Draft Plans and Specifications
GENERAL NOTES

1. All construction shall be in accordance with these drawings, practice requirements and attached specifications. No changes are to be made in the drawings or specifications without written approval of NRCS.

2. Landowner shall be responsible for obtaining any needed permits, easements, and/or right-of-ways.

3. Landowner shall be responsible for locating and protecting all utilities. Special safety precautions are to be taken when working in the vicinity of gas, oil or electrical lines. Call underground Service Alert (USA) at 800-227-2800 prior to construction.

4. Cal-OSHA safety requirements shall be in effect during all construction.

5. All lines and grades shown on these drawings are approximate. The proposed structure location, excavation limits, and fill limits will be staked in the field by the engineer.

6. Contact the Natural Resources Conservation Service at least 7 days prior to construction.

7. Benchmark is a 2"x2" hub Coordinates N=5000, E=5000, Elev=1000 located approximately 230 ft East of existing dam.

JOB CODES: POND (378), LINED WATERWAY (468)

ENGINEERING JOB CLASS: III

DRAINAGE AREA 16 acres
STORAGE 0.25 acre-feet
EFF. HEIGHT OF DAM 3 feet
STORAGE X EFF. HT OF DAM 0.75 acre-feet^2
CONSTRUCTION NOTES:

1. Remove a 4-inch dia. pipe in the existing pond as directed by NRCS engineer.

2. Spill area with maximum height of 4 ft. will be staked by the engineer approximately 200 ft. north of the pond.

3. An exclusion fence will be contracted along the construction limits and the spoil area after the project is completed. Fence location shall be staked in the field by the NRCS engineer.

4. All disturbed areas will be mulched and seeded according to 342 practice standard.

5. Existing embankment shall be graded to the required elevation. Side slopes shall be field fitted so that they are minimum 2 horizontal to 1 vertical.

6. No work shall occur within the designated wet zone limits without NRCS approval.
CONSTRUCTION NOTES:

1. Rock riprap shall meet the gradation requirements shown on the Practice Requirements Sheet, or meet CalTrans Facing rock gradation.

2. Geotextile fabric shall be placed beneath all rock and Articulated Concrete Mat according to manufacturer’s requirements.

3. Articulated Concrete Mat shall be Armotec or approved equivalent, and shall be installed according to manufacturer’s requirements. Exact limits of concrete mat shall be determined and staked by the field by NRCS.

4. All subgrades shall be approved by NRCS prior to placement of rock or concrete block.

BLOCK DETAIL

ARTICULATED CONCRETE MAT

TYPICAL ROAD SECTION

NOT TO SCALE
Brody Sanders (Ang Pond)

Job Code: Pond (378),
Lined Waterway or Outlet (468)

Engineering Job Class: III, IV

in cooperation with:
Contra Costa Resource Conservation District

Prepared by:
Concord Field Office

CALIFORNIA
NATURAL RESOURCES CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
TABLE OF CONTENTS

Landowner:   Brody Sanders
Project:     Pond & Lined Waterways
Job Code:    Pond (378), Lined Waterway or Outlet
Engineering Class:  III, IV

Design Report
Approval Page
Hazard Classification
Wetland Determination
Utility Check Sheet
Operation Maintenance Requirements
Practice Requirements
Construction Specifications
Construction Drawings

Appendix A: Calculations
LANDOWNER: Brody Sanders
PRACTICES: Pond (378); Lined Waterway (468)
LOCATION: Black Diamond Mine, California.
COUNTY: Contra Costa
RESOURCE CONS. DISTRICT: Contra Costa County
RCD NRCS FIELD OFFICE: Concord FO

SUMMARY
The proposed project will construct a small pond which collects and stores water from a spring. Excess water from the spring will outlet from the pond into a rock channel, which then conveys the flow to a stable location which is non-erosive. In addition, a road that is located just downstream from the rock channel will be protected in 2 locations to prevent erosion due to surface flow. It is estimated that the pond will store 0.25 acre-feet of water.

ORIGIN OF REQUEST
Brody Sanders requested assistance through the 2008 Environmental Quality Incentives Program (EQIP). The NRCS Livermore Field Office will provide financial and technical assistance for the installation of practices as outlined in the EQIP contract.

DESCRIPTION OF PROBLEM
An existing pond has lost storage due to siltation. It does meet NRCS standards and is not functioning as planned. Also, it supports non-native species such as bullfrogs which are predatory to native species also known to be present, such as western pond turtles and California red-legged frogs. The road downstream from the existing pond is eroding in areas that have high moisture due to poor drainage.

ALTERNATIVES AND SOLUTIONS
1. Re-build existing pond by removing sediment, improving embankment, and improving spillway to meet NRCS standards. Reduce erosion by installing rock channel and treat existing road surface in wet areas.
2. Do nothing.

To address the wildlife resource concerns, sediment removal is the least cost alternative considered. A pond with the proper depth will support the native species of concern. Alternative 1 was selected.

DESIGN CONSIDERATIONS
The proposed design is in accordance with NRCS Conservation Practice Standards 378-Pond and 468-Lined Waterway or Outlet, with the following considerations:

Hydrology
The average annual rainfall is approximately 15". The pond drains a 16acre ephemeral watershed. The pond is also fed by a perennial spring located just upstream. Using the Engineering Field Handbook, Chapter 2 method of computing peak discharge from small rural watersheds, it was found that the flow for a 50-year/24-hour event was approximately 36 cfs. A watershed map and hydrologic calculations are included in Appendix A.

Hydraulics
The lined rock channel which carries flow from the pond spillway to a safe location downstream was sized to carry the 50-year/24-hour storm of 36 cfs. Using Manning’s Equation, the depth of flow within the rock
lined channel will be approximately 6-inches with a velocity of approximately 11 feet per second.

**Soil Mechanics**
The soils at the site are mapped in the Contra Costa County Soil Survey. The subsurface soil conditions of the site consist of clays, silty clay loams, (AcF). Altamont typically has weathered bedrock below 48-inches, and the Fontana has bedrock below 24 inches.

More than 75 percent of these soils pass the No. 200 sieve, and have a Plastic Index from 15 to 25. These soils generally have a very low permeability, but high shrink-swell behavior. When dry the pond floors may crack, and then leak upon re-wetting. This site is expected to be kept continuously wet by the spring. The soils are Lean Clays (CL) bordering on Fat Clays (CH) (Unified Soil Classification). The Standard Proctor Unit Density is 95-105 lbs/ft³. These soils will be compacted using a method requirement outlined in the specifications.

The stability of the excavated slopes were checked as well using book values for the existing soil types. For the steepest proposed slope of 1.75 horizontal to 1 vertical, a Factor of Safety was calculated to be 1.5.

**CONSTRUCTION**
All construction shall adhere to the drawings and specifications. No changes will be allowed without approval of NRCS and any change shall maintain compliance with NRCS standards and specifications. The project is to be built using landowner’s or contractor’s forces. Layout and inspection will be provided by the NRCS. The landowner shall be responsible for obtaining any needed permits, easements, rights-of-way, locating utilities, or meeting any legal requirements. Cal-OSHA safety requirements shall be in effect during all construction.

**OPERATION & MAINTENANCE**
Project components require maintenance for satisfactory operation as planned. The landowner/operator shall be responsible for inspection and any necessary repair. See O&M plan dated May, 2014.

**REFERENCES**


APPROVAL

The controlling classification factors for Pond (378) are:
1. Hazard Class is "A".
2. Effective Height is 3 ft.
3. PGA<0.2
4. Not in a A-P Zone
5. Drainage Area is 16 acres.
6. Storage x Height is 0.6 ac-ft•
7. Embankments over Active Faults are none.

Based on the above factors, the Job Class is Class III.

The controlling classification factors for Lined Waterway or Outlet (468) are:
8. Drainage Area is 16 acres. (Cl III)
9. Design Flow is 36 cfs. (Cl IV)

Based on the above factors, the project has an Engineering Class of IV.

Prepared by: ____________________________ Date: ________________

Reviewed by: ____________________________ Date: ________________

Approved by: ____________________________ Date: ________________

LANDOWNER'S/OPERATORS ACKNOWLEDGMENT

The landowner/operator acknowledges that:

a. He/she has received a copy of the construction drawings, practice requirements, and pertinent specifications, and that he/she has an understanding of the contents and requirements.

b. He/she has obtained all the necessary permits.

c. No changes will be made in the installation of the job without prior concurrence of the NRCS technician.

d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by: ____________________________ Date: ________________

CERTIFICATION

Pond CIN ____________________________ Date __________________

Lined Waterway or Outlet CIN ____________________________ Date __________________

Lined Waterway or Outlet CIN ____________________________ Date __________________
These structures are an asset to your farm. The estimated life spans of these installations are at least 20 years. The life of a structure can be assured and usually increased by developing and carrying out a good operation and maintenance program.

These structures will require you to perform periodic operation to maintain for satisfactory performance. Here are some recommendations to help you develop a good operation and maintenance program.

**GENERAL RECOMMENDATIONS**

**Pond:**

- Annually inspect pond for damage from normal use. Inspect the spillways, inlets, and outlets for proper functioning for their ability to maintain the water level to design elevations.
- Immediately remove any blockage or obstructions and repair any damage.
- Inspect inlet, embankments and spillways after heavy rains for possible damage. Promptly repair any damage.
- Annually inspect the downstream toe of the dam. If there are wet areas or seeps, contact the local NRCS office for additional assistance.
- Maintain vigorous growth of vegetative coverings. This includes reseeding, fertilization, and application of herbicides when necessary. Periodic mowing may also be needed to control height.
- Fill rills and gullies that occur on the embankments and/or spillway and re-vegetate.
- Maintain a grass filter strip around the perimeter of the pond to trap sediment.
- Check downstream floodplain at least once every 5 years to assure life or property will not be threatened in the case of a dam failure.
- If fences are installed, they shall be maintained to prevent unauthorized or livestock entry.
- Immediately repair any vandalism, vehicular, or livestock damage to any earthfills, spillways, or outlets.
- Removal of debris that may accumulate at the pond and immediately upstream or downstream from the basin.
- Inspect embankments for damage from rodents or burrowing animals. Repair any damage. Take appropriate protective actions to alleviate further damage.
- Remove woody vegetation from embankments.
- Avoid excessive travel on any portion of the system that will harm or destroy the vegetative cover.
Outlet Rock Riprap Channel and Concrete Block Wet Crossings:

- Maintain widths of soil berms or banks.
- Immediately repair any vandalism, vehicular or livestock damage.
- Inspect for damage from rodents or burrowing animals. Repair any damage. Take appropriate corrective actions to alleviate further damage.
UTILITY CHECK SHEET

Reference Engr. Memo-73

Farm Name: Brody Sanders Location: 

Utilities Involved and Location: Contact utility companies and call Dig Alert (1-800-227-2600).

Landowner or operator notified (who): Raegan Amerine (by whom): 

How: Verbal Date: Fall 2014

Work to be done: Excavation When: Fall 2014

Utility Company Notified (who): (by whom): 

How: Date:

Request to locate utility: 

Work to be done: When: 

Request for Company representative to be present: 

Utility marked or staked: Date: 

Representative present during construction: 

Contractor Notified (who): (by whom): 

How: Date: 

Type of utility: Location: 

Vertical location in relation to work: 

Horizontal location in relation to work: 

Contractor shown markings or stakes: 

Utility location shown on plans: 

Other remarks: 

__________________________

Signature: Date:____
ENGINEER'S COST ESTIMATE

Landowner: Sanders (Ang)
Project: Pond, Lined Waterways

<table>
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<th>Item No.</th>
<th>Work or Material</th>
<th>Spec. No.</th>
<th>Estimated Quantity</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Amount</th>
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<td>1</td>
<td>Excavation</td>
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<td>C.Y.</td>
<td>$7.00</td>
<td>$4,200.00</td>
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<td>C.Y.</td>
<td>$12.00</td>
<td>$1,200.00</td>
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<td>Ton</td>
<td>$120.00</td>
<td>$9,600.00</td>
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<tr>
<td>4</td>
<td>Geotextile Fileter Fabric</td>
<td>905</td>
<td>210</td>
<td>S.Y.</td>
<td>$5.00</td>
<td>$1,050.00</td>
</tr>
<tr>
<td>5</td>
<td>ArmorTec Block</td>
<td>468</td>
<td>1,200</td>
<td>S.F.</td>
<td>$12.00</td>
<td>$14,400.00</td>
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</table>

Total = $30,450.00

(6/13/14)
Installation shall be in accordance with following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS TECHNICIAN.

It shall be the responsibility of the owner to obtain all necessary permits and/or rights, and comply with all ordinances and laws pertaining to this installation.

1. Drawings, No.: Ang-14 Pages.: 1-4

2. Practice Specifications: 378,468,905,907

3. Special Requirements:

   **Specification 378 – Pond**
   a. Any excavated material deemed unsuitable for earthfill by NRCS shall be spread in uniform lifts within the spoil area, approximately 200 feet north of the existing pond. The spoil area’s limits will be staked in the field by NRCS.
   b. All material used for fill shall be taken from project site. No import or export material is allowed without NRCS approval. NRCS shall approve all fill material prior to placement.
   c. In section VI Compaction, any method listed is allowed.
   d. Top 4-inches areas to receive fill or area to be excavated, shall be stripped and stockpiled. This material which contains plant material shall be placed uniformly on all finished slopes.

   **Specification 468- Lined Waterway or Outlet**
   a. Lining material placed on road shall be 3.5-inch Armortec concrete block or approved equal. Install according to manufacturer recommendations, including foundation preparation, subgrade material, filter fabric and the block.

   **Specification 905- Geotextile Fabric**
   a. Fabric shall be placed non-woven with a minimum weight of 5 ounces per square yard.

   **Specification 907- Rock Riprap**
   a. Rock riprap shall be placed as shown on the drawings. Rock gradation in specification 907 shall not apply. Gradation shall be as follows:

      D100  15-inch
      D50   9-inch
      D15   6-inch

   Using the CalTrans rock gradation classification, rock classified as “Facing” shall be considered acceptable.

   b. All subgrade beneath rock shall be approved by NRCS prior to placement.
APPENDIX A
CALCULATIONS
POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perkovic, Sarah Dyer, Sarah Heim, Lillian Hiner, Karungu Malata, Deborah Martin, Sandra Pavlovic, Ishant Roy, Cal Trapani, Dara Unnah, Fengyi Yan, Michael Yeliseyev, Tian Zhao, Geoffrey Bonini, Daniel Brewer, Li-Chuan Chen, Tye Perzybok, John Yarcheski
NOAA, National Weather Service, Silver Spring, Maryland

NOAA Atlas 14, Volume 6, Version 2
Location name: Pittsburg, California, US*
Coordinates: 37.9450, -121.8960
Elevation: 1527ft*
* source: Google Maps

Back to Top
Field engineer determined 16 acres of D.A. to this location in swale, and calculated 16 cfs for 50 YR event.

Try 10 foot wide crest. Neglect side slopes because keeping flow shallow. Very rough rock surface, so use "C" of CIVIL as 2.0 instead of 3.

\[ H = \left( \frac{Q}{C \cdot b} \right)^{\frac{3}{2}} = \left( \frac{36}{2 \cdot 10} \right)^{\frac{3}{2}} = 1.5 \text{ feet} \]

So water will build to about 1.5 foot on weir crest for 50 year flow.

Client desires some open water in pool, therefore needs to be greater than 3-feet deep. Surveys of site show low elevation at approx. 921.5 feet. Set weir (now) at 931.5, and excavate small upsteam spring change to 922.5 for downstream slope protection from weir crest to new water crossing.
depress rock protection about 60 inches below existing grade.

Crest ele 9,31,5

36

If Q = 36 cfs, and with almost 30\% downstream slope, water flow will be quite turbulent. Yn if flow smooth:

\[ Y = \frac{1.486}{n} R^2 \left( \frac{s}{k} \right) \]

if \( n = 0.04 \), \( s = 0.5 \)

\[ Y_n \approx 0.3 \text{ feet} \]

\[ Q \approx 0.3 \text{ cfs} \]

\[ A \approx 3.2 \text{ ft}^2 \]

\[ V \approx 1.3 \text{ ft/s} \]

\[ Y_n \approx 0.3 \text{ ft} \]

\[ Q \approx 36 \text{ cfs} \]
Size: Rock Diameter

\[ V = 1.1 \text{ fps} \]

Reality check: estimate force on one 8" rock, flow 4' deep.

Assume rock deflects 1/4 within jet, force

\[ F = \frac{1}{2} \rho \left( \frac{1}{4} \right)^2 \frac{1}{2} \]

\[ F = 1.24 \left( \frac{1}{4} \right)^2 \left( \frac{1}{2} \right) \approx 39 \text{ pounds} \]

8"-inch rock weight: \( \left( \frac{4}{12} \pi r^2 \right)(62.4)(2.5) \approx 71 \text{ pounds} \)

6-inch max rock size, anything interlocked - ok.

Granulation:

\[
\begin{array}{c|c|c|c|c}
\text{size} & 12" & 8" & 4" & \% \text{ Pass}\% \\
\hline
\text{100} & 50 & 20 & \end{array}
\]

See Sheet 5 for comparison.
Check Rock Size against PS. 468

Rock size: 0.5 slope

Check:

\[
D_{50} = \left[ \frac{q (s)^{0.58}}{4.75(10)^{0.5}} \right] 0.58
\]

\[
y' = 0.5
\]

\[
E = 0.30 \text{ ft}
\]

\[
M = 0.04
\]

\[
q = \frac{20}{10} = 2
\]

\[
D_5 = 3.4
\]

\[
D_{50} = \left[ \frac{3.16(0.05)^{0.58}}{4.75(10)^{0.5}} \right] 0.58
\]

\[
D_{50} = 8.9 \text{ inches}
\]

Use \( D_{50} = 9'' \)

15'' 100% passing
9'' 50% passing
6'' 15% passing
Thickness of Rock Section

2 times larger rock sizes

Use 9"-12" = Use 24" thick section.

Quantity

Rock Riprap

$\frac{2\times14\times48}{2.7} = \frac{50\text{CY}}{x20 = 80\text{ Ton}}$

Filter Fabric - non-woven

$14\times40' = \frac{700}{560\text{ SQFT}} \approx 80\text{ yd}$
Quantity Calculation.

Excavation

Excavated pond (from Civil 3D)

\[ \approx 500 \text{ yd}^3 \]

Rock lined spillway

\[ 2' \text{ (depth)} \times 14' \text{ (width)} \times 50' \text{ (length)} \]

\[ = 1,400 \text{ ft}^3 = 52 \text{ yd}^3 \]

Concrete mat

\[ 0.33' \text{ (4" depth)} \times \left[ (20 \times 30) + (18 \times 30) \right] \]

\[ = 1380 \text{ ft}^2 = 14 \text{ yd}^3 \]

Total excavation = 570 cy,

Use 600 cy.

Concrete mat

\[ (20 \times 30) + (18 \times 30) = 1140 \text{ ft}^2 \]

Use 1,200 ft² of concrete mat.

Geotextile

Rock lined spillway

\[ 14' \text{ (width)} \times 50' \text{ (length)} = 700 \text{ ft}^2 = 785 \text{ yd}^2 \]

Concrete mat

\[ 1,140 \text{ ft}^2 = 127 \text{ sy} \]

Total geotextile = 205 sy

Use 210 sy.
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<th>Area</th>
<th>Contour</th>
<th>Lenth</th>
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</tr>
<tr>
<td>Contour</td>
<td></td>
<td>1760</td>
<td>20</td>
</tr>
<tr>
<td>Watershed L</td>
<td>1,640</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitude</td>
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<td>50 yr/ 24 hr</td>
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<tr>
<td></td>
<td>36 cfs</td>
<td>1600</td>
<td>780</td>
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<tr>
<td>Watershed L</td>
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<tr>
<td></td>
<td>Σ</td>
<td></td>
<td>5.590</td>
</tr>
<tr>
<td>Slope Ave (%)</td>
<td>33 %</td>
<td></td>
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</table>
Draft Wetland Delineation
Waters of the U.S.
2' width x 30' length
60 square feet

Waters of the U.S.
2' width x 80' length
160 square feet

Perennial Wetland
149' length
2,926 square feet (0.07 acre)

Seasonal Wetland
233 square feet (0.01 acre)

Perennial Wetland
285' length
4,755 square feet (0.11 acre)

Legend

Study Area
Data Point Locations
Wetlands and Waters of the U.S.
Sulfur Springs
Permanent Wetlands

Ang-3 (Repair of Road)
Preliminary Jurisdictional Determination
Ang Property Repair Projects
East Contra Costa County Habitat Conservancy

Sources: Contra Costa County

Contra Costa County, California
Project Location Photographs (Taken 08/08/2012)

Ang-3

Southern sulfur spring under canopy of coast live oak.

Pond below southern sulfur spring (south).
Pond and drainage below southern sulfur spring (east)

Downstream of southern sulfur spring (south).
Northern sulfur spring (north).

Drainage below northern sulfur spring (north).
Downstream of northern sulfur spring (northwest).

Unvegetated barren on slope (east).
WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Ang-3 Sulfur Springs Wetland  
Applicant/Owner: East Contra Costa Habitat Conservancy

City/County: Contra Costa County  
State: CA

Sampling Date: 8/10/12  
Sampling Point: A-1

Investigator(s): E. McDermott, H. Bartosh  
Section, Township, Range: Section 7, T1N, R1E

Landform (hillslope, terrace, etc.): hillslope terrace  
Local relief (concave, convex, none): concave  
Slope (%): 2

Subregion (LRR): C - Mediterranean California  
Lat: 4200316 Northing  
Long: 596753 Easting  
Datum: UTMNAD83

Soil Map Unit Name: Altamont-Fontana Complex 30-50% slopes  
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 ☐ 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.

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<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☐</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☐</td>
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Remarks:

Is the Sampled Area within a Wetland? Yes ☐ No ☐

VEGETATION

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<thead>
<tr>
<th>Tree Stratum (Use scientific names.)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
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<td>2.</td>
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<td>3.</td>
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<tr>
<td>4.</td>
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<tr>
<td>Total Cover: %</td>
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<th>Sapling/Shrub Stratum</th>
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<tr>
<td>5.</td>
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<td></td>
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<tr>
<td>Total Cover: %</td>
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<td>1. <em>Polygonum monspeliensis</em></td>
<td>5</td>
<td>No</td>
<td>FACW</td>
</tr>
<tr>
<td>2. <em>Typha angustifolia</em></td>
<td>95</td>
<td>Yes</td>
<td>OBL</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cover: %</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cover: %</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th></th>
<th>% Cover of Biotic Crust</th>
<th>%</th>
</tr>
</thead>
</table>

Remarks: Location is at margin of pond.
### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>10YR3/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>loamy muck</td>
</tr>
<tr>
<td></td>
<td>Gley 2 5/5PB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix.  
2Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  

#### Hydric Soil Indicators:
(Applicable to all LRRs, unless otherwise noted.)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Type</th>
<th>Depth (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Stratified Layers (A5) (LRR C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 cm Muck (A9) (LRR D)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Hydric Soil Indicators:
(Indicators for Problematic Hydric Soils:)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Presence</th>
<th>Depth (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cm Muck (A9) (LRR C)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2 cm Muck (A10) (LRR B)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Reduced Vertic (F18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Parent Material (TF2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Explain in Remarks)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Restrictive Layer (if present):
Type:  
Depth (inches):  
Hydric Soil Present? Yes / No

Remarks: Soils are dark with gleying at the soil surface.

### HYDROLOGY

#### Wetland Hydrology Indicators:
(Primary Indicators (any one indicator is sufficient))

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Presence</th>
<th>Depth (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water (A1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturation (A3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Marks (B1) (Nonriverine)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment Deposits (B2) (Nonriverine)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drift Deposits (B3) (Nonriverine)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Soil Cracks (B6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water-Stained Leaves (B9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Wetland Hydrology Indicators:
(Secondary Indicators (2 or more required))

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Presence</th>
<th>Depth (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salt Crust (B11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biotic Crust (B12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic Invertebrates (B13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide Odor (C1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidized Rhizospheres along Living Roots (C3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of Reduced Iron (C4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recent Iron Reduction in Plowed Soils (C6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Explain in Remarks)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Marks (B1) (Riverine)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sediment Deposits (B2) (Riverine)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Drift Deposits (B3) (Riverine)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drainage Patterns (B10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thin Muck Surface (C7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crayfish Burrows (C8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturation Visible on Aerial Imagery (C9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shallow Aquitard (D3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAC-Neutral Test (D5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Observations:
- Surface Water Present? Yes / No
- Water Table Present? Yes / No
- Saturation Present? Yes / No

Wetland Hydrology Present? Yes / No

Remarks: Areas of standing water are present and soils are saturated.
WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Ang-3 Sulfur Springs Wetland
Applicant/Owner: East Contra Costa Habitat Conservancy
Investigator(s): E. McDermott, H. Bartosh

<table>
<thead>
<tr>
<th>Landform (hillslope, terrace, etc.):</th>
<th>Local relief (concave, convex, none):</th>
<th>Slope (%):</th>
</tr>
</thead>
<tbody>
<tr>
<td>hillslope</td>
<td>concave</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subregion (LRR):</th>
<th>Lat:</th>
<th>Long:</th>
<th>Datum:</th>
</tr>
</thead>
<tbody>
<tr>
<td>C - Mediterranean California</td>
<td>4200321</td>
<td>596746</td>
<td>UTMNAD83</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Are climatic / hydrologic conditions on the site typical for this time of year?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>(If no, explain in Remarks.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Are Vegetation</th>
<th>Soil</th>
<th>Hydrology</th>
<th>Significantly disturbed?</th>
<th>Are &quot;Normal Circumstances&quot; present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(If needed, explain any answers in Remarks.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Is the Sampled Area within a Wetland? | Yes | No |

Remarks:

VEGETATION

<table>
<thead>
<tr>
<th>Tree Stratum (Use scientific names.)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cover:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
</tr>
<tr>
<td>Total Cover:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Polypogon monspeliensis</td>
</tr>
<tr>
<td>2. Juncus xiphioides</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
</tr>
<tr>
<td>7.</td>
</tr>
<tr>
<td>8.</td>
</tr>
<tr>
<td>Total Cover:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>Total Cover:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
<tbody>
<tr>
<td>34 %</td>
<td></td>
</tr>
</tbody>
</table>

Remarks: Location is on margin of drainage below the pond. Area is dominated by Polypogon monspeliensis. Surrounding grasslands are dominated by upland grasses.
### SOIL

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>10YR3/2</td>
<td>80</td>
<td>7.5YR5/6</td>
<td>20</td>
<td>C</td>
<td>M</td>
<td>clay loam</td>
<td></td>
</tr>
</tbody>
</table>

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix. Location: PL=Pore Lining, RC=Root Channel, M=Matrix.*

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td></td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td></td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td></td>
</tr>
<tr>
<td>Stratified Layers (A5) (LRR C)</td>
<td></td>
</tr>
<tr>
<td>1 cm Muck (A9) (LRR D)</td>
<td></td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td></td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td></td>
</tr>
<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td></td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
</tr>
<tr>
<td>Sandy Redox (SS)</td>
<td></td>
</tr>
<tr>
<td>Stripped Matrix (S6)</td>
<td></td>
</tr>
<tr>
<td>Loamy Mucky Mineral (F1)</td>
<td></td>
</tr>
<tr>
<td>Loamy Gleyed Matrix (F2)</td>
<td></td>
</tr>
<tr>
<td>Depleted Matrix (F3)</td>
<td></td>
</tr>
<tr>
<td>Redox Dark Surface (F6)</td>
<td></td>
</tr>
<tr>
<td>Depleted Dark Surface (F7)</td>
<td></td>
</tr>
<tr>
<td>Redox Depressions (F8)</td>
<td></td>
</tr>
<tr>
<td>Vernal Pools (F9)</td>
<td></td>
</tr>
</tbody>
</table>

**Restrictive Layer (if present):**

Type: __________________________________________

Depth (inches): ________________________________

**Hydric Soil Present?** Yes ☐ No ☐

Remarks: Bright, obvious mottles are present.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Clayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

**Field Observations:**

- Surface Water Present? Yes ☐ No ☐ Depth (inches): __________
- Water Table Present? Yes ☐ No ☐ Depth (inches): __________
- Saturation Present? Yes ☐ No ☐ Depth (inches): __________

**Wetland Hydrology Present?** Yes ☐ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Site obviously ponds as evidenced by deep cattle hoofprints and other surface soil indicators. Water is flowing nearby.
WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Ang-3 Sulfur Springs Wetland
Applicant/Owner: East Contra Costa Habitat Conservancy
Investigator(s): E. McDermott, H. Bartosh
Landform (hillslope, terrace, etc.): hillslope
Investigator(s): E. McDermott, H. Bartosh
Local relief (concave, convex, none): convex
Subregion (LRR): C - Mediterranean California
Soil Map Unit Name: Altamont-Fontana Complex 30-50% slopes

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐
Are Vegetation Soil or Hydrology significantly disturbed? ☐ Yes ☐ No ☐
Are Vegetation Soil or Hydrology naturally problematic? ☐ Yes ☐ No ☐

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☐
Hydric Soil Present? Yes ☐ No ☐
Wetland Hydrology Present? Yes ☐ No ☐
Is the Sampled Area within a Wetland? Yes ☐ No ☐

VEGETATION

Tree Stratum (Use scientific names.)
1. 
2. 
3. 
4. 
5. 

Total Cover: %

 Sapling/Shrub Stratum
1.  
2.  
3.  
4.  
5.  

Total Cover: %

 Herb Stratum
1. Bromus diandrus 79 Yes Not Listed
2. Bromus hordeaceous 10 No FACU
3. Centaurea solstitialis 1 No Not Listed
4. Festuca perenne (Lolium perenne) 10 No FAC
5. 
6.  
7.  
8.  

Total Cover: %

Woody Vine Stratum
1. 
2.  

Total Cover: %

% Bare Ground in Herb Stratum 0 %  % Cover of Biotic Crust %

Vegetation at this location is typical of upland grassland in the vicinity.

Prevalence Index worksheet:

<table>
<thead>
<tr>
<th>Species</th>
<th>Total % Cover</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL</td>
<td>x 1 = 0</td>
<td></td>
</tr>
<tr>
<td>FACW</td>
<td>x 2 = 0</td>
<td></td>
</tr>
<tr>
<td>FAC</td>
<td>x 3 = 30</td>
<td></td>
</tr>
<tr>
<td>FACU</td>
<td>x 4 = 40</td>
<td></td>
</tr>
<tr>
<td>UPL</td>
<td>x 5 = 400</td>
<td></td>
</tr>
<tr>
<td>Column Totals: 100</td>
<td>(A) 470 (B)</td>
<td></td>
</tr>
</tbody>
</table>

Prevalence Index = B/A = 4.70

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3%

Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present.

Remarks: Vegetation at this location is typical of upland grassland in the vicinity.
**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Redox Features</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>10YR3/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>clay loam</td>
<td></td>
</tr>
</tbody>
</table>

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix.  
2Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

**Indicators for Problematic Hydric Soils:**

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

**Restrictive Layer (if present):**

- Type: 
- Depth (inches): 

**Hydric Soil Present?** Yes ☐ No ☑

**Remarks:** No evidence of hydric soils are present.

---

**HYDROLOGY**

**Wetland Hydrology Indicators:**

**Primary Indicators (any one indicator is sufficient)**

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

**Secondary Indicators (2 or more required)**

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

**Field Observations:**

- Surface Water Present? Yes ☐ No ☑ Depth (inches): 
- Water Table Present? Yes ☐ No ☑ Depth (inches): 
- Saturation Present? Yes ☐ No ☑ Depth (inches): (includes capillary fringe)

**Wetland Hydrology Present?** Yes ☐ No ☑

**Remarks:** Site is slightly elevated and does not appear to carry water or pond water.

---

US Army Corps of Engineers
WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Ang-3 Sulfur Springs Wetland
Applicant/Owner: East Contra Costa Habitat Conservancy
Investigator(s): E. McDermott, H. Bartosh

City/County: Contra Costa County
State: CA
Section, Township, Range: Section 7, T1N, R1E
Landform (hillslope, terrace, etc.): depression on hillslope
Local relief (concave, convex, none): concave
Slope (%): 2
Subregion (LRR): C - Mediterranean California
Lat: 4200334 Northing
Long: 596732 Easting
Datum: UTMNAD83

Soil Map Unit Name: Altamont-Fontana Complex 30-50% slopes
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 ☐ No ☐ (If needed, explain any answers in Remarks.)
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.

Is the Sampled Area within a Wetland? Yes ☐ No ☐

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>Total Cover:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Poa compressa</td>
<td>20</td>
<td>FACW</td>
</tr>
<tr>
<td>2. Poa annua</td>
<td>5</td>
<td>OBL</td>
</tr>
<tr>
<td>3. Poa pratensis</td>
<td>5</td>
<td>FACW</td>
</tr>
</tbody>
</table>

Hydrophytic Vegetation Present? Yes ☐ No ☐

Hydric Soil Present? Yes ☐ No ☐

Wetland Hydrology Present? Yes ☐ No ☐

Remarks: Location is in a depression that has a pipe leading to it. Bare dirt is present at this location due to cattle trampling.

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0
- Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation1 (Explain)

1Indicators of hydric soil and wetland hydrology must be present.
SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>10YR3/2</td>
<td>85</td>
<td>7.5YR5/6</td>
<td>15</td>
<td>C</td>
<td>M</td>
<td>clay loam</td>
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</tbody>
</table>

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix.  
2Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<table>
<thead>
<tr>
<th>Hydric Soil Indicators:</th>
<th>Indicators of Problematic Hydric Soils:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td>1 cm Muck (A9) (LRR C)</td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td>2 cm Muck (A10) (LRR B)</td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td>Reduced Vertic (F18)</td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td>Red Parent Material (TF2)</td>
</tr>
<tr>
<td>Stratified Layers (A5)</td>
<td>Other (Explain in Remarks)</td>
</tr>
<tr>
<td>1 cm Muck (A9) (LRR D)</td>
<td></td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td></td>
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<tr>
<td>Thick Dark Surface (A12)</td>
<td></td>
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<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td></td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
</tr>
</tbody>
</table>

Restrictive Layer (if present):

Type:  
Depth (inches):  

Hydric Soil Present? Yes ☐ No ☐

Remarks: Bright mottles are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
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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: Location is in a depressional feature that has a pipe leading to it. Ponding in this location is visible on aerial imagery served by Google Earth, dated 2012.

US Army Corps of Engineers