the beneficial uses that currently need to be serviced at the Park including direct human consumption, residential uses, irrigation of trees and other established semi-permanent vegetation, irrigation of annual row crops, irrigation of turf grass, and irrigation of pasture/wetlands. The demands shown in Appendix 1 are indicative of an average water year (based on recent history). These irrigation rates are then scaled back based on their relative importance and the antecedent precipitation and streamflow conditions.

One major consideration is our increased ability to monitor and manage water in the landscape, which will likely increase in the future and facilitate our ability to manage use in response to water abundance. The monitoring and management strategy that is ultimately adopted by the Park should consider current riverine, atmospheric, and antecedent precipitation conditions when determining the quantity of water available to irrigate turf grass on sports fields. When the Park is ready to undertake design and construction of new facilities it should do so under the advice of an adaptive irrigation management plan that focuses on the criteria listed above, as well as water rights and diversion management. It is advisable that this plan be considered when determining how many and what type of sports fields are to be constructed. Phasing of sports field construction will allow field capacities (soil water) to equilibrate with user demand and resource availability.

PWA believes that the Sports Field irrigation cutoff threshold can be significantly higher than the 17 cfs flow conditions in the SF Eel River that we witnessed on our July 29, 2015 site visit. We suggest 30 cfs as an interim threshold, beyond which the sports fields can only be irrigated with stored or recycled water. This will undoubtedly result in less-vigorous turf at the onset of the wet season. One adaptation could be rotating the location(s) and layout(s) of fields in active use throughout the dry season in a manner that spreads the recreational impact on desiccated turf throughout the entire Sports Field area. The following measures are recommended to provide adaptive management in future water use at the Park:

- Develop an adaptive irrigation management plan that:
    - determines how many and what types of sports fields are necessary and can be supported with the available irrigation supply,
    - how much irrigation water can be diverted in varying stages of water scarcity, and
    - establishes a reliable means of determining the annual irrigation water diversion cutoff date.
- Consult with turf-grass and sports field irrigation system experts before laying out sports fields and designing irrigation systems in order to determine the best drought tolerant turf grass and irrigation strategies to reduce water consumption.
- Replace the water demand summary for agricultural areas and turf grass from the GHD Memorandum with the PWA Estimated Water Demand.

5.3. Low-Impact Development (LID)

When the Park undertakes design and construction of new facilities, modern development standards and building codes will necessitate the use of low-impact development (LID) best practices. Moreover, we recommend that all new infrastructure should be consistent with the principles of the Leadership on Environmental and Efficient Design (LEED) Standards, which

also incorporate LID techniques. The foundation for evolution of LID practices lies in the universal need to decrease the negative hydrological and environmental consequences of infrastructure development on hydrologic connectivity and pollutant loading. Some of the environmental benefits of LID are increased groundwater recharge, decreased peak runoff, reduced flood risk, and reduced delivery of pollutants to surface water.

Examples of LID concepts are permeable pavements, stormwater detention basins, rain gardens, rainwater harvesting into storage or dry-wells where it can percolate into groundwater. There are also infrastructure benefits for LID practices like minimizing flooding, preserving drinking water sources, and reducing maintenance frequencies. Although irrigation with recycled water is not strictly an LID requirement, this measure could dramatically benefit the planned Park's agricultural production, turf irrigation, groundwater storage, and scenic amenity. Features could include a skate park that collects and infiltrates rainwater, construction of vernal-pool-like rain gardens near impervious surfaces, or constructed perennial wetlands that are maintained with recycled water as both a scenic and freshwater habitat amenity.

The use of vault toilets[3] would reduce water consumption, plumbing costs, and the need for on-site wastewater disposal systems in these riparian and/or seasonally inundated locations. Vault toilets have no water demand and when pumped, the contents can be discharged at the nearby GSD treatment plant. Vault toilets in flood zones should be pumped clean prior to the onset of a predicted flood.

The LID design benefits for the built-environment areas of the Park are nearly identical to those that would result from applying comprehensive wetland and riparian enhancement plan to the wildland and agricultural areas of the Park. The application of both LID and a wetland and riparian enhancement plan would provide a robust approach to minimizing water consumption. The following measures are recommended to achieve low-impact development:

- Comply with LID construction standards.
- Use vault toilets where running water is not necessary.

5.4. Wetland and Riparian Restoration and Enhancements

SHCP should seek funding to design and implement a comprehensive wetland and riparian restoration and enhancement program. When implemented, these enhancements are likely to vastly outweigh the hydrologic impacts of turf grass irrigation, especially if implemented using the adaptive irrigation management constraints detailed above. Ideally, environmental conservation and restoration projects would occur contemporaneously with construction of recreational features and offset any hydrological impacts. Some of the priority restoration and enhancement measures could include:

- Repair and maintain the grade control structures that are preventing further upstream migration of head-cuts, and implement measures to raise and stabilize gullied channels.

[3] A vault toilet is a waterless toilet designed for areas with no or little access to running water. It works like an "out house" with a seat installed over a "vault" or hole constructed with reinforced concrete below the ground surface. Waste is pumped from the vault and disposed of off-site. Proper passive solar venting of vault toilets greatly mitigates odor issues.

- Seek funding to prepare a comprehensive plan to enhance the extant wetlands and restore the riparian corridors throughout the Park.
- Manage site vegetation to reduce the presence of exotic plant species, increase riparian shading, and promote succession of forests to achieve older seral stages.

5.5. Future Water Storage and Restrictions on Flow Diversions

PWA recommends that the Park seek funding to install additional water storage tanks in order to minimize its impact on water quality and habitat conditions. Construction of municipal water storage tanks has typically been considered a consistent use within public recreation zoning. Current tank offerings for municipal-scale use can be constructed or planted aesthetically, in a manner that is consistent with most park uses. Storage in ponds and wetlands is a viable and lower-cost option to tank storage, but comes with the tradeoffs of increased evaporative loss and algal growth. Many water districts rely on water storage in park settings, ranging from the Bay Area's vast array of dams and lakes to the City of Arcata's array of relatively small metal tanks in the Community Forest. Partially buried and entirely underground municipal water storage tanks are less numerous but less obvious and less subject to vandalism.

The LSAA allows up to 2,000 gallons per day to be diverted from the spring between November 1 and July 1 of each year. The other diversion is from an infiltration gallery in the South Fork Eel at a maximum diversion rate of 0.24 cubic feet per second (cfs) for irrigation. The infiltration gallery does not have a specified period of diversion. The following measures are recommended to improve future water storage and ensure adequate restrictions on in-channel diversions that could otherwise adversely affect aquatic habitat in the SF Eel River during the dry season:

- Install additional non-potable water storage facilities for irrigation and as a source of fire suppression water for the Main Agricultural and Forestland areas.
- Diversion from the SF Eel River infiltration gallery should cease after the flow at Sylvandale is nominally less than 30 cfs, contingent on a more robust metric. This means that irrigation would not have ceased in calendar years 2011 and 2012, but there would have been interruptions in irrigation diversions in 2008, 2009, 2010, 2013, 2014, and 2015.
- The LSAA requires that streamflow to be measured if water is diverted between July 1 and October 31. We suggest reliance on measured flow at USGS Gauge 11476500.

6. CONCLUSIONS

If employed, the above recommended measures would greatly reduce the cumulative hydrological footprint of the Park. Enhancing groundwater storage during the wet season would increase the discharge of groundwater into the river during the dry season, although it is impossible to estimate the timing and rate of groundwater exfiltration into the SF Eel River with no subsurface geological or hydrological characterization. Providing restrictions on diversions from the SF Eel River during periods of water scarcity would ensure that the Park is not contributing to the cumulative conditions in this waterbody and the essential habitat it provides for anadromous fish and other aquatic life. Moreover, the low impact design (LID) principles and materials that are a requirement of the CBC and County Code would reduce both the hydrologic

footprint of the Park and the delivery of sediment and other pollutants to the SF Eel River during precipitation events.

7. LIST OF ATTACHMENTS

Figure 1 – Site Plan
Figure 2 – Wetland Delineation Map
Appendix 1 – Estimates of Minimum Water Demand.

8. REFERENCES

Bradley, C.T., 1996, Transient modeling of water-table variation in a floodplain wetland, Narborough Bog, Leicestershire, Journal of Hydrology, v. 185:87-114.

California Department of Fish and Wildlife (CDFW), 2014, South Fork Eel River Watershed Assessment Report, Coastal Watershed Planning and Assessment Program, 327 p. http://coastalwatersheds.ca.gov/Watersheds/NorthCoast/EelRiverSouthFork/EelRiverSouthForkBasin/EelRiverSouthForkAssessmentReport/tabid/739/Default.aspx.

Chen X. and Chen X.H., 2003, Stream water infiltration, bank storage, and storage zone changes due to stream-stage fluctuations, Journal of Hydrology, v. 280: 246–264.

Cruger, R., 2009, Six grasses for low-maintenance drought-resistant lawns, TreeHugger, Accessed July 20, 2015. http://www.treehugger.com.

GHD, Inc., 2014, Southern Humboldt Community Park Water Supply and Demand Analysis Memorandum authored by Rebecca Crow, GHD: Eureka, CA. September 2, 2014.

Harivandi, M.A., Baird, J., Hartin, J., Henry, M., and Shaw, D., 2009, Managing turfgrasses during drought, ANR Publication no. 8395, University of California: Agriculture and Natural Resources, Oakland, CA, 9 p. https://anrcatalog.ucdavis.edu/pdf/8395.pdf.

Karlin, J., 2015, Saving water without losing the lawn (Radio series episode), *in* Jefferson Daily, April 9, 2015, Ashland: Jefferson Public Radio. http://ijpr.org/term/water.

National Oceanic and Atmospheric Administration (NOAA), 2014, Chapter 41: South Fork Eel River, Southern Oregon/Northern California Coast Coho (SONCC) Salmon Recovery Plan, NOAA Fisheries West Coast Region, National Marine Fisheries Service (NMFS), and U.S. Department Of Commerce: 41-1 – 41-25. http://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/southern_oregon_northern_california/sonccfinal_ch41_southforkeelriver__1_.pdf.

National Research Council (NRC), 1993, Soil and Water Quality: An Agenda for Agriculture, National Academy Press, Washington, D.C., 516 p.

Niswonger, R.G. and Fogg, G.E., 2008, Influence of perched groundwater on base flow, Water Resources Research, v. 44, W03405: 1-15.

Seiler, K.P. and Gat, J.R., 2007, Groundwater recharge from run-off, infiltration, and percolation, Dordrecht (Netherlands): Springer, 241 p.

United Nations Food and Agriculture Organization (FAO), 1986, Chapter 3: Crop water needs, Irrigation water management: Irrigation water needs, Training manual no.3, FAO: Rome, Italy. http://www.fao.org/docrep/s2022e/s2022e07.htm#3.1.3%20blaney%20criddle%20method.

US Environmental Protection Agency (USEPA), 1999, South Fork Eel River Total Maximum Daily Loads for Sediment and Temperature, USEPA Region IX, Water Division: San Francisco, CA, 62p. http://www.epa.gov/region9/water/tmdl/eel/eel.pdf.

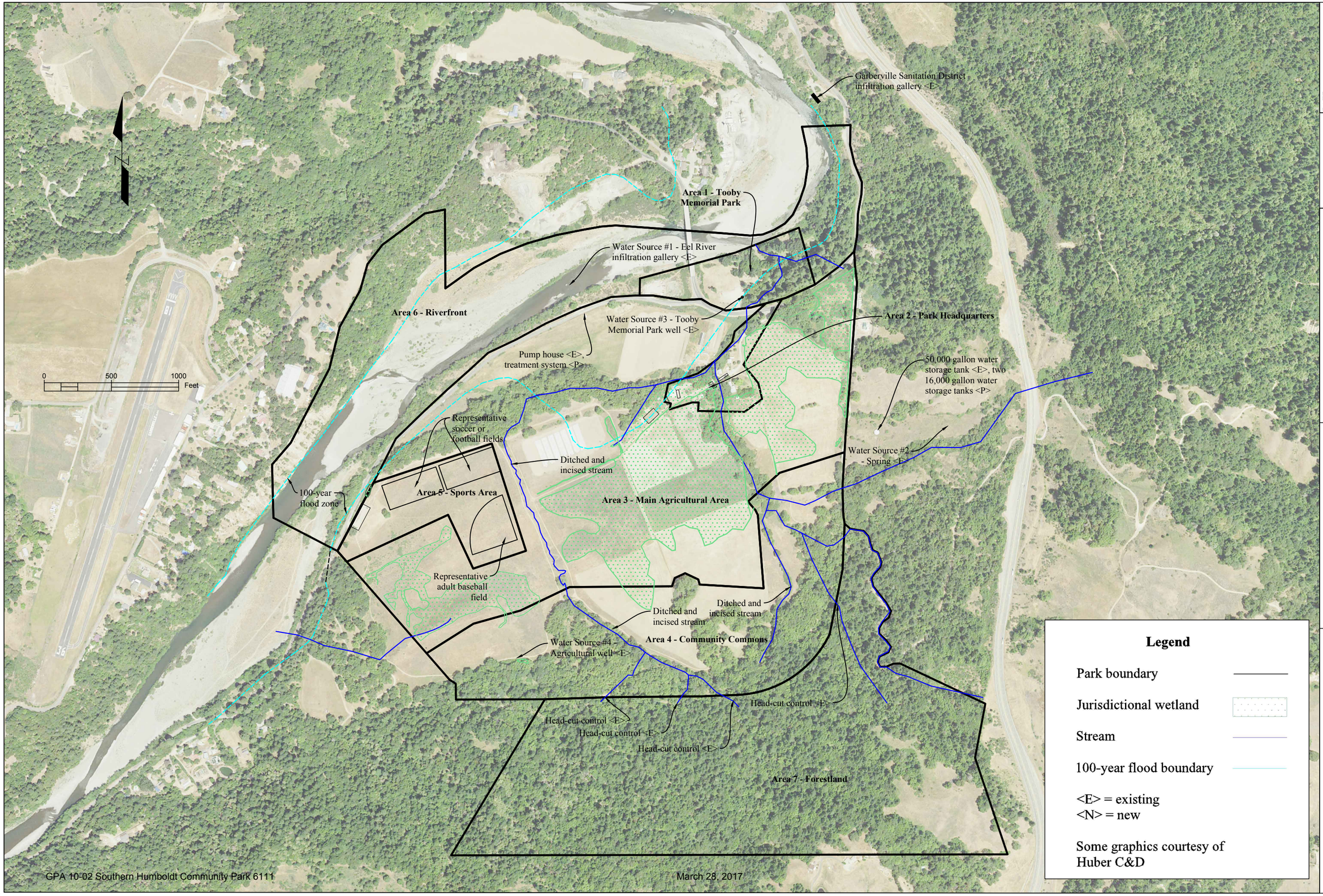
US Geological Survey (USGS), 2015, Water-Year Summary for Site 11476500, South Fork Eel River near Miranda, http://waterdata.usgs.gov/nwis/wys_rpt/?site_no=11476500.

Weaver W.E., Hagans, D.K. and Popenoe, J.H., 1995, Magnitude and Causes of Gully Erosion in the Lower Redwood Creek Basin, Northwestern California, in: Geomorphic processes and aquatic habitat in the Redwood Creek basin, northwestern California, Edited By K. M. Nolan, H.M. Kelsey, and D.C. Marron, USGS Professional Paper 1454, pages I1–I21. http://pubs.er.usgs.gov/publication/pp1454.

Weaver, W.E., Weppner, E.M., and Hagans, D.K., 2015, Handbook for Forest, Ranch and Rural Roads: A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining and Closing Wildland Roads, (Rev. 1st ed.), Mendocino County Resource Conservation District, Ukiah, California, 406 p.

Winzler and Kelly Consulting Engineers, 2007, Draft Water Resources Technical Report For Humboldt County Community Development Division, County of Humboldt, 633 Third Street, Eureka, CA 95501, November 2007.

Figure 1 – Site Plan



GPA 10-02 Southern Humboldt Community Park 6111

March 28, 2017

Sheet 1 of 1

DATE
8/27/2015

NOTES PREPARED BY
L.B. JOB

FIGURES CREATED BY
L.B. JOB

SHEET 1 OF 1

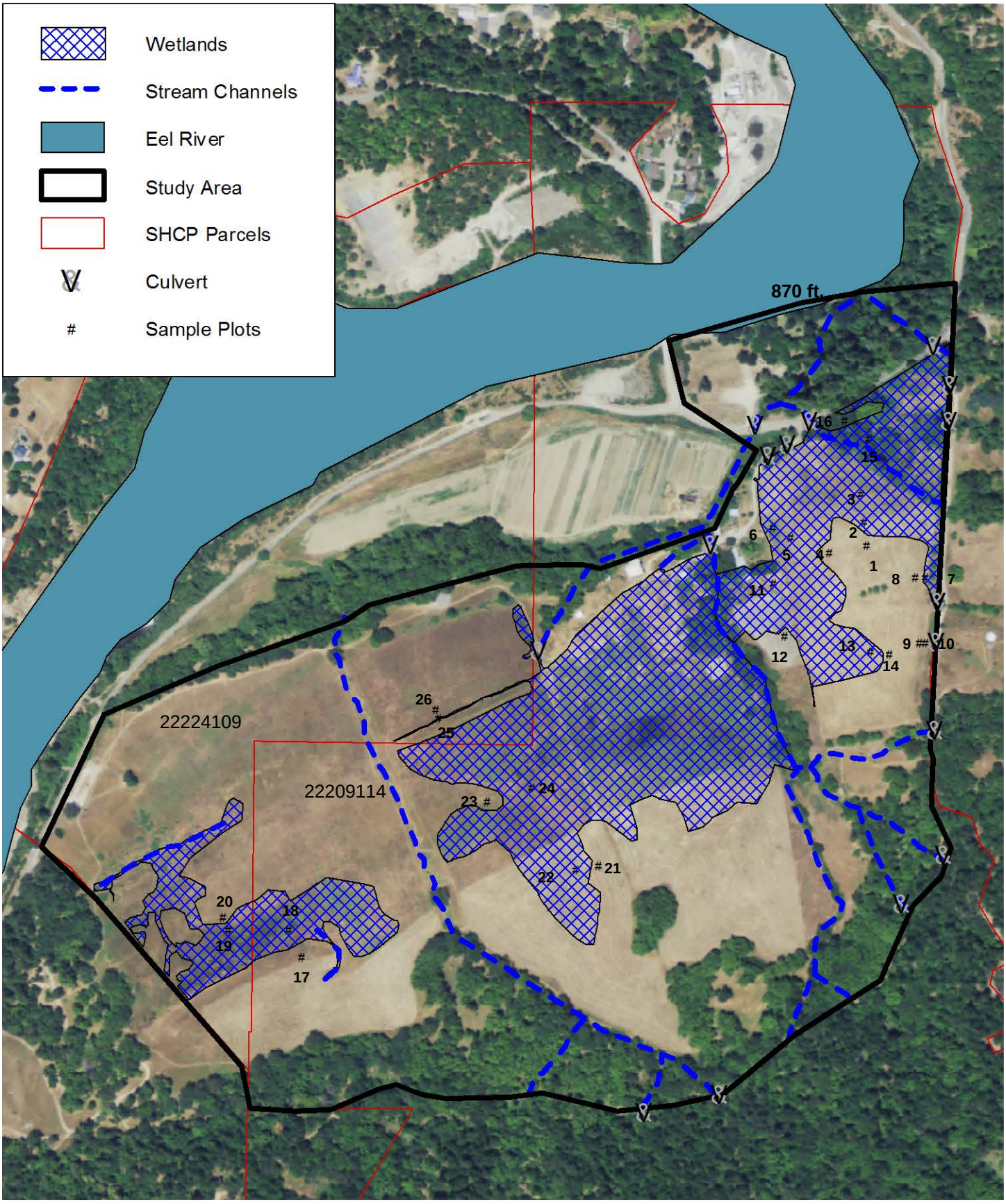
PACIFIC WATERSHED ASSOCIATES, INC.
P.O. BOX 4433
ARCATA, CALIFORNIA 95518
PH: (707) 839-5130 FX: (707) 839-8168
www.pacificwatershed.com

DRAWING DESCRIPTION:
SITE PLAN

PROJECT DESCRIPTION:
SOUTHERN HUMBOLDT COMMUNITY PARK
HYDROLOGIC STUDY

PWA JOB NO.: 10189

Figure 2 – Wetland Delineation Map



Scale: 1:6,800

Base Map: 2009 NAIP

Army Corps of Engineers Jurisdictional Wetland Delineation Map.

Southern Humboldt Community Park
Humboldt County, CA

N
W E
S

500 0 500 Feet

Appendix 1 – Estimates of Minimum Water Demand.

Comparisson of Projected Irrigation Demands in Gallons Per Month													
Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Caretaker Irrigation	0	0	0	0	9,863	9,863	9,863	9,863	9,863	9,863	0	0	59,178
Headquarters Irrigation	0	0	0	0	20,055	20,055	20,055	20,055	20,055	20,055	0	0	120,330
Agricultural Irrigation	0	0	0	0	325,848	325,848	325,848	325,848	325,848	325,848	0	0	1,955,088
Sports Field Irrigation (10 acres turf)	0	0	0	467,210	1,110,719	1,578,078	2,018,435	1,811,978	1,296,234	481,459	0	0	8,764,113
Sports Field Irrigation (5.5 acres turf)	0	0	0	258,756	615,151	873,989	1,117,873	1,003,530	717,895	266,647	0	0	4,853,841
GHD Irrigation Total (10 acres)	0	0	0	467,210	1,466,485	1,933,844	2,374,201	2,167,744	1,652,000	837,225	0	0	10,898,709
PWA revised estimate (10 acres drought tolerant)	0	0	0	327,047	777,503	1,104,655	1,412,905	1,268,385	907,364	337,021	0	0	6,134,879
PWA revised estimate (5.5 acres drought tolerant)	0	0	0	181,129	430,606	611,792	782,511	702,471	502,527	186,653	0	0	3,397,689
PWA revised estimate (10 acres drought tolerant w/ efficient irrigation)	0	0	0	228,933	544,252	773,258	989,033	887,869	635,155	235,915	0	0	4,294,415
PWA revised estimate (5.5 acres drought tolerant w/ efficient irrigation)	0	0	0	126,790	301,424	428,255	547,758	491,730	351,769	130,657	0	0	2,378,382
Relative change in water consumption	**N/A**	**N/A**	**N/A**	**49.0%**	**37.1%**	**40.0%**	**41.7%**	**41.0%**	**38.4%**	**28.2%**	**N/A**	**N/A**	**39.3%**

APPENDIX I
LIGHTING PLAN

Lighting Plan

Southern Humboldt Community Park

Lighting Plan
Southern Humboldt Community Park

Lighting Plan
Southern Humboldt Community Park

PURPOSE: The adequacy of outdoor lighting is an important factor in maintaining good security in parking lots and other outdoor areas. This plan will provide a lighting system that will provide adequate lighting to ensure the safety and well-being of park users and mitigate the potential impacts of lighting on neighboring properties.

- **Area 1 – Tooby Memorial Park:** Residential lighting exists at the existing caretaker's residence. Low voltage lighting is proposed at the restrooms. Solar and battery-powered lighting options would be used whenever possible .All lighting fixtures would be shielded to prevent glare and spill.

- **Area 2 – Park Headquarters:**
    - Each building occupied by the general public shall be illuminated at the entrance and exit doors when the hours of operation are during the evening and the darkness with a minimum maintained one (1) foot-candle of light at ground level, measured within a five (5) foot radius from the center of the door.
    - Parking lots and walkways accessing buildings shall be illuminated with a minimum maintained one (1) foot-candle (maximum eight (5) foot-candles) of light on the driving or walking surface during the hours of operation.
    - Pathway lighting would be placed low to the ground to minimize excess lighting leakage. Solar and battery-powered lighting options would be utilized whenever possible.
    - Activation of the exterior lighting would be either by a photocell device or a time clock with an astronomic clock feature and/or photocell.
    - Lighting shall be located, directed or shielded so as not to shine directly on adjoining properties exceed .5-footcandle adjacent to residentially-zoned property or to create a traffic hazard

- **Area 3 – Main Agricultural Area:** No permanent lighting fixtures would be installed in this area. Temporary portable lighting would be required for the Festival in the small parking lot.
    - A light tower similar to the Bull Dog BD1000 single 1000watt system, which has the capacity to light 2 to 3 acres of land, will be placed in the parking area in Area 3. The lights would be elevated to a height of 15' and with a rotating mast, lighting would be shielded and precisely directed to avoid glare and light spillage. A 1,000-watt metal halide lamp provides an average of 88,000 lumens. The temporary lighting will be directed downward or turned off when not in immediate use.

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- **Area 4 – Community Commons:** No permanent lighting would be installed in this area. Temporary portable lighting would be required for the parking areas during the Festival and some medium events.
  Events
  Lighting would be used to light parking areas during the medium events (maximum of 5 evenings per year) and the festival (two evenings per year). The need for night lighting will depend on the final scheduling of the events. Events that are not planned to continue past dusk will not need night lighting.

Medium Events:

Lighting needs for medium events will depend on the size and hours of operation of the event.

- For a maximum capacity medium event, one temporary portable light trailer would be positioned in the parking lot in Area 4. The light tower would be similar or equal to the Terex RL 4000 typically consisting of four (4) one-thousand watt lights with the capacity to light 5 to 7 acres. The lights

Lighting Plan
Southern Humboldt Community Park

would be elevated to a height of 30' and with a rotating mast, lighting would be shielded and precisely directed to avoid glare and light spillage. All lighting shall be located, directed or shielded so as not to shine directly or glare on adjoining properties. A 1,000-watt metal halide lamp provides an average of 88,000 lumens. The temporary lighting will be directed downward or turned off when not in immediate use.

- For smaller events with attendance between 500-1000, a smaller light tower similar to the Bull Dog BD1000 single 1000watt system, which has the capacity to light 2 to 3 acres of land, will be placed in the parking area in Area 4. The lights would be elevated to a height of 15' and with a rotating mast, lighting would be shielded and precisely directed to avoid glare and light spillage. A 1,000-watt metal halide lamp provides an average of 88,000 lumens. The temporary lighting will be directed downward or turned off when not in immediate use.
- The stage would be lit from overhead at the Festival and medium events. Spot lights will be focused and directed to the stage to prevent light spillage.

Festival Lighting:

- One temporary portable light trailer would be positioned in the parking lot in Area 4. The light tower would be similar or equal to the Terex RL4 Light Tower consisting of four (4) one-thousand watt lights with the capacity to light 5 to 7 acres. The lights would be elevated to a height of 30'. A 360° rotating mast will ensure that lighting would be precisely directed to avoid light spillage. A 1,000-watt metal halide lamp provides an average of 88,000 lumens. The temporary lighting will be directed downward or turned off when not in immediate use.
- The stage would be lit from overhead at the Festival and medium events. Spot lights will be focused and directed to the stage to prevent light spillage.
- Exit lighting will be provided at the Park event exit and Sprowel Creek Road. The portable lighting trailer will consist of a smaller light tower similar to the Bull Dog BD1000 single 1000watt system. The tower will be elevated to a height that provides adequate visibility at the street level for vehicles exiting the project site.
- Low-voltage lighting would be used to light the entry and exit walkways and the portable toilets.
- Portable solar and battery-powered lighting would be used whenever possible.
- Pathway lighting shall be placed low to the ground to minimize excess lighting leakage
- Craft and food booths that remain open after dark would also provide their own low wattage lights.

Environmental Camp:

- At the environmental camp, temporary solar or battery-powered lighting would be used to light camping areas and portable toilets.

Community Commons Area 4	Location of Residences	Distance	Line of sight
North	Rivercrest Drive	.75 mile	No direct line of sight Dense trees & vegetation
South	No residence with line of sight to the Community Commons Area-4		
West	No residence with line of sight to the Community Commons Area-4		
East	One residence	.3 mile	No direct line of sight Dense trees & vegetation

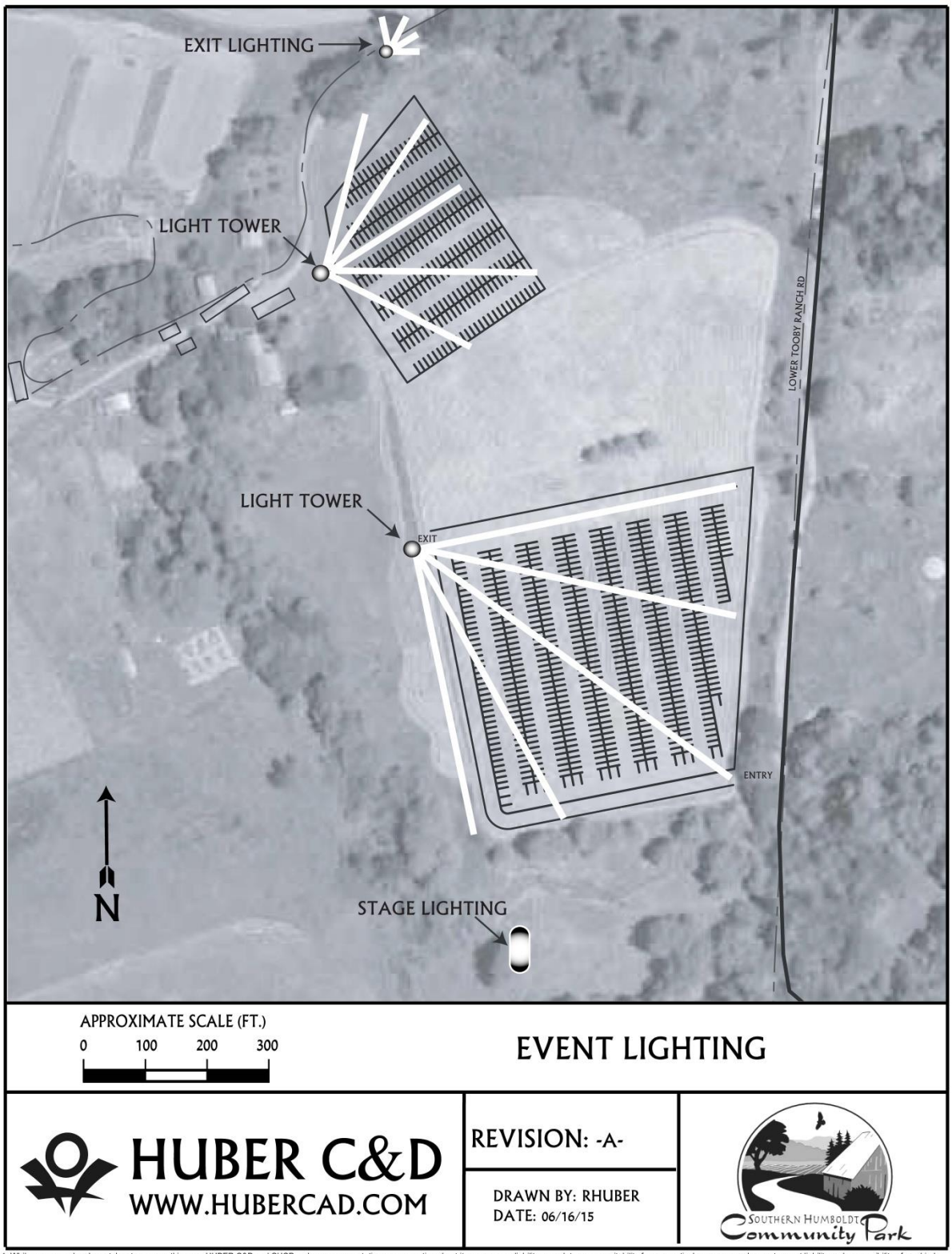
Lighting Plan
Southern Humboldt Community Park

- **Area 5 – Community Facilities/Sports Facilities Area.** No permanent night lighting is proposed for the athletic fields in the Community Facilities/Sports Facilities Area.
    - Concession stands occupied by staff or the general public shall be illuminated pm the exterior at the entrance and exit doors when the hours of operation and maintenance go beyond daylight. Lighting will consist of 100w bulbs, with a minimum of one (1) foot-candle of light at ground level, measured within a five (5) foot radius from the center of the door.
    - Bathroom facilities and the concessions would also have standard outdoor lighting. Lighting will consist of 100w bulbs, with a minimum of one (1) foot-candle of light at ground level, measured within a five (5) foot radius from the center of the door.
    - Activation of the exterior lighting would be either by a photocell device or a time clock with an astronomic clock feature and/or photocell.
    - In many cases solar and battery-powered lighting would be used whenever possible.
    - Pathway lighting shall be placed low to the ground to minimize excess lighting leakage.

- **Area 6 – Riverfront.** No lighting is proposed for this area.

- **Area 7 – Forestland.** No lighting is proposed for this area.

Lighting Plan
Southern Humboldt Community Park



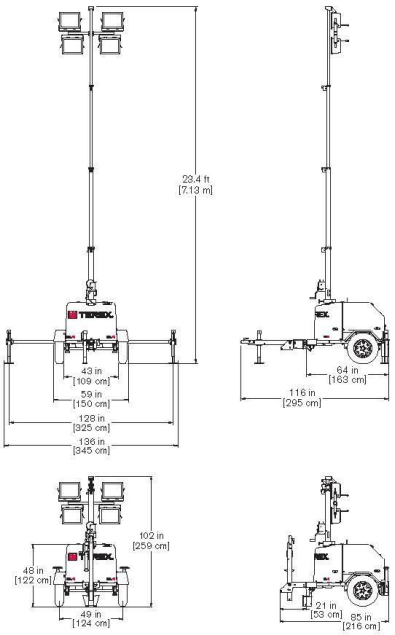
Lighting Plan
Southern Humboldt Community Park

SPECIFICATIONS

RL™4 LIGHT TOWER

MEASUREMENTS

Lamps	Metal halide 4 x 1,000 W
Generator	Brushless 60 Hz, 6.0 kW
Engine	Kohler Diesel 10.7 hp
Receptacles	One GFI duplex 20 A / 120 V
Fuel capacity	45 gal (170 L)
Wheel size	13 in (33 cm)
Axle rating	2,200 lbs (998 kg)
Tongue weight travel position	203 lbs (92 kg)
Total weight no fuel	1,461 lbs (663 kg)



Notice: Metal halide lamp bulbs contain mercury (Hg). Dispose of lamp bulbs according to local, state and federal laws.

FEATURES

- Durable 23 ft / 7 m vertical mast with manual self braking winch, mast brake and 359 degree mast rotation for quick setup and light positioning
- 4x1000w square cast aluminum metal halide lamps, Kohler 10.7hp engine, 45 gal / 170 L fuel tank and 6kW generator provide up to 90 hours of run time
- Efficient design layout allows up to 17 units per truckload, with fork pockets and lifting eye for quick loading and unloading
- Rust proof polymer covers provides ample access for service and maintenance, with locking tabs for security
- Platform to access lights and fold up tongue for transport
- Standard engine protection includes high water temperature and low oil auto shutdown
- DOT approved run, stop and turn lights, standard
- Telematics ready

CHASSIS OPTIONS

- Genie® branding and blue paint
- Dome light with switch, 12V
- Export racking and preparation
- Multiple hitch configurations

ENGINE OPTIONS

- 6 kW, 60 Hz generator with 13.6 hp Kubota® diesel
- 7 kW, 50 Hz generator with 13.6 hp Kubota® diesel
- 8 kW, 60 Hz generator with 13.6 hp Kubota® diesel
- Positive air shutdown
- Fuel/water separator filter
- Fuel/water separator with fuel line heater
- Autostart
- One T/L 30A/240V receptacle

TOWER OPTIONS

- 4 horizontally mounted lights, spun aluminum housing
- Electric winch

COLD WEATHER OPTIONS

- 800 CCA battery
- Battery heater blanket
- Low temperature coolant mix
- Engine block heater

TEREX®

Lighting Plan
Southern Humboldt Community Park

Bulldog Portable Lighting

Technical Specs

- Bull Dog **Job Site Light**
- Light Distribution **Flood**
- Lamp Type **Metal Halide**
- Number of Lamp Heads **1**
- Voltage **120VAC**
- Lamp Watts **1000**
- Lumens **110,000**
- Base Style **Cart**
- Lamp Included **yes**
- Rated Life **10000 hr.**
- NEC Cord Designation **SJTWO**
- NEMA Plug Configuration **5-15P**
- Gauge/Conductor **14**
- Max. Height **144"**
- Replacement Lamp **Yes**
- Standards **ETL**

Lighting Plan
Southern Humboldt Community Park