HART RANCH
FLOW ENHANCEMENT PROJECT

DRAFT INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

JANUARY 2017

Submitted to:

CALIFORNIA DEPARTMENT OF
FISH AND WILDLIFE
601 Locust Street
Redding, CA 96001

Prepared by:

ALPINEWORKS
CONSULTING

CALIFORNIA TROUT
FISH · WATER · PEOPLE

Figures

Appendices (Included on CD)

Report Preparers:

Alpineworks Consulting. Tuliyani Potts. PO Box 676, Mt. Shasta, CA 96067
California Department of Fish & Wildlife, 601 Locust Street, Redding, CA 96001
California Trout. Andrew Braugh, 701 South Mt. Shasta Blvd, Mt. Shasta, CA 96067

1 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This document is an Initial Study, with supporting environmental studies, which provides justification for a Mitigated Negative Declaration for the Hart Ranch Flow Enhancement Project (proposed project). This Mitigated Negative Declaration has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 *et seq*., and the State CEQA Guidelines, 14 California Code Regulations Section 15000 *et seq*.

An Initial Study is conducted by a Lead Agency to determine if a project may have a significant effect on the environment. In accordance with CEQA Guidelines Section 15063, an EIR must be prepared if an Initial Study indicates that the proposed project under review may have a potentially significant impact on the environment. A Negative Declaration is a written statement prepared by the Lead Agency describing the reasons why the proposed project would not have a significant effect on the environment, and therefore would not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a Negative Declaration shall be prepared for a project subject to CEQA when either:

- *a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the proposed project may have a significant effect on the environment, or*

- *b) The initial study identifies potentially significant effects, but:*

  - *(1) Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and*

  - *(2) There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant effect on the environment.*

If revisions are adopted in the proposed project that would mitigate the effects to a point where no significant effects would occur in accordance with the CEQA Guidelines Section 15070(b), a mitigated negative declaration is prepared.

1.2 LEAD AGENCY

The lead agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines Section 15051 provides criteria for identifying the lead agency. In accordance with CEQA Guidelines Section 15051(b)(1), “the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose.” Pursuant to Fish and Game Code section 1602, Blair Hart (Permittee) notified the California Department of Fish and Wildlife (CDFW) on July 7, 2016 with the intent to substantially divert or obstruct the natural flow and modify the bed and/or banks of the Little Shasta River and Evans Spring in order to implement the proposed Project. CDFW has determined that the Project has the potential to substantially adversely affect existing fish and wildlife resources and therefore, a Lake or Streambed Alteration Agreement (LSAA) is required under Fish and Game Code section 1603. CDFW’s issuance of the LSAA requires compliance with CEQA, and because no other discretionary public agency approvals have been required to date, CDFW has assumed Lead Agency status for the Project under CEQA.

Based on the criteria above, CDFW is the lead agency for the proposed Hart Ranch Flow Enhancement Project.

1.3 DOCUMENT ORGANIZATION

This document is divided into the following sections:

1 Introduction - This section provides an introduction and describes the purpose and organization of this document.

2 Project Information - This section provides general information regarding the project, including the project title, lead agency and address, contact person, brief description of the project location, general plan, land use designations, zoning designation, identification of surrounding land uses, and identification of other public agencies whose review, approval, and/or permits may be required. Also provided is a checklist of the environmental factors that are potentially affected by the project. Finally, this section provides the environmental determination for the project, identifying whether a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report will be prepared for the project.

3 Project Description - This section provides a detailed description of the proposed project.

4 Environmental Checklist - This section describes the environmental setting/overview for each of the environmental subject areas, evaluates a range of impacts classified as “no impact,” “less than significant,” “less than significant with mitigation incorporated,” and “potentially significant” in response to the environmental checklist. Each environmental checklist question is discussed and analyzed. Where appropriate, mitigation measures are identified to mitigate potentially significant impacts to a less than significant level.

Section 4, Environmental Checklist, is the analysis portion of this Initial Study. This section provides an evaluation of the potential environmental impacts of the project. There are eighteen environmental issue subsections within **Section 4.0**, one of which is the CEQA Mandatory Findings of Significance. The other environmental issue subsections consist of the following:

1. Aesthetics
2. Agricultural Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Geology and Soils
7. Greenhouse Gas Emissions
8. Hazards and Hazardous Materials
9. Hydrology and Water Quality
10. Land Use and Planning
11. Mineral Resources
12. Noise
13. Population and Housing
14. Public Services
15. Recreation
16. Transportation/Traffic
17. Tribal Cultural Resources
18. Utilities and Service Systems
19. Mandatory Findings of Significance

Each environmental issue subsection is organized as follows:

The **Overview** summarizes the existing conditions at the regional, sub-regional, and local level as appropriate, and identifies applicable plans and technical information for the particular issue area.

The **Checklist Discussion/Analysis** provides a detailed discussion of each of the environmental issue checklist questions. The level of significance for each topic is determined by considering the predicted magnitude of the impact. Four levels of impact significance are evaluated in this initial study:

No Impact: No project-related impact to the environment would occur with project development.

Less than Significant Impact: The impact would not result in a substantial and adverse change in the environment. This impact level does not require mitigation measures.

Less than Significant with Mitigation Incorporated: An impact that may have a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines Section 15382). However, the incorporation of mitigation measures would reduce the project-related impact to a less than significant level.

Potentially Significant Impact: An impact that is "potentially significant" as described above, but for which mitigation measures cannot be immediately suggested or the effectiveness of potential mitigation measures cannot be determined with certainty. In such cases, an EIR is required.

Where appropriate, a **Mitigation Measures** section is included that lists mitigation measures for impacts identified as "Less than Significant with Mitigation Incorporated." These measures are designed to avoid, minimize, rectify, compensate for, reduce or eliminate identified potential impacts.

The **Conclusions** section summarizes the potential impacts and mitigation measures of the project on an environmental issue. If mitigation measures are recommended, the potential impacts after the implementation of these measures are assessed.

5 Special Studies and References - This section lists all the special studies and other documents either used or referred to in the Initial Study, and persons consulted during preparation of the Initial Study.

2 PROJECT INFORMATION

1.	**Project title:**	Hart Ranch Flow Enhancement Project
2.	**Lead agency name and address:**	California Department of Fish and Wildlife 601 Locust Street Redding, CA 96001
3.	**Contact person and phone number:**	Curt Babcock, Habitat Conservation Program Manager (530) 225-2740
4.	**Project location:**	APN [# 039-170-310, 039-130-140, 039-170-270, 039-170-060, 039-170-280, 039-130-100, 039-140-080]. Various Sections and Ranges, Little Shasta, CA 7.5 minute USGS quadrangle and Solomons Temple, CA 7.5 minute USGS quadrangle. Latitude: Various, identified in Project Description Longitude: Various, identified in Project Description
5.	**Project sponsor's name and address:**	California Trout, Inc. 701 South Mt. Shasta Blvd. Mt. Shasta, CA 96067
6.	**General plan designation:**	Areas mapped Severe Septic Tank Limits, Flood Hazard, Wildfire Hazard, Prime Agricultural Soils (General Plan Land Use and Circulation Element, maps 1 through 14). Further discussion included in Section 3, Project Description.
7.	**Zoning:**	AG1B40 Agriculture, AG2B40 Agriculture.
8.	**Description of project:**	The proposed project implements numerous agricultural water infrastructure improvements designed to improve water management opportunities for the Hart Ranch which result in enhanced flow in the Little Shasta River during critical coho migration periods, and maintenance of existing coho rearing habitat; improved fish passage in the Little Shasta River; and long-term operation and maintenance of irrigation infrastructure for the Hart Ranch.
9.	**Surrounding land uses and setting:**	The proposed project is located in various locations throughout the county (**Figure 1, Project Location**). The project is surrounded by active agricultural lands.
10.	**Other public agencies whose approval may be required (e.g. permits, financing approval, or participation agreement):**	CA Department of Fish and Wildlife (1600 Streambed Alteration Agreement), State Water Board (401 Permit), U.S. Fish and Wildlife Service, NOAA National Marine Fisheries Service, Section 404 and/or Section 27 permits from the U.S. Army Corps of Engineers, Regional Water Quality Control Board (401 Water Quality Certification, SWPPP), Siskiyou County Public Works Department, Siskiyou County Community Development Department (building permit).

2 PROJECT INFORMATION

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is reduced to less than significant through the use of mitigation measures indicated by the checklist on the following pages.

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

DETERMINATION: On the basis of this initial evaluation:

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

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

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

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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

Signature: [signature] — Date: 1/26/17

Curt Babcock
Printed Name

January 26, 2017
Date

Habitat Conservation Program Manager
Title

3 Project Description

3.1 PROJECT LOCATION AND OBJECTIVES

The proposed Hart Ranch Flow Enhancement Project (Project) is located within the north central portion of the unincorporated area of Siskiyou County, California. This Project will be sited entirely at the Hart Ranch, primarily south of the Little Shasta River and west of Harry Cash Road, with one component located upstream at the ranch's existing agricultural irrigation diversion on the Little Shasta River as illustrated in **Figure 1, Project Location Map**. The Hart Ranch, is privately owned and is operated primarily for beef cattle production, including extensive irrigation of forage and pasture. The Ranch lies within the Little Shasta River watershed and holds certain rights to Little Shasta River water, which are used with other water entitlements and groundwater for irrigation and livestock watering. The Project will be located on various parcels and the APN for each site is included under discussion of the Project Summary. All components of this Project are located on existing active agricultural lands which are zoned for agricultural use by Siskiyou County and are part of the Hart Ranch (Ranch).

The overall Project objectives are to (1) enhance flow in the Little Shasta River and maintain existing potential coho salmon rearing habitat upstream of the Hart diversion structure; (2) ensure long-term operation and maintenance of irrigation infrastructure for the Hart Ranch; (3) improve fish passage in the Little Shasta River; and (4) to continue ongoing agricultural operations using both existing and proposed infrastructure.

By improving agricultural water infrastructure, water management opportunities, and fish passage in the Little Shasta River, the Project intends to improve water quality and enhance potential coho salmon habitat in the Little Shasta River with a permanent instream dedication of 0.5 cfs, with an additional long-term dedication of up to 1.0 cfs and potential permissive dedication of the remaining water right by the Hart Ranch while maintaining viable agricultural lands.

As the Project implements a number of irrigation management opportunities and efficiencies, it will allow for additional flows to be dedicated instream. Therefore, the Project is related to the Draft *Safe Harbor Agreement for Voluntary Habitat Enhancement Activities Benefiting Southern Oregon and Northern California Coast Coho Salmon (Oncorhynchus kisutch) on Private Lands in the Shasta Valley, Siskiyou County, California, by and between the Hart Ranch and the National Marine Fisheries Service* (NOAA Fisheries, 2016) (Draft Hart Ranch SHA), which the Hart Ranch submitted to NOAA Fisheries in December 2016 and is currently pending approval. It is anticipated that NOAA Fisheries will approve the Draft Hart Ranch SHA and issue an Enhancement of Survival Permit, pursuant to 16 U.S.C. 1539, by the end of 2017 (subject to NEPA by NOAA Fisheries). After which, the Hart Ranch intends to seek and obtain a consistency determination from the California Department of Fish and Wildlife, pursuant to Fish and Game Code Sections 2089.6, 2089.22, and 2080.1.

3.2 PROJECT SUMMARY

This Project consists of various agricultural water infrastructure modifications and ongoing agricultural operations on the Hart Ranch along the Little Shasta River in the Shasta Valley. The Project impact area is limited to the footprint as identified in design engineering plus a 25-foot buffer on either side, and totals 41.66 acres of the working ranch. The Project consists primarily of linear alignments along proposed pipe alignments with associated water management infrastructure in existing irrigated pastures and uplands with occasional irrigation ditch crossings, and modification of the existing agricultural diversion structure which poses a partial barrier to fish passage in the Little Shasta River.

All infrastructure modifications are designed to improve water management, improve irrigation efficiencies, improve opportunities to utilize various water sources (river water, groundwater, spring water, or other water sources, etc.), reduce the amount of cold water resources being utilized for irrigation and stockwater, increase cold water returns to the river system, and improve fish passage. The components of this Project are designed to improve water quantity and quality in the Little Shasta River during critical migration times for coho salmon.

The Project will allow for an initial contribution up to 1.5 cfs of cold water instream through long-term dedication under California Water Code Section 1707 and potential Safe Harbor Agreement (SHA), currently under negotiation with NOAA Fisheries (NOAA Fisheries, 2016).The Project will result in up to 1.5 cfs of cold water permanently dedicated instream using California Water Code Section 1707. This water will enhance year round flows starting at the Hart Diversion Structure (River kilometer 17.5) in the foothills reach of the Little Shasta River and could benefit the outmigration of juvenile coho salmon from April 1 through June 30 if and when coho salmon enter the foothills reach. This total instream dedication of up to 1.5 cfs will be achieved through a combination of on-farm water efficiency and water management improvements (0.5 cfs), and voluntary flow contributions (1 cfs) from existing priority water rights held by the Hart Ranch. The Ranch's remaining water right (19.804 cfs) will be modified to add instream use as an authorized purpose, and the entire right less the initial dedication of up to 1.5 cfs, will be available for potential permissive dedication as a result of the 1707 process. This will add fish and wildlife to all their water rights, allowing the water to be legally dedicated and protected for fish and wildlife benefit on an as-needed basis.

On-farm efficiency and water management improvements include 1) the construction of new stock watering facilities, 2) replacement of the Hart Ranch's failing Main Pipeline, 3) fish passage improvements consisting of relocation and replacement of the Hart irrigation diversion structure and recontour of a portion of the Little Shasta River to ensure fish passage, and 4) water diversion.

The Hart Ranch Flow Enhancement Project consists of the following elements, the locations of which are identified in **Figure 1**. All components are located on the Hart Ranch (41˚41' 25.85"N latitude, 122̊ 22' 51.11"W longitude).

1) **Stockwater Improvement & Riparian Fencing/Planting:** This project component is located on the Hart Ranch (APN 039-170-310, 039-130-140, 039-170-270, 039-170-060, 039-170-280, 039-130-100, 039-140-080) along Harry Cash Road south of the Little Shasta River. This component of the Project consists of (1) retrofitting an existing groundwater well; (2) new water storage tanks; (3) installation of underground PVC pipe and stockwater troughs; (4) installation of riparian fencing; (5) riparian planting along the Little Shasta River; and (6) cross fencing in existing pastures. **Figure 2** identifies a site plan for this component of the Project.

2) **Main Pipeline Replacement:** This component of the Project includes replacement of the existing main canal earthen ditch and failing pipeline with underground PVC pipe with risers, valves, State Water Resources Control Board approved flow meter, and connection to existing groundwater wells, for improved water management opportunities and flood irrigation of the eastern portion of the Ranch. **Figure 3** identifies a site plan for this component of the Project. (APN 039-170-310, 039-170-150, 039-170-270, 039-170-290).

3) **Fish Passage Improvements:** This component of the Project is located along the Little Shasta River at river kilometer (RK) 18.5 and includes removal of the existing flashboard dam, a temporal barrier for juvenile and adult coho salmon; construction of approximately 105 feet of roughened channel with large boulder clusters and buttresses with a 2.5-3% grade; and replacement of the agricultural diversion for the Hart Ranch to continue diversion of appropriated water rights, within proximity to the Harry Cash Road bridge crossing of the Little Shasta River (APN 039-120-170) (41˚ 32' 21.55"N latitude, 122̊ 22' 9.40"W longitude)**. Figures 4a** and **4b** identify site plans for this component of the Project.

4) **Water Diversion:** This component of the Project will allow for ongoing operation, maintenance, and repair of existing water diversion structures at the Little Shasta River Hart-Haight Diversion and the Evans Spring Diversion as permitted by CDFW under 1600 Permit and allow for voluntary instream flow contributions of existing decreed water rights at these locations as described in the Draft Hart Ranch SHA.

PROJECT FEATURES

STOCKWATER IMPROVEMENT & RIPARIAN FENCING/PLANTING

Existing Conditions

The northern portion of the Ranch is primarily dry-land, self-sustaining grazing area that is used extensively during the early portions of the year when forage production is supported by available soil moisture. Stockwater is currently provided in these fields by 10,700 feet of open, earthen ditch that flows from east to west along the southern edge of the dry-land grazing area until Dorris Hill, where it turns north and continues. Cattle drink directly out of the ditch or the Little Shasta River which is adjacent to and north of the ranch. As the ditch is not easily accessible within all fields, and not accessible from some, this significantly reduces the utilization of the rain-fed forage of this acreage for grazing purposes.

A flow rate of approximately 1.5 cfs is typically continuously diverted from either the Little Shasta River or Evans Spring diversions to supply the ditch year round. The unlined ditch cross section, combined with the mild slopes and long ditch length, results in appreciable losses and requires a flow rate significantly higher than the consumption rate to maintain flow near the tail-end of the ditch. Unconsumed water either deep percolates, evaporates, leaves the ranch along the southwestern property boundary, or supports seasonal wildlife habitat near the base of Dorris Hill.

Proposed Improvements

The Project actions associated with the existing stockwater system consists of (1) retrofitting an existing groundwater well and pump with the addition of a new booster pump, regulating tank, and discharge piping; (2) three new 4,100 gallon water storage tanks; (3) installation of approximately 28,364 linear feet (5.37 miles) of underground PVC pipe connection to 20 stockwater troughs; (4) installation of approximately 7,500 linear feet of riparian fencing; (5) a new dedicated pipeline from the regulating tank with valve and flow meter to maintain existing wet meadow wildlife habitat at the eastern toe of Dorris Hill; (6) riparian planting along the Little Shasta River for a distance of approximately 7,500 linear feet; and (7) approximately 14,850 linear feet of steel post and barbed wire cross fencing in existing pastures. **Figure 2** identifies a site plan for this component of the Project. This component will increase water use efficiency and provide a more reliable and adequate source of drinking water for the cattle on approximately 950 acres, hereinafter termed the “Northside”. The system is designed to provide 35 gallons per day per cow-calf pair for a maximum of 225 cow-calf pairs. At peak demand, the system will operate at a flow rate of 11 GPM (0.02 cfs) to supply the troughs, with an additional 65 GPM (0.14 cfs) available to supply the consumptive needs of the seasonal wildlife habitat near the base of Dorris Hill. A total post-project flow rate of approximately 0.16 cfs will be required year round for the stockwater system, resulting in an anticipated, seasonally dependent, net water savings of +/- 1 cfs under full rights. The pumping system will be fitted with a flow meter to allow proper operation of the system and to provide monitoring of instantaneous and cumulative water use.

The stock watering system is composed of 20 strategically placed rubber-tire troughs that will be supplied by an on-demand pressure pipe network supplied from two new elevated storage tanks on Dorris Hill. Tanks are tentatively proposed to be round, High Density Linear Polyethylene tanks measuring 12 feet in diameter and approximately 12 feet tall. The tanks will be supplied with groundwater pumped from an existing well, and then released as needed to supply the troughs. Sufficient reserve storage capacity is provided in the tanks to maintain water supply to the troughs for two days in the event of pump failure, maintenance, or power outage. To the extent possible, the stockwater distribution pipeline will form a loop so that the tank can supply each trough from two directions and allow segments to be isolated without interrupting supply if maintenance is needed on troughs or certain pipeline sections.

Underground Pipe and Troughs

The Project will require approximately 3 miles of 2” diameter, and 1.3 miles of 1-1/2” diameter HDPE pipe installed using low-impact trenching methods; 1.1 miles of 4” to 6” PVC mainline pipe; related air valves, isolation valves, control valves, and all fittings. Pipelines will be buried with approximately 2.5 feet of cover and will be installed along existing ditches rather than in them. The new stockwater pipe will cross under Harry Cash Road (a County roadway) using conventional open trench excavation. Backfill, compaction, and paving will follow applicable County standards and requirements of the encroachment permit. The distribution system pipeline will also cross over the existing Montague Water Conservation District’s Main Canal where the pipeline will transition to a heavy-walled steel pipe that will be suspended over the canal above the water surface.

The pipeline alignment will need to be cleared of vegetation to a width of approximately 8 feet to facilitate construction and site access. Total vegetation removal of approximately 5 acres is required for trenching, including the removal of pasture grasses and alfalfa, which will be re-seeded following construction. Rubber-tire troughs will have a 7” thick unreinforced concrete and crushed rock apron that extends 8 feet from the trough. Each trough installation will occupy an area of approximately 220 square feet. Backfill of pipe alignments will utilize material from an on-ranch upland borrow pit and native soil. Any excess soil as a result of excavation will be stockpiled in uplands on site. All disturbed areas will be seeded and mulched following construction.

The elevated storage tanks will be installed on a newly constructed gravel pad on Dorris Hill that will require excavation, material placement, and compaction over an area of approximately 2,400 square feet. It is estimated that cut and fill quantities will be 1,500 cubic yards of material. A 14-foot-wide by 750-foot-long graveled road with a slope of approximately 8% will be constructed to access the tanks from the existing ranch road. All cut and fill will be balanced with no need to export material. Imported engineered fill or gravel for the pad will be from a permitted source or from the existing on-ranch borrow pit. **Appendix B** includes 75% design stage plans for the stockwater system improvements.

Construction is expected to last approximately 60 working days and will be planned for early fall (August-November) to avoid wet weather conditions.

<u>Riparian Fencing & Planting</u>

Upon completion of the stockwater system, approximately 7,500 linear feet of riparian fencing will be installed along both banks of the Little Shasta River and the riparian zone will be planted with native shrub and tree species (estimated 750 trees) within a ten (10) foot band of the river. The total area to be planted is approximately two (2) acres, with an estimated 750 trees. Riparian planting will be spaced 10 feet apart on average, with a total density of approximately 375 trees per acre. Fencing will be steel post and barbed wire, consistent with the *California Salmonid Stream Habitat Restoration Manual, (CDFG, 2003)* or similar specifications, with a setback of not less than 35 feet from the ordinary high water mark. Fencing will allow for existing riparian vegetation recovery and enhancement while facilitating proper management of cattle at the bank of the Little Shasta River. Disturbance will consist of clump plantings of willow, choke cherry, native plum, and other native species. Riparian plants will be installed in a manner that will ensure that the roots will have access to water when water tables are at their lowest. This method for installing riparian plants has proven to be successful in the upper Shasta River with an average success rate of around 60%. Because the hydrology in the Little Shasta is different than the upper Shasta River we expect a 50% survival of plantings after 5 years (which is about 85% survival annually). Riparian planting will typically occur during the winter months (ideally February and March) and planting will be sourced from native local cuttings. Additional Project fencing includes approximately 14,850 linear feet of cross fencing in existing pastures to enhance grazing management. Cross fencing will be steel post and barbed wire. Fencing will be substantially built with a design life of 50 years.

Main Pipeline Replacement

Existing Conditions

The Ranch has a year-round right to approximately 2.35 cfs from the flow of Evans Spring where the water is diverted and conveyed in an unlined open earthen ditch, entering the ranch on its northeastern boundary. Upon entering the Ranch boundary, the water continues in an open ditch for approximately 2,500 feet, then into a 12" diameter steel pipeline for approximately 1,700 feet before transitioning back to an open ditch just south of the existing ranch road termed "the Lane". South of the Lane, the open ditch continues for 3,500 feet where it terminates. Collectively, the aforementioned pipe and ditch components are considered the "Main Pipeline System". The Main Pipeline System conveys water to flood irrigate six fields totaling 175 acres on the east-side of the Ranch, and is also used for stockwater via on-ranch ditches. Fields are either irrigated directly from the Main Pipeline System, or are irrigated from smaller "head ditches" which are supplied from the Main Pipeline System. The surface flow can also be supplemented using groundwater pumped from the Big Well and the Hart Well into the existing ditch system.

Although the combined surface water and groundwater sources provide approximately 5.4 cfs of supply, the open ditch infrastructure limits the use of the groundwater to only fields downhill of the inflow location, and seepage and spillage from the ditch system further diminish the efficiency of the irrigation and conveyance systems.

The existing steel pipeline is corroded, contains holes, and is not protected with sufficient soil cover in some locations, leading to damage from cattle traffic. Seepage tests performed by Davids Engineering in 2009 at three different locations in the existing eastside ditches measured seepage rates ranging from 0.06 to 0.42 cfs/day, which can be attributed primarily to wider than necessary channel sections (more wetted area), porous soil types, and rodent holes. Additionally, water is lost from the ditches through cuts or low sections in the embankments. The poor condition of the conveyance system reduces the efficiency of irrigation practices due to spillage and seepage losses that reduce the flow rate available for distribution to the field. These inefficiencies result in excessive water diversion and application rates in portions of fields in order to meet necessary irrigation needs for other portions of fields to maintain pasture growth and grazing capacity.

Proposed Improvements

The objective of the Main Pipeline replacement is to redesign the irrigation distribution system which serves the eastern portion of the ranch to more effectively and efficiently utilize water, which will provide for reductions in water use while simultaneously retaining or improving existing pasture production. The Project replaces a large portion of the Mainline System with buried PVC pipelines that more effectively and efficiently distributes available water supplies to fields through irrigation valves spaced at intervals along the pipelines. The *Little Shasta River Water Efficiency Study* prepared by David's Engineering estimates that irrigation efficiency improvements associated with piping the Mainline could reasonably be expected to result in a 10% reduction in applied water to the eastern portion of the Ranch. Average applied water for the six fields to be served by the Main Pipeline replacement is about 50", or about 690 acre-feet over a 6 month irrigation season. Estimating that irrigation efficiency improvements would decrease this by 10%, this results in a net savings of 70 acre-feet in a season or about 0.2 cfs on a continuous basis. Additionally, estimates of seepage reduction based on ponding tests performed on the Evans Ditch it is estimated that 0.22 cfs of seepage could potentially be recovered from installation of Phase I and Phase II of the Main Pipeline. Therefore, the Main Pipeline replacement will result in an estimated water savings of 0.42 cfs (Davids Engineering, Inc., 2012).

The Project is considered the "backbone" of the irrigation system on the Ranch, which allows for water source combination through interconnection of supply and distribution systems for flexible utilization of available water supplies to serve the Ranch needs. The Mainline System has the capability to deliver a maximum of 7.5 cfs for irrigation purposes by combining the surface water from Evans Spring and Little Shasta River and groundwater from the Evans well, Big well, and the Hart well. The Main Pipeline Project will not require that additional groundwater be pumped. The increased conveyance capacity (from an existing 5.4 cfs to 7.5 cfs) would facilitate additional instantaneous pumping to facilitate higher irrigation application rates on an less frequent basis that are foundational to improving irrigation efficiency; but the Main Pipeline replacement is not designed with additional annual pumping needs beyond what currently exist. Irrigation efficiencies achieved by the Main Pipeline replacement will add to instream dedications of water which are being negotiated as part of a Safe Harbor Agreement and are anticipated to be up to 1.5cfs (NOAA, 2016).

The Project will be accomplished in two Phases. Phase I will effectively replace approximately 3,850 feet of open ditch (850 feet of main canal, 3,000 feet of in-field head ditch), and 1,700 feet of existing steel pipe on the eastside of the Ranch. Approximately 500 feet of the existing steel pipe will be maintained for storm water management, and the remainder will be abandoned in place. Phase I of the Main Pipeline replacement extends the pipeline south to "The Lane" to provide direct irrigation distribution improvements to two primary pastures totaling 70 acres, allows the combining of four water sources (one surface water supply, Evans Spring; and three existing groundwater well sources), and improves conveyance efficiency to all pastures on the east-side of the Ranch. At its terminus, the Phase I pipeline section will discharge to the existing earthen ditch until Phase 2 is completed. **Appendix C** includes 100% design plans for Phase I of the Main Pipeline Replacement. The outflow will be armored with rock as necessary to reduce scour and dissipate flow. Phase II will extend the pipeline and riser system south of the Lane for another 3,500 feet to provide irrigation efficiency and conveyance improvements to the remaining 105 acres that compose the 'eastside' pastures terminating with an air valve at the base of Rabbit Hill. Phase I includes approximately 3,780 feet of PVC pipeline that range in diameter from 12" to 18", of which 2,875 feet contain vertical risers and adjustable irrigation valves spaced at 44 feet. The valves are positioned at the upper-end of each existing pasture and in each existing border strip so that each area can be irrigated by simply opening the valve.

Upon completion of Phase II, the outflow structure at the southern terminus of Phase I will be removed and Phase II pipeline will connect with the standpipe at the southern terminus of Phase I. Phase II has not been engineered, but design is anticipated to be similar in nature to Phase I.

The new PVC pipeline will connect with the existing Main Line Ditch approximately 1,700 feet downstream from the property line where irrigation water will be diverted into the pipeline via a new cast-in-place concrete pipeline heading structure within the ditch. The pipeline will then cross Harry Cash Road (a County roadway), connect with three (3) existing groundwater wells via new pipelines and fabricated steel standpipes, and parallel existing irrigation infrastructure (ditches and pipelines) which will be abandoned in place as practical. The pipeline will cross approximately three on-ranch gravel and earthen roads.

Three existing groundwater wells (Evans well, Hart well, and Big well) will be retrofitted with new PVC discharge pipelines that will connect to vertical steel standpipes located in-line with the new PVC mainline. The connection of the Evans well will require the pipeline to span the Montague Water Conservation District (MWCD) irrigation canal in a steel pipeline section. The standpipes are open-topped and allow for venting of air and also provide pressure regulation as inflows change and irrigation valves are adjusted. Other related infrastructure will include: a flow meter at the heading, butterfly valves, air vents, and 10-inch grazing valves to allow for continued flood irrigation of pastures. Pipelines will be buried and have a minimum of 2.5 feet of soil cover (30 inches). A working area approximately 14 feet wide will be cleared along the pipeline alignment to remove existing vegetation, and will be replanted following construction.

Construction of the mainline pipe will require medium-duty excavation equipment for trenching and installation of the pipelines, light earthmoving equipment for the clearing of the pipeline alignments, and hand crews for assembly of the pipelines, valves, and related appurtenances. Construction of the cast-in-place concrete heading structure will require medium-duty excavation equipment to excavate the 1.5 feet deep cutoff walls and to prepare the subgrade. The structure itself will require approximately 4 cubic yards of concrete, occupy approximately 70 square feet within the existing earthen channel, and an additional 150 square feet of existing earthen channel will be reshaped and transitioned to the existing structure. Existing barbed wire fencing may be removed as necessary during construction and replaced to pre-project conditions following construction. Backfill of pipe alignments and the new outlet control structure will utilize material from an on-ranch upland borrow pit and native soil. Any excess soil as a result of excavation will be stockpiled in uplands on site. All disturbed areas will be seeded and mulched following construction.

All staging of materials and equipment will be in upland areas utilized for ranch access and operation. Pipe material will be staged along the proposed alignment as it is delivered, and equipment staging areas will be arranged with the landowner to minimize disturbance to existing pasture areas and ranch operations. Access to the Project site will be arranged with the landowner, and vehicle and equipment impact areas will be limited to one staging site and to the pipeline alignments. Construction for each phase of the Main Pipeline replacement is expected to last approximately 45 working days and will be planned for the non-irrigation season(October-March).

FISH PASSAGE IMPROVEMENTS

Existing Conditions

The Hart Diversion Facility consists of a concrete diversion dam on the Little Shasta River located at RK 18.6, headgate, fish screen, fish bypass pipe, and a flow measurement device compliant with Senate Bill 88 along the Hart Ditch. The diversion provides water to the Hart ditch year round for irrigation and stockwater purposes for both the Hart and Cowley ranches pursuant to their existing legally adjudicated water rights. Flashboards are installed seasonally between March 1st and November 1st for diversion. The flashboards extend about 1 foot above the crest of the dam.

The diversion dam is located at the downstream end of a right trending bend and about 110 feet upstream of the Harry Cash Road Bridge across the Little Shasta River. Upstream of the dam, low to moderate flows are confined within the river by a 4 foot high berm along the right bank (looking downstream) and the hill slope along the left bank (**Figure 4a, Fish Passage Existing Conditions)**.

The dam crest is 20 feet wide as measured perpendicular to the flow and about 6 feet long as measured along the direction of flow. Right of the dam crest (looking downstream) are two concrete walls that formerly contained a 4 foot wide fish ladder. The walls of the fish ladder extend downstream approximately 10.5 and 15 feet from the crest of the dam, respectively.

The dam impedes upstream movement of salmonids and native fishes. During low flows when flashboards are not in place, depths over the concrete sill do not meet National Oceanic and Atmospheric Administration (NOAA) and California Department of Fish and Wildlife (CDFW) fish passage criteria for adults and juvenile fishes and may delay or prevent fish from moving upstream. When flashboards are in place, the dam is a complete barrier to adult and juvenile salmonids.

Proposed Improvements

This component of the Project includes (1) removal of the existing concrete dam, fish screen, and old fish ladder walls; (2) construction of approximately 105 linear feet of roughened channel at about 3 percent grade that provides fish passage opportunities; (3) construction of a new cast-in-place concrete diversion structure with fish screen and fish return bypass that meets current NOAA and CDFW fish protection criteria to allow for the continued diversion of existing appropriated water rights to the Hart Ranch [2.130 cfs winter right; 17.428 cfs summer right] and Cowley Ranch [0.144 cfs winter right; 1.342 cfs summer right]; and (4) revegetation of the site. **Appendix A** includes summary of the Hart Ranch appropriated water rights as set forth in the 1932 Shasta River Judgement and Decree.

Site access is from Harry Cash Road on both the south and north of the Little Shasta River. Construction staging will be located in upland areas adjacent to the roadway north and south of the river. Precise location of these sites will be determined by the Project proponent (CalTrout), contractor, and landowners, and will be established in locations that minimize disturbance to valued vegetation and habitat consistent with all agency permit requirements. Staging areas will be located a minimum of 30 feet outside of the ordinary high water. Equipment will be refueled a minimum of 150 feet from the river. Spill kits will be maintained onsite and will be used to clean up any fuel, hydraulic fluid, and oil leaks or spills.

Prior to disturbance of the river channel, the active stream within the work area will be marked by the engineer. Stream diversion, dewatering, and aquatic organism capture and relocation activities as necessary, will be coordinated with CDFW and all necessary permits will be obtained prior to proceeding with this work. Handling and treatment of aquatic organisms will be conducted in accordance with CDFW and NMFS standards. Work will be conducted during the low flow period of June 15 to November 1. Stream flows during this period are anticipated to be less than about 3 cfs. Pumps will be used when necessary to remove ground water seepage into the isolated work area. Pumped groundwater seepage will be spread over existing floodplain areas and allowed to infiltrate into the ground without causing river turbidity to increase. River flows will be diverted around the roughened channel and diversion structure intake during construction, and will be returned to the newly constructed channel as soon as these portions of the work are complete. It is anticipated the Project reach will be dewatered for less than 6 weeks. Prior to grading activities the contractor will salvage and store existing vegetation cuttings and willow transplants to be replanted following the Project completion. Where possible, existing woody vegetation will be excavated with rootwad intact and immediately planted.

One to two excavators will be used to remove the existing concrete and steel structures and to excavate the channel for realignment. Concrete and steel will be disposed of at a licensed transfer station or landfill. Following excavation, roughened channel construction will consist of placement of downstream and upstream boulder buttress footer rocks and top rocks, placement of boulder clusters, placement of engineered streambed material, and seal of the roughened channel with silts, sands, and fine gravels to fill voids (See **Figure 4b** and **Appendix D**, Fish Passage Improvement Engineering). Rock for construction of roughened channel, rock bank protection, and rock buttresses will be imported, supplemented by existing rock salvaged on site. Rock placement for buttresses will be performed by placing individual rocks with at least 3 points bearing and will be made to form a stable mass within smaller rocks used to minimize void space. Filter fabric will not be utilized for construction of the roughened channel. Construction of the roughened channel is expected to take approximately one month.

The Project includes installation of log and boulder roughness along the outer channel reaches to add bank stability, hydraulic diversity, floodplain protection, and increase habitat heterogeneity. Anchoring of logs will be accomplished by drilling through logs, and placing epoxy cable and boulder anchors.

Following construction of the roughened channel the new diversion structure will be constructed. The concrete diversion structure will be cast-in-place and includes intake, fish screen, fish bypass return pipe, adjustable weir, water wheel and cleaning mechanism, and connection with the existing diversion conveyance ditch to allow for the continued diversion of existing appropriated water rights to the Hart Ranch and Cowley Ranch. A SWRCB compliant flow measuring device will be installed to measure and record diversion. The new diversion structure will be located out of the main channel, and is along the left bank, therefore not impeding flow or fish passage. Although the Musgrave diversion structure is located within proximity to the Project (a flashboard dam structure located 1,100 feet upstream) it provides partial temporal barrier to passage, and therefore, removal of the existing Hart Ranch flashboard dam, and replacement with an off-channel diversion structure will allow for fish passage to the foothills reach of the Little Shasta River [approximately 7 kilometers (km)], which currently provides high quality spawning and rearing habitat with gravel beds, deep pools, cold water temperatures, and a dense riparian canopy. The combined features of this reach provide high-quality habitat throughout the year, even during dry years (McBain & Trush, 2013).

The proposed diversion structure is approximately 8 to 14 feet wide, 125 feet long, and 4 to 9.5 feet high with appurtenances rising above the cast concrete structure. Concrete will be allowed to cure before water is returned to the channel and concrete wash water will be controlled, handled, and managed in accordance with applicable laws and permit requirements during construction. Excavation and fill of the slope to the east of the diversion structure will be required to match the new elevations as a result of the Project and slope drainage and revegetation are included in this project. Construction of the new diversion structure is anticipated to be complete within two months' time.

Approximately 15 alder and willow trees with diameter at breast height (dbh) less than 6 inches along the channel will be removed to accomplish channel roughening and realignment. Additional vegetation removal will include small riparian vegetation within the work area and approximately 20 junipers, to be used for large wood floodplain protection. Junipers will be removed from the Hart Ranch in upland areas and will be removed with their rootwad intact. Transport of large trees to the site, from upslope location, will likely be most effectively accomplished by flatbed trailer, backhoe, or excavator. Following completion of construction of the roughened channel and diversion structure, the site will be cleared of construction debris and erosion control measures will be installed. Planting will be completed in the fall and winter and in combination with additional erosion control measures which will consist of willow wattles, brush mattresses, willow transplants, and willow stakes.

WATER DIVERSION

Existing Conditions

The Hart Ranch currently holds decreed water rights on the Little Shasta River and streams and tributaries thereto consisting of maximum summer right (March to November 1) of 17.428 cfs at the Hart-Haight Diversion on the Little Shasta River and 2.376 cfs at the Evans Spring and Martin Spring for a total Ranch water right of 19.804 cfs. The Hart-Haight diversion rights are reduced to 2.130 cfs during the winter season (November to March 1), while the Evans Spring & Martin Spring rights are reduced to 2.355 cfs during the winter (**Appendix A**).

The Hart-Haight diversion serves both the Hart Ranch and the neighboring Cowley Family Ranch and was established prior to 1914 and is known to be in excess of 100 years old and is located on the Little Shasta River at RK 18.5. The existing diversion structure is as described above in the Fish Passage component of the Project. The Evans diversion solely serves the Hart Ranch and was established prior to 1914 and is known to be in excess of 160 years old. The existing Evans diversion structure consists of an earthen ditch along the toe of the spring.

Water rights are utilized for irrigation and stockwater needs for the existing cattle ranch and are for immediate use and do not require the use of a permanent or temporary reservoir. In general, irrigation begins in late March to early April and is typically suspended in October, however, stock water rights allow the continued diversion of surface water throughout the winter for livestock drinking water. The Ranch currently exercises it's entire right for irrigation and stockwater as needed.

Proposed Improvements

The proposed project will allow for continued operation, maintenance and repair of the two existing diversions that serve the Hart Ranch consistent with 1600 Notification as received by CDFW on July 7, 2016. The existing Hart-Haight diversion (Notification No 1600-2016-0314-R1 Hart Cattle LLC and Cowley Family Ranch) will be reconstructed as discussed above in the Fish Passage component of the Project. No modifications are planned for the Evans Spring diversion structure beyond ongoing maintenance and repair (Notification No. 1600-2016-0315-R1, Hart Cattle LLC).

The Project will support the execution of the proposed Draft Hart Ranch SHA which is currently under negotiation and potential approval by NOAA Fisheries (subject to NEPA at time of approval) & consistency determination by CDFW once Federally approved. The Project once funded and completed will allow for an initial contribution up to 1.5 cfs of cold water dedicated instream through long-term dedication under California Water Code Section 1707 of the Hart's existing water right. This water will enhance year round flows starting at the Hart Diversion Structure (RK 18.5) in the foothills reach of the Little Shasta River and could benefit the outmigration of juvenile coho salmon from April 1 through June 30, if and when coho salmon enter the foothills reach. This total instream dedication of up to 1.5 cfs will be achieved through a combination of on-farm water efficiency and water management improvements (0.5 cfs), and voluntary flow contributions (up to 1.0 cfs) from existing priority water rights held by the Hart Ranch. The Ranch's entire water right (19.804 cfs) will be modified to add instream use as an authorized purpose, and the entire right less the initial dedication of up to 1.5 cfs, will be available for potential permissive dedication as a result of the 1707 process, allowing the water to be legally dedicated and protected for fish and wildlife and riparian benefit on an as-needed basis (**Appendix A** includes a summary of the Hart Ranch legally appropriated water rights as set forth in the 1932 Shasta River Judgement and Decree). The Draft Hart Ranch SHA further describes these instream dedications of existing decreed water rights on the Little Shasta River (NOAA Fisheries, 2016).

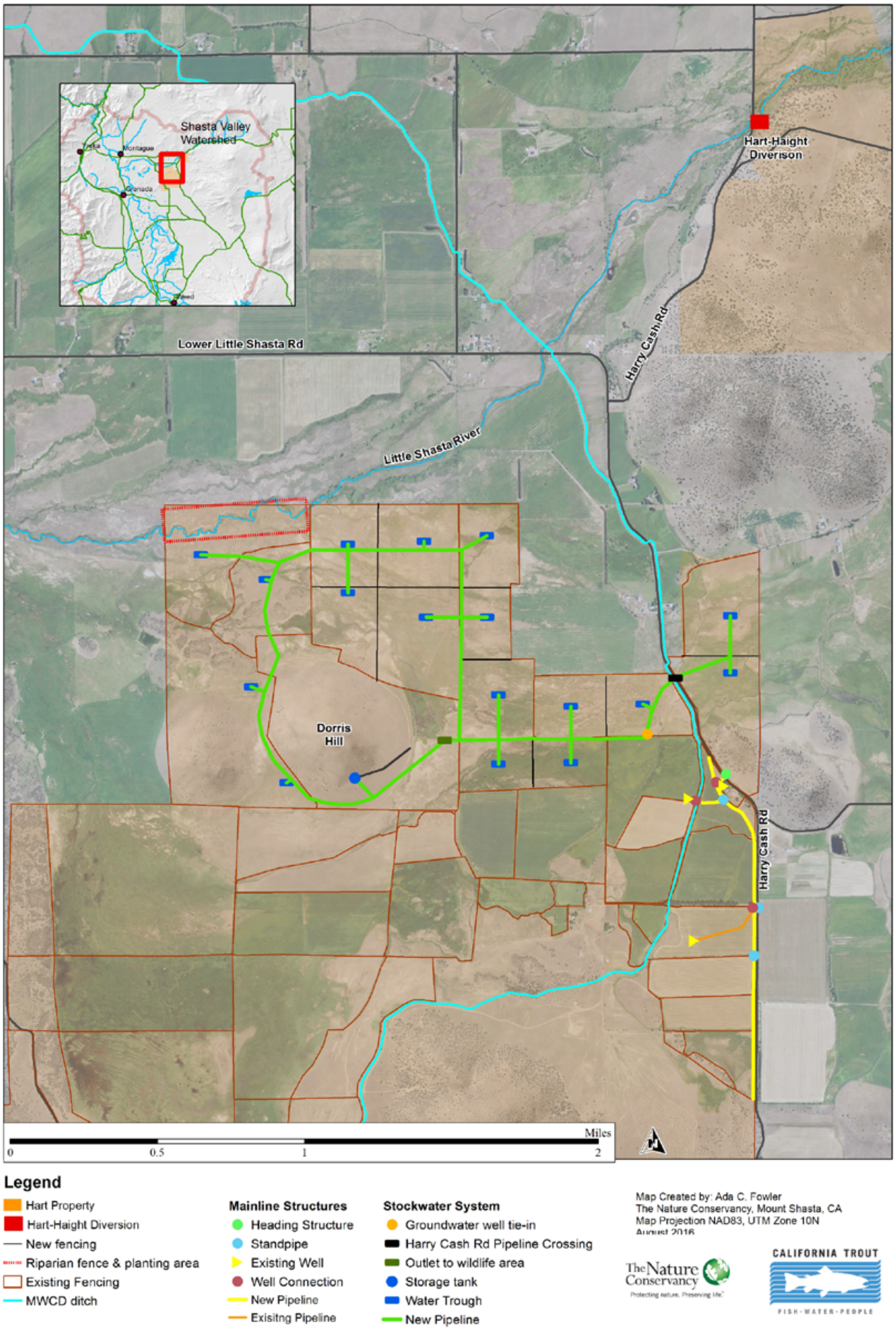
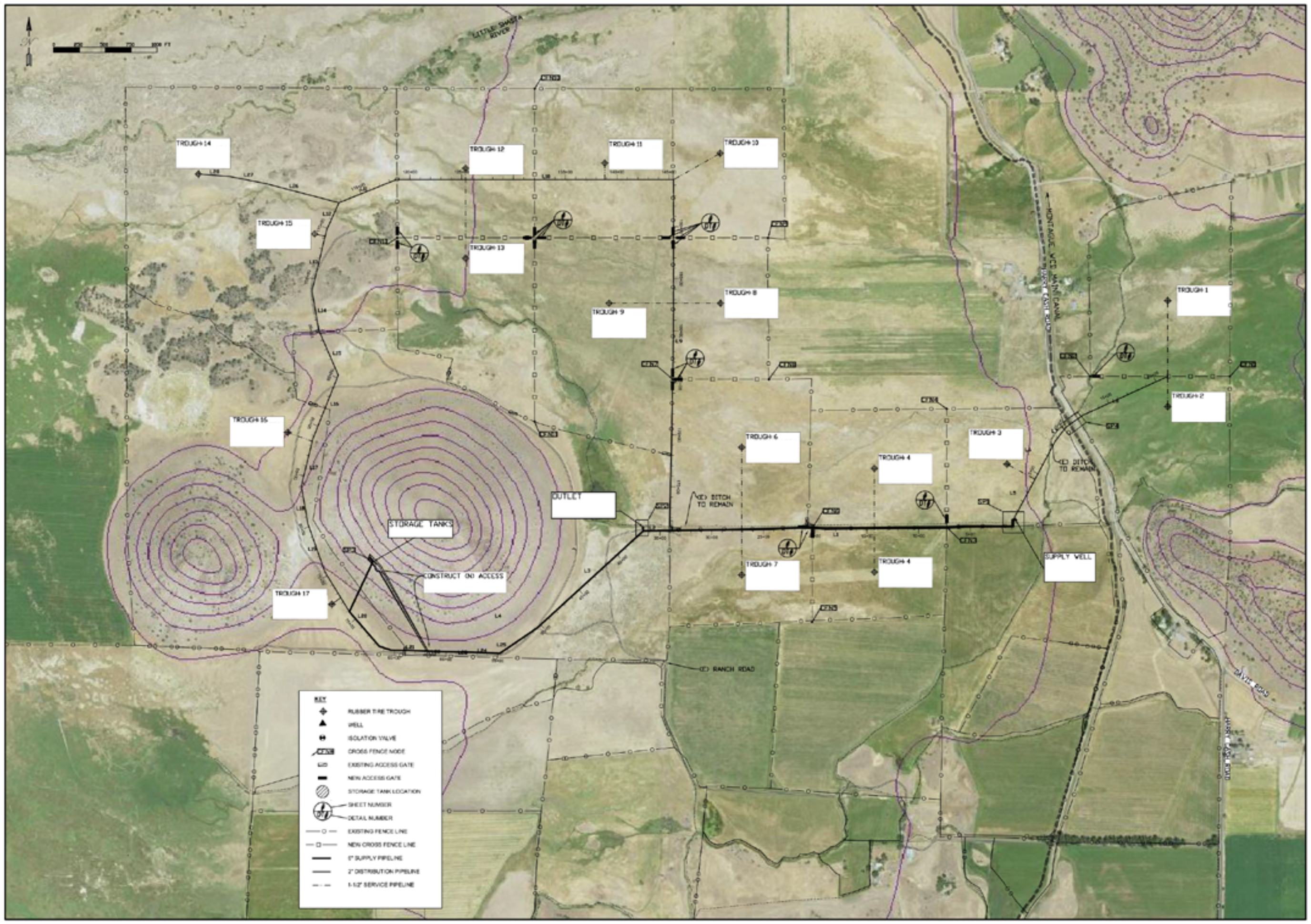


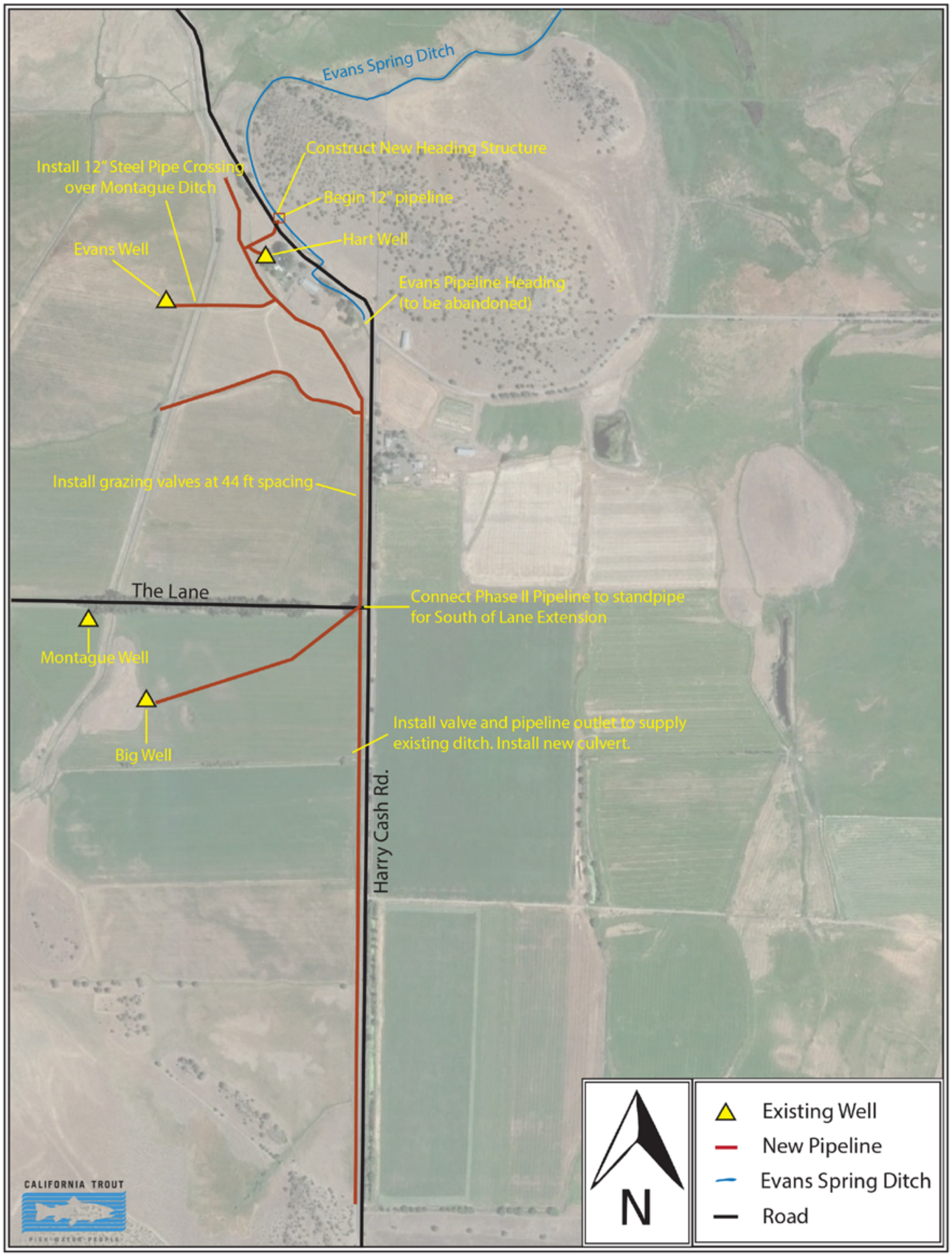
Figure 1. Project Location



CALIFORNIA TROUT Locations are approximate. Not to scale.

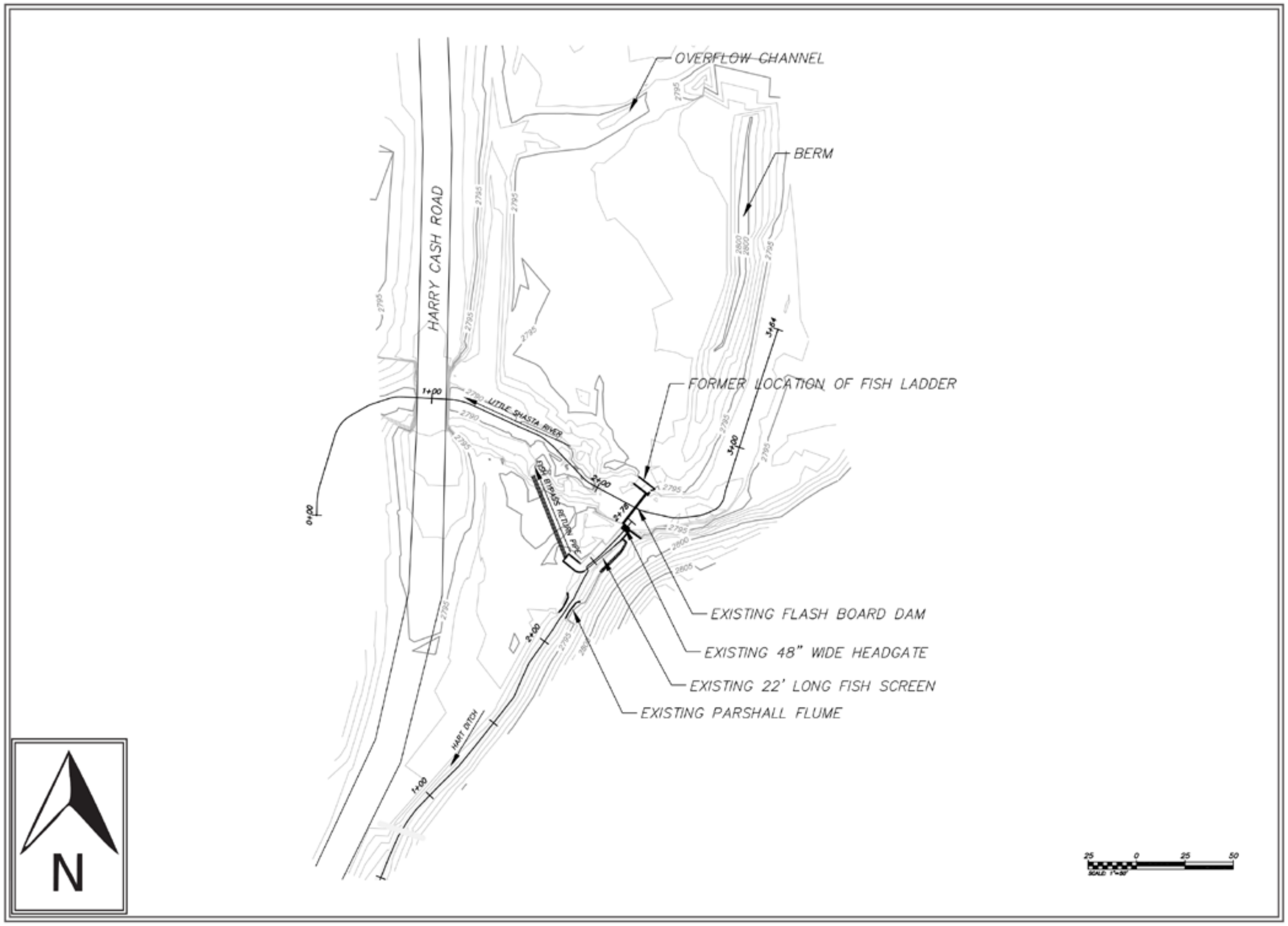
FISH · WATER · PEOPLE

Figure 2. Stockwater Improvements



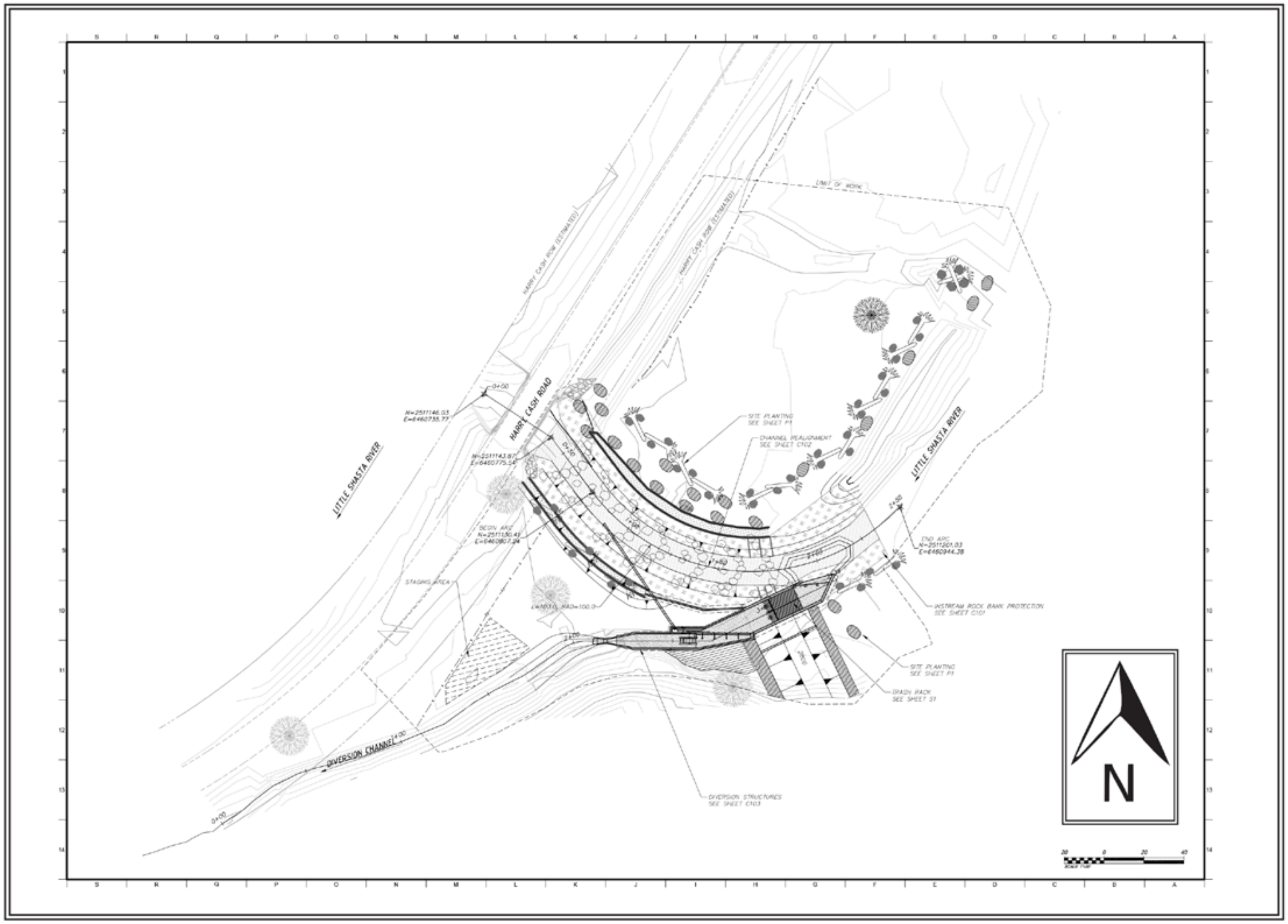
Locations are approximate. Not to scale.

Figure 3. Mainline Pipe Replacement



Locations are approximate. Not to scale.
Figure Source: nhc, California Trout

Figure 4 a. Fish Passage Existing Conditions



Locations are approximate. Not to scale.
Figure Source: nhc, California Trout

Figure 4 b. Fish Passage Improvement

3.3 PROJECT MONITORING

Monitoring for this project will focus on quantifying pre-implementation baseline conditions, the response to implemented flow enhancement actions, and how the changes are protected for the project reach of the Little Shasta River. Monitoring activities provide the basis of long-term (e.g., 20-year) monitoring for project performance, and may be adapted given changes in stream conditions or water management activities.

Streamflow – Streamflow monitoring methods are designed to confirm compliance of instream flow dedications using measured data. Monthly measurements, with additional data collected on an event-based schedule, will be used to develop streamflow rating curves for each monitoring site. Streamflow time series records will be developed based on standard USGS streamflow monitoring protocols established in Rantz (1982). On-going research shows that channel changes due to winter flows may alter the stage-discharge relationship at priority locations; thus, streamflow measurements will be repeated each year of the project to update rating curves.

Geomorphology – Each year, topographic surveys will occur at the project site riffle crest to confirm that the project design meets passage requirements for applicable coho life stages, as established in *Critical Riffle Analysis for Fish Passage in California. California Department of Fish and Game Instream Flow Program Standard Operating Procedure DFG-IFP* (CDFG, 2012). Evidence of channel-altering flows, may result in event-based topographic monitoring as well. Using both topographic data and streamflow records generated during project implementation, a quantitative relationship between river discharge and percent of contiguous channel width at the project riffle will be developed.

Aquatic habitat – Prior to project implementation, aquatic habitat monitoring will be used characterize available habitat in the project reach using methods developed by the California Department of Fish and Wildlife (Flosi et al. 2010). Project implementation is not expected to alter the distribution of existing habitats.

Water temperature – Water temperature data will be collected using automated data loggers on a sub-hourly timestep for the duration of the project. Monitoring protocols will follow U.S. EPA guidelines (EPA, 2014). Water temperature conditions for coho salmon life stages will be evaluated using criteria established in EPA (2003).

Water quality (nutrients) – Water quality grab samples will be analyzed for a suite of nutrients, including TN, NO3, NH4, TP, PO4, DOC; as well as pH, turbidity, and EC. These constituents will be analyzed to inform linkages between physical, chemical, and ecological function in the Little Shasta River. Specifically, these linkages will be analyzed to qualitatively assess potential productivity for coho salmon in the project area. Sampling methods, including QA/QC procedures, will follow the guidelines established by the Surface Water Ambient Monitoring Program (SWAMP 2014 , 2008).

Macroinvertebrates – Macroinvertebrate samples will be collected prior to and after project implementation above and below the project site. Sampling will follow standard operating procedures for the collection of benthic macroinvertebrate samples following the *Surface Water Ambient Monitoring Program Bioassessment Procedures for Wadeable Streams* (SWAMP, 2014). Stream macroinvertebrates will be collected using a 500 µ mesh D-frame net, preserved in ethanol and returned to the laboratory for processing. Macroinvertebrate samples will be subsampled in the laboratory and identified to lowest practical level. Trends in quantifiable metrics throughout the project period will be assessed to determine biological response of stream conditions to project implementation. Invertebrate sampling requires biological permitting; all permits are or will be secured prior to any biological monitoring associated with the project, and will be maintained for the duration of the project.

Fish presence/absence – Adult and juvenile presence/absence monitoring will be conducted prior to and after project implementation using non-intrusive methods at delineated reaches above and below the project site. Adult spawning surveys will occur twice monthly between September 1st and December 1st of each year to coincide with adult returns. Spawning surveys will be conducted along the length of the entire project reach upstream of the project site to assess adult presence. Walking the project reach, the presence and location of adult anadromous salmonids (live or carcasses) or redds will be recorded using a GPS and mapped following the methods of Gallagher (2001). Snorkel surveys will be conducted prior to and after project implementation at three reaches above the project site to determine the presence or absence of juvenile fishes and habitat usage within each reach (e.g., pool, riffle, large woody debris). Monitoring reaches will be delineated based on geomorphic classes to include at least four riffle-pool sequences per monitoring reach. Snorkel surveys will be conducted twice monthly (depending on hydrologic conditions) between April and September, annually. Snorkel surveys will be conducted following the procedures of Apperson et al. (2015). Snorkel surveys require biological permitting; all permits are or will be secured prior to any biological monitoring associated with the project, and will be maintained for the duration of the project.

3.4 Project Construction

Construction Timing

Construction of the proposed Project is anticipated to be phased over the next five years with construction beginning in 2017 and the Project being complete by the end of 2021. Instream construction activities will be completed between June 15 and November 1 to reduce impacts to listed species known to occur in the Little Shasta River. However, the work timeline will be coordinated in advance with CDFW and NOAA Fisheries, and is subject to modification. Phases of construction may be accelerated or delayed based on design progress, environmental conditions, special status species presence, available funding, or other factors.

Construction Methods

General construction will be performed between 7 am and 7 pm Monday through Saturday, excluding holidays. Project activities have existing two-track dirt road access routes, County road access routes, or are located in active agricultural areas. All instream work will be limited to June 15-November 1 and will be consistent with the Biological Opinion issued by the NOAA Fisheries (2012) and the SONCC Recovery Plan (NOAA, 2014). Dewatering for in-stream work is required and will be consistent with conditions of a new Lake and Streambed Alteration Agreement for work and the NOAA Biological Opinion, and is anticipated to require use of a temporary coffer dam and temporary diversion pipe. The stream channel is anticipated to be dewatered for approximately 6 weeks.

Construction equipment is anticipated to include, but is not limited to, backhoes, excavator, bulldozer, skip loader, dump truck, cement truck, pick-up trucks, welder, chainsaw, and hand tools. As the Project is located on active cattle ranches, all existing fencing will be replaced following construction, and cattle may be present during construction. Project contractors will work closely with land owners to coordinate livestock activities with construction activities.

3.5 Required Permits and Approvals

The following permits and/or approvals may be required to implement the proposed Project:

U.S. Army Corps of Engineers (ACOE)

The U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into Waters of the United States, including wetlands, under Section 404 of the Clean Water Act. Modifications to wetland areas on the Project site that have been delineated under ACOE criteria are subject to the Section 404 permitting process.

The ACOE regulations describe two categories of permits: individual and general. A general permit means that the ACOE authorization is issued on a nationwide or regional basis for activities with minimal or cumulative environmental effects. The most well-known of the general permits are nationwide permits (NWP). Such permits can be issued in a shorter length of time than an individual permit. An individual permit means that the ACOE authorization is issued on a per-project basis for activities with a larger environmental effect. Such permits usually are issued in 6-24 months' time. Section 404 permits from the ACOE may be required for the Project and are anticipated to be satisfied through project partnership with the US Fish and Wildlife Service Partners Nationwide 27 or 31 Permit process.

REGIONAL WATER QUALITY CONTROL BOARD (RWQCB), NORTH COAST REGION

The RWQCB typically requires that a Construction Storm Water Permit (Construction General Permit) be obtained for projects which result in land disturbance of one acre or more. If obtained, typical conditions issued with such a permit include the submittal of and adherence to an erosion control plan, prohibitions on the release of oils, grease or other hazardous materials, and prohibition of sediment discharge. The Project is anticipated to require a Construction General Permit.

The RWQCB also issues a Water Quality Certification under authority of Section 401 of the Clean Water Act. After submittal of a Pre-Construction Notification Package to the ACOE, the project proponent would need to submit a copy of the Section 404 Notification and appropriate fees directly to the RWQCB to obtain the Section 401 Water Quality Certification or waiver. Section 401 permits from the RWQCB may be required for work associated with fish passage improvements along the Little Shasta River.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The Department of Fish and Wildlife is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the law requires any person, state or local governmental agency, or public utility to notify the Department before beginning an activity that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake (Fish and Game Code section 1602). If the Department determines that the activity could substantially adversely affect an existing fish and wildlife resource, including through diversion, a Lake or Streambed Alteration Agreement is required. A new Streambed Alteration Agreement will be secured for this Project, including construction, operation, and maintenance of the new water management infrastructure.

The California Endangered Species Act (CESA) Section 2081 subdivision (b) of the Fish and Game Code allows CDFW to issue an incidental take permit for a species listed as candidate, threatened, or endangered only if specific criteria are met. These criteria are reiterated in Title 14 of the California Code of Regulations, Sections 783.4 subdivisions (a) and (b). Measures to minimize the take of species covered by the permit and to mitigate the impacts caused by the take will be set forth in attachments to the permit, generally a mitigation plan prepared and submitted by the Permittee in coordination with CDFW staff. The mitigation plan should identify measures to avoid and minimize the take of CESA-listed species and to fully mitigate the impact of that take. These measures can vary from project to project. Currently, the Project is not anticipated to require a CESA incidental take permit.

Authorization for any take of coho salmon associated with the Project will occur via the Draft Hart Ranch SHA. Any person that prepares a SHA and obtains an enhancement of survival permit from NOAA Fisheries, in accordance with the procedural and substantive requirements of section 10(a)(1)(A) of the Endangered Species Act (ESA) of 1973, as amended, authorizing the incidental take of an endangered or threatened species that is also listed under CESAmay also request and obtain, a consistency determination, pursuant to Fish and Game Code section 2080.1. Because coho salmon are listed under both ESA and CESA, the Hart Ranch intends to seek and obtain an consistency determination from CDFW upon NOAA Fisheries approval of the Draft Hart Ranch SHA and issuance of an enhancement of survival permit. Because the Project is related to the Draft Hart Ranch SHA, it is anticipated that the CDFW consistency determination will be needed to complete the Project, pursuant to Fish and Game Code Sections 2089.6, 2089.22, and 2080.1.

No Section 2081(b) permit may authorize the take of "fully protected" species and "specified birds". If a project is planned in an area where a fully protected species or a specified bird occurs, an applicant must design the project to avoid all take; the Department cannot provide take authorization for the species under CESA. A Take Permit from the CDFW will probably not be required for relocation of special status species prior to and during project construction. Coho are currently not known to be present in this reach of the Little Shasta River. Prior to construction, a snorkel survey will be completed by a qualified biologist to determine coho presence. If coho are present, fish will be removed from the work area by CDFW, or by a permitted individual with authorization to take coho, and block nets consisting of fine-meshed net or screen shall be installed in-channel above and below the work area.

STATE WATER BOARD SENATE BILL 88

In June 2015 Governor Brown signed Senate Bill (SB) 88 defining Emergency Regulation for Measuring and Reporting Water Diversions. In January 2016, the State Water Board adopted a Resolution to implement the new law and in March 2016, the regulation was submitted to the Office of Administrative Law (OAL) for review and approved. The measurement requirements of the regulation apply to all water right holders who divert more than 10 acre-feet of water per year. The annual reporting requirements in the regulation apply to all statement holders as well as persons authorized to appropriate water under a permit, license, registration (small domestic, small irrigation, or livestock stockpond), or certificate for livestock stockpond use). Key provisions of the regulation include (1) annual water use reporting requirements for water rights holders; (2) reporting requirements for water right holders during times of insufficient supply; (3) deadline for complying with measurement and reporting requirements; (4) required accuracy for measurement and frequency monitoring; (5) measurement methods; (6) alternative compliance; and (7) certification of water measurement devices.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

NOAA Fisheries is a division of the Department of Commerce, responsible for the stewardship of the nation's living marine resources and their habitat. NOAA's National Marine Fisheries Service is responsible for the management, conservation and protection of living marine resources within the United States' Exclusive Economic Zone (water three to 200 miles offshore). Using the tools provided by the Magnuson-Stevens Act, NOAA's National Marine Fisheries Service assesses and predicts the status of fish stocks, ensures compliance with fisheries regulations and works to reduce wasteful fishing practices. Under the Marine Mammal Protection Act and the Endangered Species Act, NOAA Fisheries recovers protected marine species without unnecessarily impeding economic and recreational opportunities.

In 2012 NOAA Fisheries finalized a programmatic Biological Opinion consistent with Section 7 of the Endangered Species Act, to fund, permit (or both), restoration projects within the NOAA Restoration Center’s Northern California Office jurisdictional area for a ten year period (ending in 2022). The NOAA RC program includes the funding, permitting, or both, of restoration projects in Humboldt, Del Norte, Trinity, Siskiyou, and part of Mendocino counties. Proposed restoration projects are categorized as follows: instream habitat improvements, instream barrier modification for fish passage improvement, bioengineering and riparian habitat restoration, upslope watershed restoration, removal of small dams, creation of off-channel/side channel habitat features, development of alternative stockwater supply, tailwater collection ponds, water storage tanks, piping ditches, fish screens, and head gates, and water measuring devices. The proposed Project is consistent with the NOAA RC programmatic Biological Opinion.

U.S. FISH AND WILDLIFE SERVICE

The Endangered Species Act, with some exceptions, prohibits activities affecting threatened and endangered species unless authorized by a permit from the U.S. Fish and Wildlife Service (Service) or the NOAA Fisheries.

The Migratory Bird Treaty Act makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. The migratory bird species protected by the Act are listed in 50 CFR 10.13. As authorized by the Migratory Bird Treaty Act, the U.S. Fish and Wildlife Service issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, educational, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The proposed Project is not expected to require a Biological Opinion from the U.S. Fish and Wildlife Service.

SISKIYOU COUNTY PUBLIC WORKS DEPARTMENT

The Public Works Department is responsible for the construction and maintenance of County facilities and grounds, including roadways and bridges, within the unincorporated areas of Siskiyou County. The Department of Public

Works also provides engineering and surveying services for The County. An encroachment permit is required for actions within County Right of Ways.

SISKIYOU COUNTY BUILDING DIVISION

The Building Division of the Siskiyou County Community Development Department has authority over projects within a flood zone as defined by Title 10, Chapter 10 of the Siskiyou County Municipal Code. Chapter 10 applies to all areas of special flood hazard within the jurisdiction of the County and identified by special flood hazard maps. The purpose of this Chapter of the Municipal Code is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions, modification of a flood zone, habitation of a flood zone, and other provisions, and therefore a Development Permit is required for actions within those areas defined in Chapter 10.

3.6 RELATIONSHIP OF PROJECT TO OTHER PLANS

SISKIYOU COUNTY GENERAL PLAN

The *Siskiyou County General Plan* [*General Plan*] is the fundamental document governing land use development within the unincorporated areas of the County, including the Project area. The majority of the General Plan was last updated in 1974, while the Land Use and Circulation Element of the *General Plan* was last updated and adopted in 1980.

The County's General Plan includes numerous goals and policies pertaining to Land Use, Circulation, Housing, Conservation, Open Space, Parks and Recreation, Noise, Public Health and Safety, and Public Facilities. The proposed Project will be required to abide by all applicable goals and policies included in the County's adopted General Plan.

The Land Use Element of the Siskiyou County General Plan is prepared differently from many contemporary approaches in land use planning, and involves the preparation of a series of overlay maps identifying development constraint areas, contrary to many general plans which identify Land Use designation. Therefore, the Siskiyou County General Plan does not assign land use designations, but rather through the utilization of overlay maps identifying development constraints, identifies areas where specific activities or developments would be inconsistent with county specified or natural constraints..

The majority of the Shasta Valley is unmapped by the Land Use and Circulation Element constraints maps, with the exception of some areas of the valley that are mapped for high septic tank limitations (General Plan Land Use and Circulation Element, maps 1 through 14). There are no inconsistencies between the Project and the County General Plan.

BASIN PLAN FOR THE NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD

The Project area is within the jurisdictional boundaries of the North Coast Regional Water Quality Control Board (RWQCB), one of nine regional boards in the state. The North Coast RWQCB, with an office in Santa Rosa, develops and enforces water quality objectives and implementation plans that safeguard the quality of water resources in its region. Specifically, the RWQCB identifies and assesses potential water quality problems, remedies existing problems through imposing or enforcing appropriate measures, and monitors problem areas to assess the effectiveness of remediation measures. Remedies for problems include their prevention or cleanup. Common means of prevention are the issuance of National Pollution Discharge Elimination System (NPDES) permits, waste discharge requirements (WDRs), and discharge prohibitions and restrictions. Cleanup is implemented through enforcement measures such as Cease and Desist Orders and Cleanup and Abatement Orders.

One of the duties of the RWQCB is the development of "basin plans" for the hydrologic area over which it has jurisdiction. In May 2011, the North Coast RWQCB issued the latest edition of its *Water Quality Control Plan for the North Coast Region*, also known as the Basin Plan. The Board periodically reviews and updates the Basin Plan as needed to address new or changing water quality issues; this review was most recently completed in 2014. The Basin Plan covers both the Klamath River Basin and the North Coastal Basin. It sets forth water quality objectives for both surface and ground waters for the region, and it describes implementation programs to achieve these objectives. The Basin Plan provides the foundation for the regulations and enforcement actions of the North Coast RWQCB. This Project is consistent with the goals of the Basin Plan.

SHASTA RIVER TEMPERATURE AND DISSOLVED OXYGEN TOTAL MAXIMUM DAILY LOAD (TMDL) ACTION PLAN

The Shasta River Temperature and Dissolved Oxygen Total Maximum Daily Load (TMDL) Action Plan was adopted by the California Regional Water Quality Control Board, North Coast Region in June of 2008. The TMDL amends the Water Quality Control Plan for the North Coast Region to establish new requirements to improve water quality and stream conditions for beneficial uses including habitat for salmon and steelhead trout in the Shasta River watershed.

The Shasta River TMDL is a long term strategy to improve water quality and enhance salmon and steelhead habitat in the Shasta River. Currently, low dissolved oxygen levels and high stream temperatures are impacting fish habitat. Salmon and steelhead in the Shasta Basin need cold, clean water to thrive.

The TMDL Action Plan includes temperature and dissolved oxygen total maximum daily loads (TMDLs) and describes the implementation actions necessary to achieve the TMDLs and attain water quality standards in the Shasta River watershed. The goal of the Shasta River TMDL Action Plan is to achieve the TMDLs, and thereby achieve dissolved oxygen and temperature related water quality standards, including the protection of the beneficial uses of water in the Shasta River watershed.

The TMDL recognizes that ranching activities may impact water quality, and recognizes that there are a number of management activities and practices that can be undertaken to minimize impacts, including:

- Installing exclusionary fencing to prevent livestock from damaging streams and riparian vegetation.
- Planting/maintaining riparian vegetation to help shade streams to cool water temperatures.
- Reducing tailwater discharges.
- Minimizing water contact with animal manure.
- Dedicating cold water to the river where opportunities are available

The TMDL Action Plan contains measures for improving water quality in the Shasta River and asks that all landowners in the Shasta River watershed who graze livestock or irrigate their land submit annual progress reports to the North Coast Water Board. The proposed Project is consistent with the Shasta River TMDL Action Plan.

SHASTA RIVER WATERSHED PLAN

The *Shasta River Watershed Plan* was prepared by the Shasta River Coordinated Resource Management and Planning Committee (CRMP) and is implemented by the Shasta Valley Resource Conservation District. The plan includes the Shasta CRMP Riparian Zone and Anadromous Fish Action Plan, California Department of Fish and Game Anadromous Fish Biological Needs Assessment, Shasta CRMP Uplands Plan/RMAC Plan, Yreka Creek Greenway Plan, CRMP mid-term goals, work plan, original CRMP plan, Shasta River Remote Monitoring Station, Sport, tribal and commercial Salmon Harvest Information and a discussion of the unique Shasta Valley Geology.

The Shasta CRMP Riparian Zone and Anadromous Fish Action Plan was developed to identify opportunities to improve salmon and steelhead numbers in the Shasta River. The plan identifies problems as well as recommends action to alleviate problems associated with water, erosion, fish needs, fishery harvest, and the Klamath River. The proposed Project supports a number of the identified actions in the Shasta River Watershed Plan to address identified impacts to water quality.

4 Environmental Checklist

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
1. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Overview:

The Shasta Valley is an 800-square-mile basin drained by the Shasta River, located in central Siskiyou County in far northern California. The Shasta River drains northward through the valley to join the Klamath River near the Oregon border. A large high elevation plain comprises the valley which is surrounded by mountains in the Klamath National Forest on the west and north, the Mount Eddy range to the southwest, 14,179 foot Mt. Shasta, a dormant volcano, to the south, and the Cascade mountain range to the east. These mountains rise 300-11,000 feet above the valley, and provide a scenic backdrop throughout the Shasta Valley. The nearby mountain ranges are covered with pine forests and oak, while the higher slopes of Mt. Shasta are covered in glaciers which are visible from the valley. The higher slopes of the mountain are covered in snow throughout the winter months. These views are readily seen from the entire valley and are clearly visible from Interstate 5 which runs north-south through the western part of the valley. State Route 97, which is part of the Volcanic Legacy Scenic Byway All-American Road, traverses the southeastern edge of the valley. Land throughout the valley accommodates agricultural uses, mostly grazing and hay production.

Discussion of Checklist Answers:

a) The Project will be located at an existing cattle ranch in the northern portion of the Shasta Valley, along the Little Shasta River. Project activities are limited to existing privately-owned agricultural lands, County roadway alignments, irrigation alignments, and along a limited reach of the Little Shasta River. Although temporary impacts will be present during construction, and some construction activity will be visible from County roads, all improvements and construction corridors will blend into the existing agricultural and riparian scenery within a few years of completion once annual and perennial grasses colonize the disturbed areas and Project riparian vegetation is established. While there will be temporary changes in views from roadways associated with construction these changes are not considered to be substantial or adverse, and no long term impacts to scenic vistas will occur. Within a few years after completion, the natural vegetation will have re-established itself and the resulting visual impact will be ***less than significant.***

b) The Project may include limited vegetation removal activities, primarily limited to generally non-native annual and perennial grasses within existing pastures. The Project may include felling of up to 20 juniper trees from uplands on the Hart Ranch. Riparian vegetation removal at the Fish Passage location along the Little Shasta River will be necessary to complete improvements, though planting and mulching of this area following construction is included as part of this Project. Riparian vegetation removal and post construction planting is discussed in Section 4, Biological Resources, of this document. Although Highway 97 is a Scenic Byway All-American Road, no designated scenic highways exist within the Project area, therefore there will be ***no impact*** to designated scenic highways (Caltrans, 2016).

c) Please see a) above. This impact is considered ***less than significant.***

d) The project does not include any new lighting. New sources of glare may include two water tanks on the southeast side of Dorris Hill, though the new tanks will be painted earth tones to blend with the surrounding landscape and limit glare. This impact is considered to be ***less than significant.***

Conclusions Relating to Aesthetics:

The proposed Project will have temporary impacts to the existing views within the immediate Project area due to ground cover removal, grading, and Project construction. Once the Project is complete, and with the passage of a few years, the vegetation will establish itself and the viewshed will be similar to that of today. As the visual impacts are considered temporary, and the project is located primarily on private lands with no public access, impacts to aesthetics is considered ***less than significant***.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
2. AGRICULTURE & FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 122200(g)), timberland (as defined by Public Resources Code section 4625), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Overview:

Although the Project is located within existing agricultural lands, the Project is intended to improve irrigation efficiencies in an effort to enhance existing agricultural practices and protect the long-term viability of agriculture by helping agricultural landowners meet Clean Water Act and Endangered Species Act requirements. None of the Project components will result in the conversion of agricultural lands to non-agricultural uses. The Project footprint for each component is relatively small, and Project improvements largely consist of underground improvements all of which will improve agricultural water management and existing irrigation systems. None of these activities will result in changes to the environment which may result in conversion of Farmland to non-agricultural use. The Project is not located on or within the vicinity of any lands identified as forest land or timberland.

Discussion of Checklist Answers:

a) The Project is entirely within existing farmlands throughout the Shasta Valley, some of which are identified as Prime Farmland and Farmland of Statewide Importance by the CA Department of Conservation Farmland Mapping and Monitoring Program (FMMP, 2016). Although the Project activities include excavation and irrigation improvements, including the installation of underground pipelines and irrigation diversion and control modifications, project activities will not result in the conversion of any farmland to non-agricultural use. The Project is intended to improve agricultural water management efficiencies and opportunities in order to improve existing active farmland. The Project will not result in the conversion of Prime Farmland or Farmland of Statewide Importance to non-agricultural use; rather the Project will enhance existing agricultural lands. ***No impact.***

b) The Project is intended to improve water management efficiencies, opportunities, and fish passage within the Little Shasta River. The Project will not conflict with the existing zoning and will not conflict with a Williamson Act Contract. The Project will enhance existing agricultural lands. ***No impact***.

c) The Project is consistent with the existing agricultural zoning. No forest land or timberland exists within the Project vicinity. ***No impact***.

d) See c) above. The Project is not located within the vicinity of forest land, therefore no conversion of forest land to non-forest use will occur. The Project may include the removal of up to 20 juniper trees from uplands to be utilized for bank stabilization along the Little Shasta River and riparian vegetation removal. Tree removal will be isolated and is not considered to result in the loss of or conversion of forest land. ***Less than significant.***

e) The Project will not result in any other changes to the existing environment, which due to their location or nature, could result in the conversion of Farmland to non-agricultural. The Project is intended to improve water management efficiencies, thereby improving existing agricultural lands. No forest land will be converted as a result of the Project. ***No impact***.

Conclusions Relating to Agricultural and Forest Resources:

Since the Project is located on agricultural lands and is intended to improve irrigation efficiencies and management, the Project will result in a net benefit to active agricultural lands, and will not result in the conversion of lands to non-agricultural or timber uses. There will be a net benefit to agricultural land as a result of the Project and impacts are considered ***less than significant.***

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Overview:

The Shasta Valley is located in a region identified as the Northeastern Plateau Air Bain, which principally includes Siskiyou, Modoc, and Lassen Counties. The larger air basin is divided into local air districts, which are charged with the responsibility of implementing air quality programs. The local air quality agency affecting the Project area is the Siskiyou County Air Pollution Control District (SCAPCD). Within the SCAPCD, the primary source of air pollution is motor vehicles. In response to this source of pollutants, the state legislature adopted the California Clean Air Act, which requires local air districts to develop measures to reduce emissions from mobile sources, such as vehicles.

Air quality standards are set at both the state and the federal levels of government. The Federal Clean Air Act requires the Environmental Protection Agency (EPA) to establish ambient air quality standards for six criteria air pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter less than 10 microns (PM_{10}) Areas that exceed a standard for a pollutant are classified as being in "non-attainment" for that pollutant and must prepare a plan to reach attainment. When the pollutants within an area are below the allowed standards, that area is considered to be in attainment of the standards.

Siskiyou County Air Pollution Control District air quality monitoring stations are located in Yreka and at the Siskiyou County Airport. The Yreka monitoring station, located on Foothill Drive, is the only station in the County that monitors levels for ozone and particulate matter as mandated by the State and Local Air Monitoring System. The Yreka monitor continuously analyses and records ambient ground-level ozone concentrations. Data is checked for errors, processed, and reported to the California Air Resources Board (CARB) quarterly. Precision checks are made and recorded regularly to insure data integrity. Particulate matter less than 2.5 microns (PM2.5) in diameter is monitored in Yreka. Once every six-days the District exposes pre-conditioned filters for 24-hours and returns the filters to the CARB PM analysis laboratory to calculate particulate mass concentrations and report to the Environmental Protection Agency (EPA). A continuous PM2.5 monitor in Yreka is under development that will eventually replace the 1-in-6-day monitor.

Siskiyou County has not been identified as having significant air quality problems and is considered to have attained all federal and state air quality standards. The County is considered to be in full attainment for all Federal and State standards for ambient air quality. The Siskiyou County Air Pollution Control District does not have an attainment plan or maintenance plan (Olson, 2016).

Offensive odors rarely cause any physical harm; however, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Odor impacts on residential areas and other sensitive receptors, such as daycare centers and schools, are of particular concern. Major sources of odor-related complaints by the general public commonly include wastewater treatment facilities, landfill disposal facilities, food processing facilities, agricultural activities, and various industrial activities (e.g., petroleum refineries, chemical and fiberglass manufacturing, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations).

A sensitive receptor is a location where human populations, especially children, seniors, and sick persons are present and where there is a reasonable expectation of continuous human exposure to pollutants. Examples of sensitive receptors include residences, hospitals, and schools. The closest sensitive receptors are rural residences that are within proximity to agricultural operations.

Project Emissions

Short Term Impacts: Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but possess the potential to present an air quality impact. The construction and development of the proposed Project components would result in the temporary generation of emissions resulting from excavation, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment and materials. It is expected that the Project will be implemented with the use of standard construction equipment including, but not limited to excavators, backhoes, dump trucks, cement trucks, and hand tools. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities. The Project is anticipated to be phased over three (3) years with construction phases lasting between 6 and 8 weeks.

Long Term Impacts: The Project is primarily an infrastructure project, consisting of improvements to existing agricultural irrigation systems, and will result in temporary air quality impacts during construction. Long term impacts consist of the operation of a new booster pump, and regular operation of the associated well and pump to supply the stockwater system. The booster pump will be used to supply the new elevated storage tanks for the stockwater system. The electrical need of this pump is 480V and about 2 amps. Assuming the booster pump operates for approximately 9 hours per day, total estimated annual electrical usage is 1,800 kw-h. The booster pump will draw water from an intermediate storage tank that will be filled using the existing groundwater well. The well will also be plumbed to supply the wetland area northeast of Dorris Hill that is utilized by sandhill cranes (Ostrowski, 2016). The existing electrical service to this pump is sufficient to operate the existing well and the new booster pump. New flow meters for the stockwater, mainline, and diversion structure will be solar or battery operated and are not considered a potential source of long-term GHG emissions.

Discussion of Checklist Answers:

a) Siskiyou County is part of the Northeast Plateau Air Basin. The Basin currently has no air quality plans by which jurisdictions within must abide (Olson, 2016). Therefore, the Project will have ***no impact*** on an air quality plan.

b) Siskiyou County is currently in full attainment for all criteria pollutants (Olson, 2016). Implementation of the proposed Project may result in increases in short-term emissions pollutant concentrations at nearby receptors as a result of construction activities, including dust and construction vehicle emissions. The Project will result in minor long-term increases in emissions and pollutants from the new electric booster pump (additional 1,800 kw-hr per year), and flow meters which will be battery or solar operated. To minimize impacts from short-term emissions at nearby receptors during construction, **MM 3.1,** is provided. As Siskiyou County is in full attainment, with implementation of **MM 3.1** impacts would be considered ***less than significant with mitigation incorporated***.

c) See b) above. The Project area is in full attainment for all criteria pollutants. **MM 3.1** will reduce project construction impacts to a level that is considered to be ***less than significant with mitigation incorporated.***

d) Portions of the proposed Project are located within proximity to single family residences. Air Quality impacts are considered to be minor and temporary in nature, as they are directly related to construction activities. Incorporation of **MM 3.1** will reduce impacts to sensitive receptors to levels that are considered to be ***less than significant with mitigation incorporated.***

e) The Project is located within the Shasta Valley on active agricultural lands, primarily utilized for cattle grazing. This use has odors associated with it, which are common throughout the Project area. The proposed Project will not result in any additional people being exposed to these existing odors. Nor will the Project result in any new odors. The Project will not impact the existing cattle grazing operations in the long term and therefore there will be no change in this source of odor as a result of the Project. ***No impact.***

Mitigation Measures:

MM 3.1: Depending on weather conditions, the Contractor shall implement dust control measures. Measures include, but are not limited to, the following:

- The Contractor shall reestablish ground cover on disturbed areas of construction site through seeding, revegetating, and watering or mulching.
- The Contractor shall suspend all grading and earth moving operations of a Project when winds (as instantaneous gusts) exceed 20 miles per hour or when winds create construction induced visible dust plumes moving beyond the Project site, in spite of dust control measures.
- The Contractor shall water active construction sites at least twice daily as necessary to reduce dust.
- The Contractor shall cover the beds of all trucks hauling dirt, sand, soil, or other loose materials on public rights-of-ways or shall maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the side of the trailer).

Timing/Implementation: Prior to and during construction.
Enforcement/Monitoring: Siskiyou County Air Pollution Control District.

Conclusions Related to Air Quality:

With implementation of mitigation measure **MM 3.1** impacts to air quality as a result of the Project will be ***less than significant with mitigation incorporated.***

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	☐	☐	☐	☒

Overview:

A Biological Resources Report and Wetland Delineation for the Project were completed by Rabe Consulting in October and November of 2016, and are included as **Appendix C** and **Appendix D** to this document. The biological evaluations were completed utilizing database searches to identify a list of species with potential to exist within the Project area, site investigations completed on August 24, 2016, and topographic maps. The study includes review of plant and animal species observed within the Project area, as well as their potential for occurrence, and includes analysis of wetland resources. Additionally, CDFW has completed raptor, botanical, and bait camera surveys for mammals on the Ranch in 2014 and 2015.

The Project impact area is limited to the Project footprint as identified in design engineering plus a 25-foot buffer on either side, and totals 41.66 acres of the working ranch. The Project consists primarily of linear alignments along proposed pipe alignments with associated water management infrastructure in existing irrigated pastures and uplands with occasional irrigation ditch crossings, and modification of the existing agricultural diversion structure which poses a partial barrier to fish passage in the Little Shasta River. **Table 4.1** identifies habitat types, including Wetlands and Waters of the U.S., within the Project area by acreage as well as location within the Project area and character of the habitat.

TABLE 4.1 HABITAT TYPES WITHIN THE PROJECT AREA

Habitat Type	Location / Project Component	Character	Acreage
Flood irrigated Pasture	Stockwater & Main Pipeline	Uplands consisting of flood irrigated pasture grasses or alfalfa fields used for hay production. Does not exhibit wetland soils, hydrology or	32.70

		vegetation.	
Native sagebrush-scrub	Stockwater *supply tanks on Dorris Hill*	Scrub habitat species such as sagebrush, rabbit brush, pasture grasses and forbs. The area is rocky and exhibits areas of bare soil with limited bunch grass cover (< 25%).	8.49
Dense riparian shrub	Fish Passage Improvements *Little Shasta River*	Dense riparian shrub and tree growth with mature willows and little to no understory. The shrubs include multiple species of willows.	0.13
Wetland	Stockwater *irrigation supply ditch segments*	These wetlands are small irrigation supply ditches within the study area. The study area crosses portions of these ditches, so only the portion within the study area was delineated with the remainder extending outside of the study area. These ditches are well maintained and therefore well defined. They exhibit steep ditch banks which leave very little to no riparian vegetation before the waterway transitions from wetland to upland. The ditch banks are all considered upland and exhibit upland weedy species and pasture grasses. The wetland extends beyond the study area. (Wetland 1-10, Appendix F).	0.25
Waterway	Main Pipeline *irrigation supply ditch segments*	Existing irrigation supply ditches with width of 2-4 feet. The channel is excavated with disbands elevated above the adjacent agricultural fields and natural areas. The ditch banks are upland and exhibit upland weedy species and grasses. Within the channel, the banks are steep leaving little to no riparian vegetation. The feature boundary is marked by the Ordinary High Water line; therefore, these features are considered non-vegetated waterways instead of wetlands. (Evan's Wetland 1-4, Appendix F).	0.06
Wetland	Fish Passage Improvements *Little Shasta River*	This feature is a portion of the Little Shasta River where the diversion point intersects the river. The wetland is the active river channel and a narrow edge of vegetation along the ordinary high water margin. The upper bank of the river has mature willows. It is well defined by hydrologic indicators, topography, and vegetation. The wetland within the study area is at the site of the diversion, which will be installed at the bottom of the river channel, and the diversion intake structure which is at the end of the existing irrigation ditch. The wetland extends beyond the study area. (Wetland 11, Appendix F).	0.03
Total Project Area			**41.66**

A seven and a half (7.5) acre area along the eastern toe of Dorris Hill, exhibits bulrush and cattail marsh and is known habitat for sandhill cranes (**Figure 5)**. This area is outside of the study area, and was not delineated, though due to its proximity to the Project area and known use by listed species, consideration of this habitat is included herein. This marsh area is wetland seasonally and in large part receives water from the irrigation ditch tailwater. The marsh does not exhibit open water areas. The marsh is about 95% wetland plant cover with 5-10% cover of litter. As part of the stockwater improvements in the vicinity of this feature, a new dedicated pipe with valve, and flow meter will be installed from the new regulating tank as part of the new stockwater system to ensure this feature is maintained in its current wetted condition (see Project engineering, **Appendix B**). This dedicated pipe to provide water to existing wildlife habitat will be plumbed at the lowest elevation on the new regulating tank (below the stockwater pipes) to provide water priority to this wildlife habitat in low water years.

The wetland delineation will be submitted to the U.S. Army Corps of Engineers prior to any work within potential wetland areas. All regulated work in jurisdictional waters and wetlands will be authorized by a permit from the Army Corps of Engineers. All Project impacts to wetlands are considered temporary, though determination has not been made by the Army Corps of Engineers. Any permanent impacts to jurisdictional wetland area shall be mitigated through enhancing wetland areas to improve their wetland functions and quality or through the payment of fees, as required under the permit.

Database search results

Prior to field reconnaissance surveys, database searches were completed to identify a list of special status species with potential to exist within the Project area. Two species of plant have potential to exist within the Project area including wheat sedge (*Carex atherodes*) and pendulous bulrush (*Scirpus pendulus*). One mammal including American badger (*Taxidea taxus*) and twelve species of special-status or migratory birds, the tricolor blackbird (*Agelaius tricolor*), Swainson's hawk (*Buteo swainsoni*), black tern (*Chlidonias niger*), Northern harrier (*Circus cyaneus*), sandhill crane (*Grus canadensis tabida*), rufous hummingbird (*Selasphorus rufus*), calliope hummingbird (*Stellula calliope*), loggerhead shrike (*Lanius ludovicianus*), olive-sided flycatcher (*Contopus cooperi*), willow flycatcher (*Empidonax traillii*), bald eagle (*Haliaeetus leucocephalus*) and bank swallow (*Riparia riparia*) potentially occur. Five aquatic species, including Western pond turtle (*Emys marmorata*) and Oregon spotted frog (*Rana pretiosa*), coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mukiss irideus*), and chinook salmon (*Oncorhynchus tshawytscha*) potentially occur within the Project area as a result of database searches.

Field Survey Results

All those species identified as a result of the database search were specifically targeted for survey to determine presence of specific habitat or species within the Project area, and survey results are as follows:

Plants: Biologist identified that habitat for wheat sedge and pendulous bulrush is not present in the Project area and no individuals were observed.

Terrestrial wildlife and birds: Biologist determined that large galleries of willows or dense blackberry patches are not present in the study area for nesting tricolored blackbirds, and areas of freshwater wetlands with emergent vegetation are not present in the study area. Therefore, habitat for nesting tricolored blackbirds and black terns is not present in the study area. American badger, Swainson's hawk, northern harrier, and bald eagle foraging areas are present, but no badger dens, Swainson's hawk, northern harrier, or eagle nests were observed within 660 feet or 0.125 miles of the proposed Project site. The limited size of the riparian areas along the ditches and canals is not typical migratory bird habitat, because it is not large enough to provide adequate cover and/or forage. Cliffs greater than 80% slope consisting of clay soils are not present, therefore quality habitat for nesting bank swallow is not present in the study area. There is quality habitat along the Little Shasta River, which was not exhibited along the banks of the ditches and canals, for rufous and calliope hummingbirds, loggerhead shrike, olive-sided flycatcher, and willow flycatcher.

Hart Ranch has breeding habitat for sandhill crane in the wet-open meadows exhibiting bulrush and cattails which are adjacent to the stockwater system alignment (approximately 7.5 acres of habitat was identified).

Aquatic Wildlife Species

No Oregon spotted frogs were observed. No slow water or back water areas with breeding habitat components were present in the river adjacent to the proposed fish screen location or in the vicinity of the current diversion. The ditch banks are moderately steep without shelves and do not provide flat areas where breeding frogs can lay eggs. Vegetation along the ditch banks is grazed and there is not adequate thatch to provide surfaces for egg laying to occur. Therefore, the ditches are not breeding habitat.

No basking structures for western pond turtles were observed in the river adjacent to the proposed fish screen location or in the vicinity of the current diversion. The ditches are not habitat as the ditch banks are sloped at greater than 10:1 and do not exhibit basking sites.

Surveys were not conducted for fish; however, the Little Shasta River is known habitat for coho salmon, steelhead and chinook salmon.

The Little Shasta River contains a key population of coho salmon that is part of the *Final Recovery Plan for the Southern Oregon/Northern California Coastal Evolutionarily Significant Unit of Coho Salmon*. Specifically, the Plan is designed to guide implementation of prioritized actions needed to conserve and recover the species by providing an informed, strategic, and voluntary approach to recovery that is based on the best available science. Use of a recovery plan ensures that recovery efforts target limited resources effectively and efficiently. The Plan also provides recovery targets to work toward, as well as criteria by which progress toward recovery will be tracked (NOAA 2014).

Discussion of Checklist Answers:

a) Coho salmon, steelhead and chinook are present in the Little Shasta River. Fish passage improvements consisting of relocation and modification of the Hart irrigation diversion structure includes these components: (1) removal of the existing concrete dam, fish screen, and old fish ladder walls along the Little Shasta River; (2) construction of approximately 105 linear feet of roughened channel with large boulder clusters and buttresses, at a 2.5 to 3 percent grade, that provides fish passage opportunities; (3) construction of a new cast-in-place concrete diversion structure with fish screen and fish return bypass that meets current NOAA and CDFW fish protection criteria; and (4) revegetation of the site.

All instream work will be limited to the low flow period of June 15-November 1, and restoration, construction, fish relocation, and dewatering activities within any wetted or flowing stream channel will occur within this period. The work will be completed outside of spawning, incubation, and rearing periods for listed fish, and will be consistent with the Biological Opinion issued by the NOAA Fisheries (2012) and the SONCC Recovery Plan (NOAA, 2014). Any impacts to fish habitat and species are temporary and of short duration, are limited to the duration of construction, and will result in long term benefits to the species by enhancing fish passage to potentially 7 km of upstream habitat and increased year-round flows to an additional approximately 2 km of the Little Shasta River downstream, thereby enhancing aquatic habitat. Protection measures consistent with the NOAA Biological Opinion (included in **Appendix D**) shall be implemented during construction to minimize impact to listed species and their habitat. Implementation of **MM 4.1** and **MM 4.2** will reduce impacts to coho during construction to less than significant with mitigation incorporated.

Oregon spotted frog breeding habitat is not present in the ditches at Hart Ranch or at the diversion on the Little Shasta River. However, when ditches are in use and full of water, frogs may use them for dispersal movements. All proposed work in or crossing the ditches will occur outside of the irrigation season in October-March when the ditches are dewatered. The proposed action will change the timing of future water delivery, however, will not directly impact frog habitat; therefore, impacts to the Oregon spotted frog are less than significant.

Hart Ranch supports potential nesting habitat for rufous and calliope hummingbirds, loggerhead shrike, olive-sided flycatcher, and willow flycatcher at the Hart-Height diversion and in woody riparian vegetation along the Little Shasta River. These avian species are dependent upon riparian vegetation, such as alders and willows, which will be affected by the proposed Project as a result of riparian vegetation removal due to channel recontouring and diversion relocation (selective riparian vegetation removal within 0.13 acre along the Little Shasta River). Although post-construction riparian vegetation planting is included in the Project, short-term effects to riparian vegetation will result and are limited to the Project footprint. The Project will not create any obstructions to flight patterns and riparian vegetation is available immediately adjacent to the Project site. Construction activities are scheduled to occur immediately adjacent to the habitat that could result in disturbance to nesting individuals, mitigation measures **MM 4.3** and **MM 4.4** will be implemented, minimizing disturbance to riparian vegetation and nesting birds. Short-term impacts to listed riparian-dependent species are less than significant with mitigation incorporated.

Hart Ranch supports sandhill crane nesting habitat (approx. 7.5 ac) in the wet, open meadows exhibiting bulrush and cattails within proximity to the stockwater system on the eastern toe of Dorris Hill. Nesting habitat will not be affected long-term by the Project as the new stockwater system includes a dedicated pipe and valve to keep this area wetted and in pre-project conditions with a maximum flow rate capacity of 65 gpm; however, construction activities are scheduled to occur immediately adjacent to the habitat that could result in disturbance to nesting individuals. Mitigation measures **MM 4.5** and **MM 4.6**, will be implemented, therefore, minimizing disturbance to nesting cranes. Any short-term impacts to sandhill cranes are less than significant with mitigation incorporated. **MM 4.7** will ensure long term maintenance of this wetland habitat following project construction. Project impacts to sandhill cranes are less than significant with mitigation incorporated.

As the location of juniper tree removal has not been identified, the potential exists to impact special status plant species during removal and transport of trees to the fish passage project area. Therefore **MM 4.8** will be implemented, minimizing impacts to special status plant species to a level that is considered less than significant with mitigation incorporated.

The Project will not affect the continued operation, maintenance, and repair of two existing diversions that serve the Hart Ranch. However, the Project, in combination with the draft SHA currently being negotiated with NOAA fisheries, will provide for a permanent instream dedication of 0.5 cfs, with an additional long-term dedication of up to 1.0 cfs and potential permissive dedication of the remaining water right by the Hart Ranch to add instream flow as a beneficial use. This will allow the Ranch the flexibility and opportunity to leave their water rights instream for fish, wildlife, and riparian benefit.

With implementation of mitigation measure **MM 4.1**, through **MM 4.7**, impacts to special status species are considered ***less than significant with mitigation incorporated***.

b) Riparian habitat occurs along the Little Shasta River at Hart Ranch and at the diversion site. Approximately 7,500 linear feet of riparian grazing management fencing will be installed along the north and south of the Little Shasta River at Hart Ranch and will result in approximately 0.7 miles of the river being fenced. Riparian habitat will be affected by the proposed Project; however, the effects will be short-term in nature and will only occur within the Project footprint. The Project includes planting the riparian zone with native shrub and tree species (estimated 750 trees) after installing the fencing. Additionally, at the site of the fish passage improvements post Project planting is planned, and **MM 4.4** will reduce impacts to ***less than significant with mitigation incorporated***.

c) The Project area contains 0.34 acres of wetlands and "waters of the U.S." as regulated by the U.S. Army Corps of Engineers (ACOE). The majority of wetlands consist of irrigation supply ditch segments (0.31 acres), while only 0.03 acres are associated with work along the Little Shasta River. Construction activities could result in the temporary disturbance of jurisdictional waters. The Project includes formal wetland delineation and necessary Section 404 permits from the U.S. Army Corps of Engineers. Compliance with delineation and US ACOE permit will ensure that there is no net loss of jurisdictional waters and will reduce impacts to ***less than significant***.

d) Habitat within the Project area provides suitable spawning and over-summer habitat for Coho salmon as well as riparian habitat for migratory bird species. Please see a) and b) above for discussion. Project protection measures consistent with the NOAA Biological Opinion and **MM 4.1**, **through MM 4.6** will reduce potential impacts to migratory species to ***less than significant with mitigation incorporated.***

e) The proposed Project will not conflict with any policies or ordinances. ***No impact.***

f) There are no habitat conservation plans adopted in this area. ***No impact***.

Mitigation Measures:

MM 4.1: The Contractor shall implement all protection measures identified in the 2012 Biological Opinion issued by the NOAA Fisheries pertaining to future US Army Corps of Engineers Permits within Siskiyou and other northern California counties, and specifically identified in the Biological Resources Report for this Project (**Appendix D**) to minimize impacts to listed fish species and their habitat.

Timing/Implementation: Prior to and during construction activities.
Enforcement /Monitoring: CDFW, NOAA Fisheries.

MM 4.2: Prior to instream work at Hart Ranch, a snorkel survey shall be completed by a qualified biologist, to confirm the presence of special status species. If special status fish are identified within the Project Area, and prior to instream work at Hart Ranch fish shall be removed from the work area by a qualified biologist permitted with authorization to capture and relocate fish, including coho if present, and block nets consisting of fine-meshed net or screen, shall be installed in-channel above and below the work area. Mesh will be no greater than 1/8-inch diameter. The bottom of a seine must be completely secured to the channel bed. Screens must be checked twice daily and cleaned of debris to permit free flow of water. Block nets shall be placed and maintained throughout the dewatering period and/or instream channel work at the upper and lower extent of the areas where fish will be removed. Block net mesh shall be sized to ensure salmonids upstream or downstream do not enter the areas proposed for dewatering and construction between passes with the seine.

Timing/Implementation: Following construction activities.
Enforcement /Monitoring: CDFW, NOAA Fisheries.

MM 4.3: If possible, conduct all vegetation removal (including trees for large wood structures) outside of the migratory nesting season (February 1 to August 31). However, if clearing of any vegetation and/or construction activities occur during the avian breeding window, preconstruction surveys for nesting migratory birds shall be conducted no earlier than 7 days prior to removal by a qualified wildlife biologist. Surveys shall be conducted in accordance with CDFW or USFWS survey protocol for each species. Survey area shall include the construction zone, including all vegetation removal and transport areas, staging areas, and a 300-foot radius surrounding the construction zone to determine whether the activities taking place have the potential to disturb or otherwise harm any nesting migratory birds. If active nests are found, the Contractor shall not conduct work within 300 feet of the active nest (or smaller buffer as approved by CDFW) until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the Project.

Timing/Implementation: Prior to construction activities within the migratory bird nesting season (February 1 to August 31).
Enforcement /Monitoring: CDFW, USFWS.

MM 4.4 Prior to grading activities associated with the fish passage improvements, the contractor shall salvage and store existing vegetation cuttings and willow transplants to be replanted following the Project completion.

Timing/Implementation: Prior to grading activities associated with the fish passage improvements.

Enforcement/Monitoring: CDFW

MM 4.5 Migratory bird nesting surveys conducted in accordance MM 4.3 conducted prior to vegetation removal or construction activities shall be used to determine whether sandhill crane is nesting in the vicinity of Project activities. If CDFW determines that potential sandhill crane nesting habitat occurs within 500 feet of Project activities, any potential nesting habitat within the 500-foot radius shall also be surveyed for the presence of active sandhill crane nests. No construction activities shall occur during sandhill crane nesting season (March 1 to June 30) within 500 feet of the known sandhill crane nesting habitat identified on the eastern toe of Dorris Hill and identified in **Figure 5** or any other active sandhill crane nesting location identified during nesting bird surveys. If construction of the stockwater system occurs during this time period, temporary fencing shall be installed and regularly maintained to mark the 500-foot buffer and ensure construction exclusion from the known nesting area at Dorris Hill.

Timing/Implementation: During construction activities during the sandhill crane nesting season (March 1 to June 30).

Enforcement/Monitoring: CDFW

MM 4.6 Should construction occur during the nesting season for sandhill cranes (March 1 to June 30) a biological monitor shall be on site during all hours of construction to ensure cranes are not disturbed. If disturbance to sandhill cranes is observed, all construction shall cease and the CDFW shall be immediately notified.

Timing/Implementation: During construction activities during the sandhill crane nesting season (March 1 to June 30).

Enforcement/Monitoring: CDFW

MM 4.7 The wetland habitat at the toe of Dorris Hill shall be maintained by continuous flow, not less than 10 gpm, for the duration of the growing season, approximately from March through September, to mimic subsurface flow previously from the ditch. Wetland habitat shall be monitored by visual inspection two times per month during the growing season and shall consist of visual check for presence of soil saturation at the surface and presence and condition of bulrush plants. Soil shall be saturated to the surface during 4 out of 6 months of the growing season. Bulrush shall be present and covering at least 75% of the area. The plants shall be in healthy condition during the growing season. If plants are in poor condition or soil is not saturated, additional water shall be added to the wetland.

Timing/Implementation: During the growing season (March through September).

Enforcement/Monitoring: CDFW

MM 4.8 Prior to removal of juniper trees, the area of disturbance, including route of transport from trees to the construction site at the Little Shasta River, shall be surveyed for special status plant species and shall occur prior to any vegetation removal. Surveys shall be conducted by a qualified biologist according to the CDFW 2009 Protocols for *Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. Results of these surveys shall be sent to the following address: California Department of Fish and Wildlife, Attn: CEQA, 601, Locust Street, Redding, CA 96001.

Timing/Implementation: Prior to any vegetation removal.

Enforcement /Monitoring: CDFW.

Conclusions Related to Biological Resources:

The Project will have a ***less than significant impact with mitigation incorporated*** on biological resources with the implementation of **MM 4.1** through **MM 4.8**. It is anticipated the Project will increase available aquatic habitat for coho salmon, steelhead, and chinook by enhancing fish passage to potentially 7 km of upstream habitat and increase year-round flows to an additional approximately 2 km of the Little Shasta River downstream.

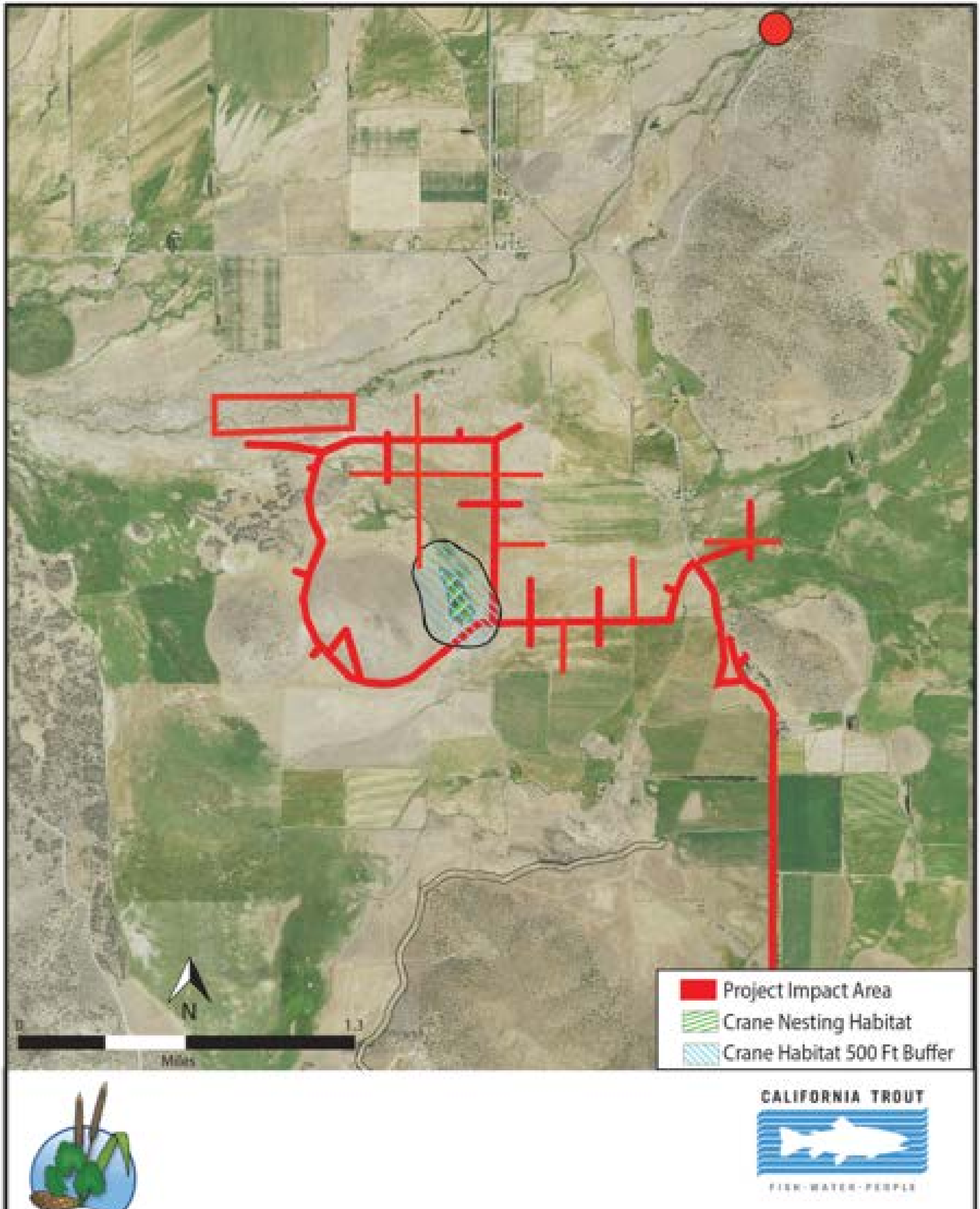


Fig. 5 Sandhill Crane Nesting Habitat and Buffer

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
5. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Overview:

A Cultural Resources Survey for the Project was completed by Native-X, Inc. Archaeological Services in November, 2016 (**Appendix F**). Investigation included a pre-field records search at the Northeast Information Center (NEIC) at California State University, Chico, and a complete coverage pedestrian surface survey of the Project area. The Cultural Resources review was completed in compliance with Section 106 of the National Historic Preservation Act standards, guidelines and principles.

The records search did not identify any sensitive cultural resources in the Project area. The records search results indicate that no previous cultural resource surveys have occurred within the current Project area and that there are no prehistoric or historic-period sites or features formally recorded or otherwise documented within the Project area. However, one geoarchaeological overview and three previous surveys have been completed, and three sites have been recorded, within one mile of the Project area.

The pedestrian surface survey completed on September 30, 2016, identified two sites: a segment of rock wall fence (HR01) located north of the Dorris Hill saddle and a water diversion structure (HR02) located at the origin of the Haight/Hart irrigation ditch on the Little Shasta River (existing Hart Ranch diversion structure). The rock wall fence (HR01) is likely historic, however, it has been used and maintained through the modern era. It is fitted with a post and wire gate. The Project calls for the installation of pipe through the rock wall fence, however, the proposed route is through the existing post and wire gate. It would not disturb the linear rock feature, and therefore, will not affect the site. The rock wall fence (HR01) remains unevaluated by the National Register of Historic Places (NRHP) because it continues for an unknown distance beyond the Project area and thus remains not fully recorded.

The water diversion structure (HR02) is likely historic in nature; however, it appears to have been in use through the modern era, with maintenance and modifications occurring as needed since its original construction. The Project calls for removal of the water diversion structure and construction of a new diversion structure a short distance upstream that meets current NOAA and CDFW fish protection criteria, allowing for improved fish passage along the Little Shasta River. While the structure (HR02) fulfills a historic function, and has historic concrete elements, the integrity of the site has been seriously compromised and is therefore not recommended as eligible to the National Register of Historic Places (NRHP).

The findings identified in **Appendix F** lead to the recommendation that the existing environment comprising the proposed Project is not eligible or potentially eligible for inclusion on the NRHP under any of the relevant criteria, nor significant per CEQA. Although the sites are identified as not eligible for inclusion on the NRHP, actual determination for these historic sites must be made by public agencies in consultation with the California State Historic Preservation Office (SHPO). No prehistoric sites were identified within the Project area.

Public Resources Code (PRC) §21083.2 requires planning agencies to determine if a Project may have a significant effect on historical resources or unique archaeological resources. The California Code of Regulations (CCR) §15064.5

defines a significant effect on historical resources. CCR §15064.5 (a)(3) describes an "historical resource" and PRC §21083.2(g) presents criteria for identifying a unique archaeological resource.

Discussion of Checklist Answers:

a) Cultural resources investigation identified two sites of historic significance within the Project area: a segment of rock wall fence (HR01) and a water diversion structure (HR02). The rock wall fence remains unevaluated by the NRHP because it continues for an unknown distance beyond the Project area and thus remains not fully recorded. The Project alignment goes through an existing gap (or gate) in the wall and therefore will not result in disturbance to the rock wall fence. The water diversion structure (HR02) is recommended as not eligible for the NRHP due to the integrity of the site being seriously compromised. Regardless of this finding, unanticipated and accidental historical discoveries are possible during Project implementation and have the potential to impact unique historical resources, therefore mitigation measures **MM 5.1** and **MM 5.2** have been incorporated into the Project. Project impacts to historical resources are considered to be ***less than significant with mitigation incorporated.***

b) Cultural resources investigations identified no sites of archeological significance within the Project area. Regardless of this finding, unanticipated and accidental archaeological discoveries are possible during Project implementation and have the potential to impact unique archaeological resources, therefore mitigation measures **MM 5.1** and **MM 5.2** have been incorporated into the Project. This is considered a ***less than significant impact with mitigation incorporated***.

c) A records search of the Northeast Information Center at California State University, Chico did not identify any documented paleontological sites within the Project area. Regardless of this finding, unanticipated and accidental discoveries of paleontological resources are possible during Project implementation and have the potential to impact paleontological resources. Mitigation measure **MM 5.3** has been incorporated to reduce potential impacts and therefore the Project is considered to have a ***less than significant impact with mitigation incorporated***.

d) Cultural resources investigations did not identify any Native American archaeological sites or evidence to suggest that human remains may be present within the Project area. Regardless of this finding, there is a possibility of the unanticipated and accidental discovery of human remains during ground-disturbing Project-related activities. With implementation of **MM 5.3**, this impact is considered a ***less than significant impact with mitigation incorporated***.

Mitigation Measures:

MM 5.1: If, during the course of Project implementation, cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) are discovered work shall be halted immediately within 50 feet of the discovery, the CDFW shall be immediately notified, and a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to determine the significance of the discovery. The CDFW shall consider mitigation recommendations presented by the professional archaeologist and implement a measure or measures that the SVRCD deems feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures.

Timing/Implementation: During construction activities.
Enforcement/monitoring: CDFW

MM 5.2: Prior to the commencement of Project ground disturbing activities, all construction personnel shall be informed of the type(s) of cultural resources that might be inadvertently uncovered in the area and protocols to be implemented to protect Native American human remains and any subsurface cultural resources.

Timing/Implementation: Prior to construction activities.
Enforcement/monitoring: CDFW

MM 5.3: If, during the course of Project implementation, human remains are discovered all work shall be halted immediately within 50 feet of the discovery, the CDFW shall be immediately notified, and the County Coroner must be notified, according to Section 5097.98 of the State Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the coroner will notify the Native American Heritage Commission, and the procedures outlined in the CCR §15064.5(d) and (e) shall be followed.

Timing/Implementation: During Project construction activities.
Enforcement/monitoring: CDFW

Conclusions Related to Cultural Resources:

The Project will have a ***less than significant impact with mitigation incorporated*** on cultural resources with the implementation of **MM 5.1** through **MM 5.3.**

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
6. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Overview:

Several earthquake faults exist around the Shasta Valley area as indicated on the *Fault Activity Map of California*. Some notable faults in the Project vicinity include the Yellow Butte Fault to the southeast of the Project area near Sheep Rock, and a Quaternary age fault that runs through Mt. Shasta, located to the south of the Project area. Additionally, a number of pre-Quaternary (older than 1.6 million years) faults exist near Yreka and north of Montague, west and north of the Project area. None of these faults have shown evidence of any activity within the last 1.6 million years. The nearest recently active faults are the Cedar Mountain Fault Zone 25 miles east in the Hebron-Macdoel area and faults located 90 miles east in the Klamath Falls area (California Department of Conservation, California Geologic Survey, 2016).

The *Seismic Safety and Safety Element of the Siskiyou County General Plan* states that over a 120-year period, only nine or ten earthquakes capable of “considerable damage” have occurred in the Project vicinity. No deaths have been reported from these quakes and building damage was considered minor. No known damage has resulted from an earthquake in the Shasta Valley area. Regardless, the *California Building Code* places the Project area in Seismic Zone 3, defined as an area of potentially major damage from earthquakes corresponding to intensity VII on the Modified Mercalli Scale.

Landslides are not prominent in the area, since the mountains of the region consist of stable bedrock material with little likelihood of sliding. While the Shasta Valley is in a hilly region, normal construction practices limit the amount of potential erosion, and the Building Code addresses necessary construction techniques to accommodate some of the soils in the area with expansive characteristics. Additionally, Project activity is primarily located in the areas utilized for agriculture, areas with slopes less than 10%, with the exception of the new water tanks and access road to be located on Dorris Hill. Existing slopes on Dorris Hill are between 10% and 50%. The elevated storage tanks will be installed on a newly constructed gravel pad on Dorris Hill that will require excavation, material placement, and compaction over an area of approximately 2,400 square feet. It is estimated that cut and fill quantities will be 1,500 cubic yards. A 14-foot-wide by 750 feet long graveled road with a slope of approximately 8% will be constructed to access the tanks from the existing ranch road. All cut and fill will be balanced with no need to export material. Imported engineered fill or gravel for the pad will be from a permitted source or from the existing on-ranch borrow pit. **Appendix A** includes 75% design stage plans for the stockwater system improvements which include the new water tanks, pad, and access road.

Most of the Project area consists of alluvial or glaciofluvial soils which consist primarily of poorly to well drained sandy loams underlain with hardpan. Typically, these soils have minimal shrink-swell characteristics, have slight to moderate erosion hazard potential, and contain slopes which range from 0-9 percent. Only those soils on Dorris Hill associated with the new water tanks and access road have slopes greater than 9 percent. Final grading of the access road will be not more than 8%.

Discussion of Checklist Answers:

a)

i) There are no known active or potentially active faults within the Project area, although a north-south trending fault runs through the top of Mount Shasta and there are older faults in the Sheep Rock area to the southeast of the Project area. There are no known earthquake faults within the Project area, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map and this impact is considered ***less than significant***.

ii) The Project area, along with all of Siskiyou County, is located in Uniform Building Code (UBC) Seismic Zone 3. This indicates that the area is subject to earthquakes that may cause minor to moderate structural damage. Earthquakes centered about 20 miles east of Mt. Shasta were recorded in 1978 with Richter magnitudes of 4.0 to 4.6. However, an earthquake history compiled for the *Seismic Safety and Safety Element of the Siskiyou County General Plan* indicated that over a 120-year period, no deaths related to earthquakes have been recorded, and reported building damage has never been more than “minor.” All construction will occur pursuant to the California Building Code. This impact is considered ***less than significant***.

iii) Liquefaction usually occurs when saturated granular soil deposits lose their strength due to sudden excess in water pressure induced by a seismic event. Since seismic activity is uncommon in the Project area, liquefaction is not likely. This impact is considered to be ***less than significant.***

iv) Landslides typically will not be a problem in the Project area as the area generally consists of slopes less than 10 percent, with the exception of the new pad and access road for the new water tanks located on Dorris Hill. Construction of the access road and excavated pad for the new water tanks will be overseen by the Project engineer, and design includes compaction and maximum slope parameters in order to minimize potential landslides or earth moving following construction. Further, the Project contains measures as defined in the Project Description to reduce effects of erosion and potential landslide to a ***less than significant*** level.

b) Construction activities will include earth moving in the form of trenching, excavating, backfilling, and associated irrigation improvements, and habitat enhancement. The proposed project may be required to obtain a Storm Water Pollution Prevention Permit, and prepare a Storm Water Pollution Prevention Plan, which will include best management practices (BMPs) to reduce impacts to water quality which will minimize impacts to soil erosion. This impact is considered to be ***less than significant.***

c) See a) above. ***Less than significant***.

d) The project is primarily located in uplands with poor to well drained soils that do not have shrink-swell characteristics. Project area soils are primarily underlain with hardpan, affecting drainage characteristics. Construction activities will be required to conform to the California Building Code, therefore the project will have a ***less than significant impact.***

e) The project does not involve the use of septic tanks or alternative wastewater disposal. ***No impact***.

Conclusions Related to Geology and Soils:

Conformance with state building code regulations and project engineering of all physical structures that may be affected by geotechnical stability will reduce any impacts related to geology and soils. Therefore, impacts are considered to be ***less than significant.***

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
7. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Overview:

The project is an irrigation improvement and aquatic habitat restoration project and will result in temporary greenhouse gas (GHG) emissions during construction and associated earth moving activities. Long term, the project will result in one new booster pump which will result in an annual electrical usage of 1,800 kw-h above existing electrical use (see Section 4.3, Air Quality for additional discussion). Two new solar panels will be installed to operate electronic fish screen controls and flow meters. No additional new electrical needs will result from the project, as the existing electrical supply is anticipated to satisfy all other needs of the project. The project has no other long term impacts to GHG emissions. Siskiyou County has been designated as an attainment area for all state and federal standards (Olson, 2016).

Discussion of Checklist Answers:

a) The project is a river restoration and water management project related to ranching irrigation improvements and will result in temporary GHG emissions during construction. The project will have minor short term air quality and GHG emissions associated with construction. In order to reduce the potential for particulate matter resulting from construction, this initial study includes **MM 3.1**. Long term, the project will result in 1,800 kw-hr of annual electrical use to operate the new booster pump, the equivalent of approximately 3,000 miles driven by an average passenger vehicle (EPA, 2016). This impact is considered to be ***less than significant***.

b) The project will not conflict with any adopted plans, policies or regulations adopted for the purpose of reducing emissions of greenhouse gases. ***No impact***.

Conclusions Related to Greenhouse Gas Emissions:

The proposed project will have a ***less than significant*** impact on greenhouse gas emissions either directly or indirectly.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
8. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Overview:

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as follows:

A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed. (California Code of Regulations, Title 22, Section 662601.10)

Chemical and physical properties cause a substance to be considered hazardous. Such properties include toxicity, ignitability, corrosivity, and reactivity. CCR, Title 22, Sections 66261.20-66261.24 define the aforementioned properties. The release of hazardous materials into the environment could potentially contaminate soils, surface water, and groundwater supplies.

Large cases of hazardous materials contamination or violations are handled by the North Coast Regional Water Quality Control Board (RWQCB) and the State Department of Toxic Substances Control (DTSC). It is not at all uncommon for other agencies to become involved when issues of hazardous materials arise, such as the Air Pollution Control District, and both the federal and state Occupational Safety and Health Administrations (OSHA).

Under Government Code Section 65962.5, the California Department of Toxic Substances Control (DTSC) maintains a list of hazardous substance sites. This list, referred to as the "Cortese list", includes CALSITE hazardous material sites, sites with leaking underground storage tanks, and landfills with evidence of groundwater contamination. The most recent Cortese list, accessed via the internet database in December 2010, does not identify any hazardous materials sites within the project area.

Discussion of Checklist Answers:

a) No transport, use or disposal of hazardous materials will occur as a result of the proposed project. ***No impact***.

b) No known hazardous materials are present within the project site and no hazardous materials will be released into the environment from this project. Therefore, the project will not result in the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. ***No impact***.

c) There will be no hazardous emissions from the project, and therefore the project will not have any affect on a school site. There is no school located within one-quarter mile of the project area. ***No impact***.

d) The project is not located on a site known or listed as having hazardous material as noted by the most recent Cortese list (CA Department of Toxic Substances Control, 2016). ***No impact***.

e) The project is not located within an airport land use plan area. ***No impact***.

f) The project is not located within the vicinity of a private airstrip. ***No impact.***

g) The proposed project will not likely cause road closures or detours as the project is primarily located within private properties, and access to such will not interfere with traffic patterns on public rights-of-way. Work within the public right-of-way will maintain one-way traffic at all times, and no road closures are anticipated. ***No impact.***

h) Being an agricultural project and not near vegetation typically associated with wild land fires, the project will not expose persons to injury from such a fire. ***No impact***.

Conclusions Related to Hazardous Materials:

The proposed project will have ***no impact*** on hazards and hazardous materials.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
9. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami or mudflow?	☐	☐	☐	☒

Overview:

The project is located in the Shasta Valley, within the Klamath River Hydrologic Basin. The mean annual precipitation in the Shasta Valley is approximately 11 to 17 inches. The climate in this region is characterized by dry summers with high daytime temperatures and wet winters with moderate to low temperatures. About 75 percent of the annual precipitation falls between October and March and generally produces an adequate snowpack in the higher mountain ranges.

The Little Shasta River flows through the project area, with a watershed area of approximately 330 square kilometers. The Little Shasta River flows generally westward for approximately 39 kilometers from an elevation of 8,277 on the western slopes of the Cascade Mountain Range to the confluence with the Shasta River at an elevation of 2,730. The river exhibits three distinct channel reaches: a steep headwaters reach, a moderate-gradient reach in the foothills section, and a low-gradient reach across the Little Shasta River Valley. Streamflow is derived from both surface runoff (snowmelt and rainfall) and groundwater (springs and seeps). Surface runoff derived from seasonal rainfall and snowmelt augments spring-fed baseflows in the Little Shasta River. Surface water and groundwater are used to support domestic, agricultural, municipal, and ecosystem water uses in the Little Shasta River Valley (Nichols A, et al, 2016) including use as a migration route for salmon and steelhead and provides spawning and rearing habitat for these fish (McBain & Trush, 2013).

Development of water resources in the Little Shasta River watershed has been ongoing since 1855, with the oldest water rights pertaining to the appropriation of surface waters from the Little Shasta River and nearby springs. The amount and priority date of each surface water right is formalized in the Shasta River Adjudication Proceeding Judgement and Decree, and a Watermaster organizes the diversion priorities. Summer water rights to the Little Shasta River and its tributaries and springs extend from March 1 through October 31, while winter rights occur during the remaining months of the year (Nichols A, et al, 2016).

The highest priority summer water rights in the Little Shasta River Basin are all located upstream from the Hart Ranch diversion structure (river kilometer 18.5). These water rights permit the diversion of surface water from both off-channel springs and the Little Shasta River. During periods of low streamflow (e.g. summer), the cumulative total of these highest priority water rights can exceed the amount of available surface water. With minimal surface or groundwater inflows to the Little Shasta River below RK 18.5, the lower reaches of the river can run dry during low streamflow periods. During 2015, a dry year, streamflow at RK 4.3 ceased in June and the river remained dry until the middle of November (Nichols A, et al, 2016).

The Project lies within areas mapped by the Federal Emergency Management Agency (FEMA), Flood Insurance Rate Mapping program (Community Panel Number 06093C1650D). The majority of the Project area lies above the 100-year flood event elevation (FEMA Zone X), while a few areas immediately along the Little Shasta River lie within the 100-year flood event elevation (FEMA Zone A). Those components of the Project that are within FEMA Zone A include the work associated with the fish passage improvements and the riparian planting along the Little Shasta River. All other work associated with the Project is entirely outside of 100-year flood elevation.

Hydraulic Assessment of the fish passage component of the Project was completed by Cascade Stream Solutions in October 2016 to identify the Project effect on flows within the Little Shasta River (**Appendix G**). The Project includes recontour of the stream channel, removal of the exiting diversion structure, and construction of a new diversion structure. A County bridge crosses the Little Shasta River immediately downstream of the proposed Project area. Existing flood flows exceed the conveyance capacity of the primary channel and are conveyed across the floodplain as shallow overland flow. Existing and post-project conditions were compared for a range of flows utilizing standard computer modeling analysis for hydraulics of water flow (HEC-RAS). Hydraulic characteristics were computed for steady state flows of 750, 1,000, 1,500, and 1,700 cfs (Howard, 2016).

Discussion of Checklist Answers:

a) CalTrout or the project contractor will prepare a Storm Water Pollution Prevention Plan (SWPPP) pursuant to Regional Water Quality Control Board standards and subject to RWQCB review. The proposed Project will include instream work associated with construction of the fish passage improvements and irrigation diversion structure. Short term construction activities may temporarily impact water quality, though CalTrout will work closely with regulatory agencies to minimize all potential water quality impacts. Habitat and water quality protection measures identified in the NOAA Biological Opinion will be implemented to minimize impacts to listed species and water quality (see **MM 4.1**). Additionally, the Project is subject to 401 permit from the Regional Water Quality Control Board, and conditions therein will ensure water quality impacts are minimal during and following construction. One of the overall goals of the Project is to improve water quality in the Little Shasta River through an initial permissive instream dedication of up to 1.5 cfs and an additional permissive dedication up to the remainder of the right of 19.804 cfs upon approval of the SHA which is currently being negotiated. Project impacts to water quality are considered to be ***less than significant.***

b) The Project includes improvements to existing agricultural irrigation infrastructure in an effort to improve water management efficiencies and instream flows in the Little Shasta River, thereby improving water quality. The Project includes the addition of a booster pump to an existing agricultural well and pump and connection of the Mainline pipe system which irrigates the eastern portion of the ranch to three existing groundwater wells. The retrofit of the stockwater well and construction of the stockwater component of this Project will allow for the ranch to utilize groundwater (instead of river water) for stock in the northern portion of the ranch. This component of the Project will result in minimal increases in groundwater pumping to supply the new stockwater system. At peak demand, the stockwater system will operate at a flow rate of 11 GPM (0.02 cfs) to supply the troughs, with an additional 65 GPM (0.14 cfs) available to supply the consumptive needs of the seasonal wildlife habitat near the base of Dorris Hill. A total post-project flow rate of approximately 0.16 cfs will be required year round for the stockwater system. The Main Pipeline replacement is not anticipated to increase annual groundwater withdrawal. ***Less than significant impact.***

c) The Project will result in the alteration of existing irrigation infrastructure in the Shasta Valley. Although the Project does include work within the Little Shasta River at the location of the diversion, habitat and water quality protection measures identified in the NOAA Biological Opinion will be implemented to ensure that temporary impacts to erosion or siltation associated with construction are minimized. The SWPPP and habitat and water quality protection measures identified in the NOAA Biological Opinion will ensure that temporary impacts associated with construction are minimized. Long term impacts as a result of improvements to fish passage along the Little Shasta River include recontour of the channel and replacement of the existing diversion structure. Hydraulic modeling concludes that although post project conditions result in minor change to the immediate Project channel reach, no change in hydraulic conditions at the existing County Bridge, immediately downstream of the project area result. Deposition and scour near the bridge are not anticipated to change significantly due to the Project because the Project is of limited size, will be constructed to remain stable during extreme flows, and will not change sediment transport potential upstream or downstream of the Project area. Sediment that reaches the Project reach will be conveyed through the reach (**Appendix G**).

Upon completion of the Project, up to 1.5 cfs of water will be available to be permanently dedicated to instream flows, a beneficial management activity included in a draft Safe Harbor Agreement currently being negotiated. The hydraulic assessment of the Project evaluated flows up to 1,700 cfs (between a 10 and 25-year peak flow event) with no effect on downstream water elevations (Howard, 2016). The addition of 1.5 cfs, as potentially resulting following Safe Harbor Agreement, is negligible on downstream flood elevations. Therefore, Project impacts to the existing drainage pattern is considered to be ***less than significant***.

d) See c) above. Work along the Little Shasta River is within the 100-year flood zone. All improvements have been designed and engineered to have a negligible impact on flood flows as is modeled by the *Little Shasta River Fish Passage Project: Bridge Impact Hydraulic Assessment* (**Appendix G**). This impact is considered to be ***less than significant***.

e) The proposed Project does not include new impervious surfaces or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems. As the Project consists of irrigation infrastructure and instream habitat improvements, there will be no additional sources of polluted runoff as a result; therefore, this impact is considered to be ***less than significant***.

f) See a), c) and e) above. ***Less than significant***.

g) The Project does not include the construction of housing and therefore will not place housing within the 100-year flood zone. The Project will therefore have ***no impact.***

h) The Project components that will be within the 100-year flood elevation include the channel realignment and replacement of the existing diversion structure along the Little Shasta River. All structures have been designed and engineered to minimize impacts to flood flows, and will not impede or redirect flood flows. This impact is considered to be ***less than significant***.

i) Please see c), g) and h) above. The Project will not result in the failure of a levee or dam, nor will it expose people or structures to a significant risk of loss, injury or death involving flooding. This impact is considered to be ***less than significant***.

j) The Project will not result in, or be subject to impacts associated with, inundation by seiche, tsunami, or mudflow. Please see **Section 4.6, Geology and Soils**. ***No impact***.

Conclusions Related to Hydrology and Water Quality:

By increasing instream flows, fencing riparian habitat, managing grazing, and reestablishing woody riparian vegetation, the Project is expected to have a positive impact on the Little Shasta River with regard to water quality and improved agricultural water management opportunities. Although short-term water quality issues may be present during construction, impacts associated with hydrology are considered to be ***less than significant***.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
10. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect).	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Overview:

The Project is located in the northern portion of the Shasta Valley, an area characterized by large-acreage agricultural operations, primarily cattle grazing, alfalfa, and other mixed grains. The Shasta Valley encompasses approximately 340 square miles. The Shasta River, a perennial tributary to the Klamath River, flows from south to north, and along with its tributaries (including the Little Shasta River) provides much of the irrigation water to properties adjacent to and within proximity to the Shasta River, Little Shasta River, and major tributaries. Interstate 5 is situated along the west-central part of the valley running north to south, and State Route 97 is situated in the southeast portion of the valley running from Interstate 5 south of the valley towards the northeast. The Shasta Valley is surrounded by open range land managed by the BLM, National Forest Lands, and private timber lands.

The Land Use Element of the Siskiyou County General Plan is prepared differently from many contemporary approaches in land use planning, and involves the preparation of a series of overlay maps identifying development constraint areas, contrary to many general plans which identify Land Use designation. Therefore, the Siskiyou County General Plan does not assign land use designations, but rather through the utilization of overlay maps identifying development constraints, direct the appropriate land use for each property, or area of the County.

The majority of the Shasta Valley is unmapped by the Land Use and Circulation Element constraints maps, with the exception of some areas of the valley that are mapped for flood hazard, wildfire hazard, and prime agricultural soils (General Plan Land Use and Circulation Element, maps 1 through 14). As described in **Section 3, Project Description**, of this document, the Project involves improvements to irrigation systems and fish passage in an effort to improve water management efficiencies and to improve flows and water quality in the Little Shasta River. The Project will not require any changes in land use, either directly or indirectly.

Discussion of Checklist Answers:

a) The Project is located on large acreage private agricultural lands primarily utilized for cattle grazing and will not result in the division of any existing community. ***No impact*** is expected.

b) The Project will not conflict with any applicable plans that have jurisdiction over the Project area. The Project is consistent with the County's General Plan and Zoning Ordinance. Additionally, the Project is consistent with the Basin Plan for the North Coast Regional Water Quality Control Board and the Shasta River TMDL Action Plan. The Project will be consistent with applicable land use plans and will have ***no impact***.

c) See **Section 4.4, Biological Resources**. There are no habitat conservation or natural community conservation plans that are applicable to the site. ***No impact***.

Conclusions Related to Land Use and Planning:

The proposed Project will have ***no impact*** on land use within the unincorporated area of Siskiyou County.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
11. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Overview:

Historically, gold mining was responsible for the establishment of the City of Yreka located to the west of the Project area, though little or no mining was done along the Little Shasta River within the Project vicinity. Although some dredge mining still takes place on the lower Shasta River and Klamath River north of the Project, as well as a small amount of panning for gold, the resource is essentially depleted, and no longer plays a direct role in the area's economy.

The State Mining and Geology Board has the responsibility to inventory and classify mineral resources and could designate such mineral resources as having a "statewide" or "regional significance" and then the local agency must adopt a management plan for such identified resources. At this time, there are no plans to assess local mineral resources for the Project area or Siskiyou County.

Mining within the County is subject to approval by the Siskiyou County Board of Supervisors through a Conditional Use Permit based upon the benefits and impacts to the County, and preparation and approval of a Reclamation Plan is required consistent with the California Surface Mining and Reclamation Act (SMARA).

Discussion of Checklist Answers:

a) The Project does not include any mining activities or other activities that would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. All materials for fill requirements will be sourced from existing permitted operations, or an on-ranch borrow pit. The Project is a water management, irrigation improvement, and fish passage project and will have ***no impact*** on mineral resources.

b) See a) above. There are no locally important mineral resources delineated on the County General Plan within the Project Area. Therefore, there will be ***no impact*** on mineral resources.

Conclusions Related to Mineral Resources:

The project will have ***no impact*** on mineral resources within the area.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
12. NOISE. Would the project:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Overview:

Noise sources in the Shasta Valley include agricultural operations, including the operation of tractors, trucks, livestock, frost protection operations, and other agricultural noises. The Shasta Valley is also affected by noise from Interstate 5, SR 97, operations of the Central Oregon and Pacific Railroad, and the Siskiyou County and Weed Airports. All of these noise sources are located more than two (2) miles from the project, and are not prominent noise sources in the project area. Generally, the project area noise environment is characterized by rural agricultural operations. Surrounding uses include agriculture and open space.

Discussion of Checklist Answers:

a) The project will generate temporary noise during construction that may affect the private property owners whose property the project is located on and adjacent to for access. Construction traffic noise would be limited in frequency and duration and would be similar to other recurring sources of noise from ongoing agricultural operations. No other noise sensitive receptors are located in the vicinity of the project, except for adjacent agricultural residences, which are typically separated by large acreage. This impact is considered to be ***less than significant***.

b) During grading and construction operations the project would generate ground-borne vibration. However, this will be a temporary impact for the duration of construction, and will be isolated to the immediate construction area, and is therefore considered to be ***less than significant***.

c) See a) above. The project will not result in the long-term increase in ambient noise levels within the project area, with the exception of the occasional operation of one new electrical irrigation booster pump, which is located more than ¼ mile from the closest residence. The resultant increases in ambient noise levels are considered to be ***less than significant.***

d) See a) above. This impact is considered ***less than significant***.

e) The project is not located within an airport land use plan area. ***No impact***.

f) The project is not located within the vicinity of a private airstrip. ***No impact.***

Conclusions Related to Noise:

The project is located in the Shasta Valley, an area characterized by rural agriculture, with associated agricultural noise sources. The project will have a ***less than significant*** impact on ambient noise levels in both the short and long term.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
13. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Overview:

The population of the Shasta Valley is approximately 5,000 people. There is not one defined census tract for the Shasta Valley, therefore this population count is an estimate based upon various census tracts that are included partially, or entirely, within the Shasta Valley (U.S. Census Bureau, 2016). The project will not add directly or indirectly to the housing stock or population in the region. The proposed project includes improvements to a number of existing agricultural irrigation facilities, and will have no impact on population and housing in the region.

Discussion of Checklist Answers:

a) The proposed project consists of improvements to a number of existing agricultural irrigation facilities in the Shasta Valley and will not directly or indirectly induce population growth within the region. The project will have ***no impact*** on the population of the region.

b) The project is located on existing agricultural acreages that are primarily utilized for grazing cattle. The project will not displace any housing or people. ***No impact***.

c) See b) above. ***No impact***.

Conclusions Related to Population and Housing:

The proposed project does not include the creation of or the displacement of housing units and will not directly or indirectly impact the population of the region. The project will have ***no impact*** on population and housing.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
14. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☐	☒
b) Police protection?	☐	☐	☐	☒
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☐	☒

Overview:

FIRE PROTECTION

Fire protection services for the project area are provided by a number of volunteer fire departments primarily located within the communities of Montague, Mayten, Yreka, and Grenada. These departments are primarily, or entirely, staffed by volunteers. Additionally, CalFire provides fire protection services to the project area, with stations in Weed and Yreka. CalFire and the volunteer fire departments operate with mutual aid agreements in order to fully serve the unincorporated areas of Siskiyou County, including the project area. The landscape of the project area is primarily grasslands that are regularly grazed, and the threat of fire is not common with the exception of the occasional structure fire.

POLICE PROTECTION

Police protection services within the project area are provided by the Siskiyou County Sherriff's Department, which operates from the main station located at 305 Butte Street, Yreka. The Department anticipates that the current police force will be adequate to provide police protection needs to County residents at the same level of service into the foreseeable future, barring a large increase in population due to a major change such as a large employer locating in the County.

SCHOOLS

The project area is served by a number of elementary schools (K-8), located within the communities of Montague, Grenada, Big Springs, and Yreka. The area is served by the Yreka Union High School District.

RECREATION

The project area is characterized by rural agricultural lands, and recreation centers are located in rural towns that surround the project area, including Montague, Big Springs, Grenada, and Yreka. These communities have community parks, community centers, as well as organized recreational opportunities, such as gymnasiums, pools, sports leagues, and other facilities.

Discussion of Checklist Answers:

a) The project will have no impact on fire protection services within the project area. ***No impact***.

b) The project is an agricultural water management project and will have ***no impact*** on police protection services.

c) The project will not result in any population change, nor will the project impact school operations or enrollment levels. See section 4.13 for further discussion of project impacts to population growth. ***No impact.***

d) The project will not impact any parks, nor will it result in a population change that would indirectly impact parks and recreational services. ***No impact***.

e) The project will have ***no impact*** on other governmental services.

Conclusions Related to Public Services:

The project is limited to agricultural irrigation improvements on existing agricultural lands. The project will not result in either a direct or indirect impact to public services. ***No impact.***

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
15. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Overview:

The majority of the land within the project vicinity is privately owned and public recreational opportunities are limited. Public recreational opportunities exist within the communities and cities that surround the project area, including Montague, Big Springs, Grenada, and Yreka. Between the communities, cities, schools, and private recreational facilities in and around the project area, there is a well-rounded provision of programs and activities available to project area residents. Recreational facilities include playgrounds, parks, pools, ball fields, trails, theaters, fitness centers, and sports leagues. Additionally, opportunities for dispersed recreational activities exist on US Forest Service, Bureau of Land Management lands, and public right-of-way's that are in the vicinity of the project.

As identified in **Section 4.14, Public Services,** the proposed project work is limited to water management improvements on existing agricultural lands. Project work is not anticipated to have an effect on recreational opportunities either directly or indirectly.

Discussion of Checklist Answers:

a) The project will not result in increased use of existing recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. ***No impact.***

b) The project does not include recreational facilities, nor does the project require the construction or expansion of recreational facilities. The project will not interrupt traffic flow on public rights-of-way, and therefore dispersed recreation that utilizes these facilities will not be impacted. ***No impact.***

Conclusions Related to Recreation:

Please see **Section 14, Public Services** for further discussion of recreational facilities. The project is limited to water management improvements on existing agricultural lands, and will not impact, either directly or indirectly, recreational facilities. ***No impact.***

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
16. TRANSPORTATION/TRAFFIC. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Overview:

The project is located in central Siskiyou County and is served by Interstate 5, State Routes (SR) 3 and 97. Within the project area County roadways, including Lower Little Shasta Road, Harry Cash Road, and Hart Road, provide traffic circulation and connectivity to the larger roadways.

The County of Siskiyou provides a public bus system, Siskiyou Transit and General Express (STAGE) providing transportation to the communities in Siskiyou County generally along I-5. The project area is rural in nature, and roadways which access the project area are favorable for recreational road bicycling. Pedestrian transportation is not typically a viable means of transportation in the project area due to the rural nature.

Discussion of Checklist Answers:

a) Implementation of the proposed Project may cause a short-term, isolated increase in traffic on Project area roadways during construction which is not substantial in relation to the existing traffic load and capacity of project area roadways. Traffic increases will include up to 5 additional employees to implement the Project for each phase, resulting in 10 daily trips. Project components are expected to be implemented in sequence. Therefore, the Project is expected to result in up to 10 additional trips per day during construction, plus additional trips for deliveries of supplies and materials, which are not expected to be more than 8 trips per day and will be intermittent in nature and isolated to those times of materials delivery. The Project will not result in a long-term increase in traffic. The Project will not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of circulation systems in the Project area. This impact is considered to be ***less than significant.***

b) As identified in a) there will be no cumulative traffic impact associated with the proposed Project, and the Project will not result in congestion. Therefore, the Project impact is considered to be ***less than significant.***

c) There will be no affect on air traffic patterns as a result of the Project. ***No impact.***

d) The Project will require two pipe alignment crossings of Harry Cash Road, both of which will utilize standard trenching methods. One way traffic will be maintained at all times during construction. Following construction, roadways will be patched and paved to match pre-Project conditions, and therefore will not increase hazards due to a design feature. Additionally, there will be no change in uses as a result of the Project and therefore the Project will not result in incompatible uses. ***Less than significant impact.***

e) The Project is located on private properties, all of which are accessed via public rights-of-way. The Project may result in a short-term increase in traffic on area roadways associated with construction activities as described in a) above. This increase in traffic will be minimal in nature, short-term, and isolated to the immediate access locations for the Project area and is not anticipated to result in an impact to emergency access. This impact is considered to be ***less than significant.***

f) The Project will not impact any existing public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities. ***No impact.***

Conclusions Related to Transportation and Circulation:

Project impacts to transportation and circulation will be short-term in nature and will be isolated to the immediate access points to the Project location, and will be limited to the time of construction. Impacts to traffic and circulation as a result of the proposed Project will be ***less than significant.***

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
17. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or?	☐	☐	☒	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

Overview:

On September 23, 2016, in compliance with PRC § 21080.3.1 and the CDFW Tribal Communication and Consultation Policy, the Department provided official notification of the Hart Ranch Flow Enhancement Project to those Tribal contacts that are federally recognized tribes in California and/or have requested CEQA notification, within the 6 counties in and around the Project area. Official notification was made to Elk Valley Rancheria, Resighini Rancheria, Yurok Tribe of California, Tolowa Dee-ni Nation – Smith River Rancheria of California, Blue Lake Rancheria, Hoopa Valley Tribe, Bear River Band of Rohnerville Rancheria, Wiyot Tribe, Big Lagoon Rancheria, Cher-Ae Heights Indian Community of Trinidad Rancheria, Cedarville Rancheria of N. Paiute Indians, Fort Bidwell Indian Community of Paiute, Pit River Tribes of California, Redding Rancheria, Quartz Valley Indian Community, Karuk Tribe, and Middletown Rancheria. Formal consultation was not requested by Tribal contacts with the exception of Middletown Rancheria if human habitation is found, as identified in their letter dated October 5, 2016.

Upon completion of the Cultural Resources Survey, contact was made by phone calls on December 22, 2016, and January 3, 2017, and an email on January 5, 2017, to Middletown Rancheria to discuss steps forward. On January 13, 2017, after reviewing the Cultural Resources Survey, Middletown Rancheria responded they did not have any additional comments or interest in the Project.

Discussion of Checklist Answers:

a) The cultural resources survey for the Project did not identify any historical resources which are listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources. See Section 5, Cultural Resources, of this Initial Study for further discussion. This impact is considered to be ***less than significant.***

b) As identified in Section 5, Cultural Resources, of this Initial Study, no cultural resources of significance have been identified within the Project area. Mitigation **MM 5.1** through **MM 5.3** included in that section identify actions to be taken, should resources be found during construction activities, as cultural surveys were limited to surface surveys. Therefore, the Project impact is considered to be ***less than significant with mitigation incorporated.***

Conclusions Related to Tribal Cultural Resources:

Project impacts to tribal cultural resources will be short-term in nature and will be isolated to the immediate access points to the Project location, and will be limited to the time of construction. Impacts to traffic and circulation as a result of the proposed Project will be ***less than significant.***

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
18. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Overview:

Potable water within the Project area is supplied by private groundwater wells. Agricultural irrigation water is supplied by a combination of surface water, primarily diverted from the Little Shasta River and area springs, and groundwater wells. No municipal water service is located within the Project area. Water usage varies depending upon the crops being irrigated, and the livestock demands. The Project will result in reduction of the total amount of water diverted from the Little Shasta River for irrigation purposes due to increased irrigation and stockwater efficiencies gained by replacing ditches with buried pipe. The Project will result in modification to an existing water rights through a California Water Code Section 1707 petition process which will result in long-term instream dedication of up to 1.5 cfs and potential permissive dedication of their remaining water right by the Hart Ranch while maintaining viable agricultural lands.

The Project area is served by private septic systems. There are no public wastewater treatment facilities within the Project area. Storm drainage in the Project area is primarily comprised of roadside ditches and overland flow to area waterways including the Little Shasta River and its tributaries. There is no developed storm drain management infrastructure within the Project area with the exception of roadside ditches and culverts.

The County of Siskiyou owns and operates a transfer site for solid waste southeast of the City of Yreka off Oberlin Road. This transfer station serves much of the County, and the station is open to County residents to drop off solid waste. Any solid waste generated as a part of this Project would go to the Oberlin Road Transfer Station. The Oberlin Road Transfer Station accepts solid waste including household waste, construction waste, (concrete, wood, metal), white goods (appliances, including refrigerators), yard waste, and recyclable materials. Fees are charged on a volume and weight basis, with the exception of white goods which are charged on an individual basis. The Oberlin Road Transfer Station is estimated to have capacity to serve the county for 30 years.

Discussion of Checklist Answers:

a) The proposed Project will have no impact on wastewater treatment. ***No impact***.

b) The Project will have ***no impact*** on water or wastewater facilities.

c) The Project will have no impact on stormwater drainage facilities. ***No impact***.

d) The Project will result in a net decrease in the amount of water diverted from the Little Shasta River for irrigation and stockwater, therefore decreasing the demand on water supplies. There will be no net increase in water supply and existing entitlements and resources are adequate to serve the Project. The Project will not result in any expanded entitlements or water rights. ***Less than significant.***

e) See a) and b) above. ***No impact.***

f) The Project will generate solid waste as a result of removal of the existing diversion structure which includes the removal of concrete and steel. If solid waste is generated it will be disposed of at the Oberlin Road Transfer Station, which has capacity to serve the County for the next 30 years. The Project will have a ***less than significant impact*** on landfills and solid waste.

g) The Project will have ***no impact*** on solid waste.

Conclusions Relating to Utilities and Service Systems:

The Project will have a ***less than significant impact*** on Utilities and Service Systems.

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
19. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion of Mandatory Findings of Significance:

a) The proposed Project may have impacts on biological and cultural resources as discussed in **Section 4.4, Biological Resources** and **Section 4.5, Cultural Resources**. Mitigation measures **MM 4.1** through **MM 4.8** and **MM 5.1** through **MM 5.3** will reduce impacts to be ***less than significant with mitigation incorporated.***

b) The proposed Project has cumulative impacts associated with construction of the Project which are primarily limited to impacts associated with in-stream work and earth moving activities. The Initial Study and Mitigated Negative Declaration for the proposed Project has evaluated the potential impacts of construction of the Project and has incorporated mitigation that will reduce impacts to a level that is considered to be less than significant. The proposed Project is intended to improve flows, fish passage, and water quality in the Little Shasta River, and improve irrigation management opportunities and efficiencies. The proposed Project includes revegetation in locations where vegetation removal is necessary for Project implementation, with the overall intent of improving habitat within and along the Little Shasta River. The Project’s incremental effects, when considered in connection with the effects of past projects, current projects, and the effects of probable future projects, are considered to be minimal in nature and will actually result in an overall improvement to aquatic habitat and water quality in the Little Shasta River watershed in the long term. The volume of agricultural diversions will be reduced below current levels by up to 1.5 cfs, reducing cumulative impacts to listed species and riverine habitats. Therefore, cumulative impacts are minimized and are considered to be ***less than significant with mitigation incorporated.***

c) The proposed Project does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. ***No impact.***

5 Special Studies and References

5.1 Documents Referenced in Initial Study and/or Incorporated by Reference

The following persons and documents were used to determine the potential for impact from the proposed project. Compliance with federal, state and local laws is assumed in all projects.

Apperson, K.A., T. Copeland, J. Flinders, P. Kennedy, and R. Roberts. 2015. *Field Protocols for Stream Snorkel Surveys and Efficiency Evaluations for Anadromous Parr Monitoring. Idaho Fish & Game*. May 2015. 27 pp.

California Department of Conservation, Division of Land and Resource Protection, Farmland Mapping and Monitoring Program (FMMP). *Siskiyou County Important Farmland 2012*. http://www.conservation.ca.gov/dlrp/fmmp/Pages/Siskiyou.aspx. Accessed August 2016.

California Department of Conservation, California Geologic Survey. *Fault Activity Map of California (2010)*. http://maps.conservation.ca.gov/cgs/fam/. Accessed August 2016.

California Department of Fish and Game (CDFG). *California Salmonid Stream Habitat Restoration Manual*. October 2003.

California Department of Fish and Game (CDFG). 2012. Critical Riffle Analysis for Fish Passage in California. California Department of Fish and Game Instream Flow Program Standard Operating Procedure DFG-IFP-001. 24 pp

California Department of Fish and Wildlife, Yreka Fisheries. *Little Shasta River – A compendium of Available Information*. September 2016.

California Department of Transportation (Caltrans). California Scenic Highway Mapping System. Website. http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/scenic_hwy.htm. Accessed August 2016.

California Department of Toxic Substances Control. *EnviroStor Database*. http://www.envirostor.dtsc.ca.gov. Accessed August 2016.

California Environmental Protection Agency (CalEPA), State Water Resources Control Board, Division of Water Rights. *1932 Shasta River Judgment and Decree*. http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/judgments/docs/shastariver_jd.pdf

California Environmental Protection Agency, California Regional Water Quality Control Board, North Coast Region. *Action Plan for the Shasta River Watershed, a Major Tributary to the Klamath River, Temperature and Dissolved Oxygen Total Maximum Daily Loads (TMDL's)*. http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/shasta_river/. Accessed May 2016.

California Environmental Protection Agency, California Regional Water Quality Control Board, North Coast Region. *Draft Resolution No. R1-2006-0052 Amending the Water Quality Control Plan for the North Coast Region to Include the Action Plan for the Shasta River Watershed, a Major Tributary to the Klamath River, Temperature and Dissolved Oxygen Total Maximum Daily Loads (TMDL's).* Adopted *June 28, 2006*.

http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/shasta_river/060707/finalshastatmdlresolution.pdf. Accessed May 2016.

Davids Engineering, Inc. *Hydrogeologic Assessment of the Cowley and Hart Ranches Little Shasta Valley, California.* June, 2010.

Davids Engineering, Inc. *Little Shasta River Water Efficiency Study.* February, 2012.

Davids Engineering, Inc. *Technical Memorandum: Evaluation of Hart Ranch Historical Water Demands and Supplies.* July 30, 2015.

Davids Engineering, Inc. *Technical Memorandum: Water Supply Alternatives for the Proposed Hart Rach Stock Watering System.* July 16, 2015.

Federal Emergency Management Agency. *Flood Insurance Rate Map, Panel Number 06093C1650D*. January, 2011.

Flosi G, Downie S, Hopelain J, Bird M, Coey R, and Collins B. 2010. *California Salmonid Stream Habitat Restoration Manual: Fourth Edition.* California Department of Fish and Game Wildlife and Fisheries Division. 525 pp.

Gallagher, S.P. 2001. *Results of the 2000-2001 Coho Salmon (Oncorhynchus kisutch) and Steelhead (Oncorhynchus mykiss) spawning surveys on the Noyo River, California.* California State Department of Fish and Game. Fort Bragg, California. 44 pp

Howard, Joey, PE. Cascade Stream Solutions. *Little Shasta River Fish Passage Project: Bridge Impact Hydraulic Assessment*. October 2016.

McBain & Trush, Inc. 2013. *Study Plan to Assess Shasta River Salmon and Steelhead Recovery Needs.* September, 2013.

National Oceanic and Atmospheric Administration (NOAA) Fisheries. *Final Recovery Plan for the Southern Oregon/Northern California Coastal Evolutionarily Significant Unit of Coho Salmon.* September 2014.

National Oceanic and Atmospheric Administration (NOAA) Fisheries, Southwewst Region. *NOAA's National Marine Fisheries Service Final Biological Opinion and Essential Fish Habitat Consultation pertaining to the NOAA's Restoration Center's Proposed Funding of the U.S. Army Corps of Engineer's proposed Permitting of Restoration Projects within the NMFS's Northern California Office Jurisditictional Area* . May 2012.

National Oceanic and Atmospheric Administration (NOAA) Fisheries, West Coast Region California Coastal Office. *Safe Harbor Agreement for Voluntary Habitat Enhancement Activities Benefiting Southern Oregon and Northern California Coast Coho Salmon (Oncorhynchus kisutch) on Private Lands in the Shasta Valley, Siskiyou County, California, by and between the Hart Ranch and the National Marine Fisheries Service.* December 2016.

Nichols A, et al. 2016. *Little Shasta River Hydrologic and Water Temperature Assessment: April to December 2015.* Report prepared for The Nature Conservancy. April 2016.

Northwest Hyraulic Consultants, et all. *Little Shasta River Fish Passage Project: Predesign Report.* July 22, 2009.

North Coast Regional Water Quality Control Board. *Water Quality Control Plan for the North Coast Region.* May 2011. Available online: http://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/basin_plan.shtml. Accessed August 2016.

Olson, Eric. Air Pollution Specialist II, Siskiyou County Air Pollution Control District. Email communication. May 19, 2016.

Ostrowski, Tommy. Professional Engineer, Davids Engineering. Telephone and Email communication. August-December, 2016.

Piemme, Pam. Permit Technician, Siskiyou County Community Development Department. Email communication. August 2016.

Siskiyou County. Siskiyou County General Plan Land Use and Circulation Element. 1980. http://www.co.siskiyou.ca.us/content/planning-division-siskiyou-county-general-plan. Accessed August 2016.

Siskiyou County. Siskiyou County Air Pollution Control District. http://www.co.siskiyou.ca.us/content/agriculture-air-pollution-control-district. Accessed August 2016.

Surface Water Ambient Monitoring Program (SWAMP). 2014. *Collection of Water and Bed Sediment Samples with Associated Field Measurements and Physical Habitat in California*. Version 1.1 updated March 2014. 62 pp.

Surface Water Ambient Monitoring Program (SWAMP). 2008. *Quality Assurance Program Plan*. Version 1.0. 108 pp

United States Department of Agriculture, Natural Resource Conservation Service (NRCS). 2016. Web Soil Survey. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed August 2016.

U.S. Environmental Protection Agency (EPA). 2003. EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards. EPA 910-B-03-002. Region 10 Office of Water, Seattle, WA.

U.S. Environmental Protection Agency (EPA). 2014. *Best Practices for Continuous Monitoring of Temperature and Flow in Wadeable Streams.* Global Change Research Program, National Center for Environmental Assessment, Washing DC; EPA/600/R-13/170F. Available from the National Technical Information Service, Springfield, VA and online at http://www.epa.gov/ncea

United States Environmental Protection Agency (EPA). 2016. Greenhouse Gas Equivalencies Calculator. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator. Accessed September 2016.

Volcanic Legacy Scenic Byway. Website. http://www.volcaniclegacybyway.org/ Accessed August 2016.

APPENDICES

APPENDIX A

Hart Ranch Legally Appropriated Water Rights

HART RANCH WATER RIGHT : SHASTA RIVER JUDGEMENT AND DECREE, 1932

DIVERSION #	WATER RIGHT TYPE	PRIMARY OWNER	DIVERSION LOCATION	DIVERSION SEASON	DIVERSION AMOUNT (Acre Feet)	DIVERSION RATE (cfs)	Decree Paragraph	Total Summer Diversion (cfs)	Total Winter Diversion (cfs)
471	Appropriative	Rabbit Hill, LLC	Hart-Haight (LSR: RK 18.5)*	3/1-11/1	258	0.529	163	0.55	
471	Appropriative	Blair Hart	Hart-Haight (LSR: RK 18.5)*	3/1-11/1	9	0.021	163		
471	Appropriative	Rabbit Hill, LLC	Hart-Haight (LSR: RK 18.5)*	11/1– 3/1	70	0.144	163		
471	Appropriative	Blair Hart	Hart-Haight (LSR: RK 18.5)*	11/1– 3/1	2	0.006	163		0.15
472	Appropriative	Rabbit Hill LLC	Hart-Haight (LSR: RK 18.5)*	3/1-11/1		0.255	88-13	0.255	
472	Appropriative	Rabbit Hill LLC	Hart-Haight (LSR: RK 18.5)*	11/1-3/1		0.027	88-13		0.027
474	Appropriative	Rabbit Hill, LLC	Hart-Haight (LSR: RK 18.5)*	3/1-11/1	4,712	9.659	152		
474	Appropriative	Soda Springs, LLC	Hart-Haight (LSR: RK 18.5)*	3/1-11/1	1940	3.981	152	13.64	
474	Appropriative	Rabbit Hill, LLC	Hart-Haight (LSR: RK 18.5)*	11/1-3/1	492	1.029	152		
474	Appropriative	Soda Springs, LLC	Hart-Haight (LSR: RK 18.5)*	11/1-3/1	207	0.425	152		1.454
478	Appropriative	Rabbit Hill, LLC	Hart-Haight (LSR: RK 18.5)*	3/1-11/1	1,455	2.983	165	2.983	
478	Appropriative	Rabbit Hill, LLC	Hart-Haight (LSR: RK 18.5)*	11/1-3/1	243	0.499	165		0.499
Total Little Shasta River Diversion (RK 18.5)								**17.428**	**2.13**
461/461/463	Appropriative	Soda Springs, LLC	Martin Spring	3/1-11/1		0.021	249	0.021	
467	Appropriative	Blair Hart	Evans Spring	3/1-11/1	190	0.388	164		
467	Appropriative	Rabbit Hill, LLC	Evans Spring	3/1-11/1	960	1.967	164	2.355	
467	Appropriative	Blair Hart	Evans Spring	11/1– 3/1	190	0.388	164		
467	Appropriative	Rabbit Hill, LLC	Evans Spring	11/1– 3/1	960	1.967	164		2.355
Total Spring Diversion (Evans & Martin Spring)								**2.376**	**2.355**
TOTAL HART RANCH WATER RIGHT BY SEASON								**19.804**	**4.485**

Notes: * LSR = Little Shasta River, RK = River Kilometer
Source: Shasta River Adjudication No. 7035

APPENDIX B

Hart Ranch Northside Stock Watering Facilities, 75% Design
Davids Engineering, Inc.
August 2016

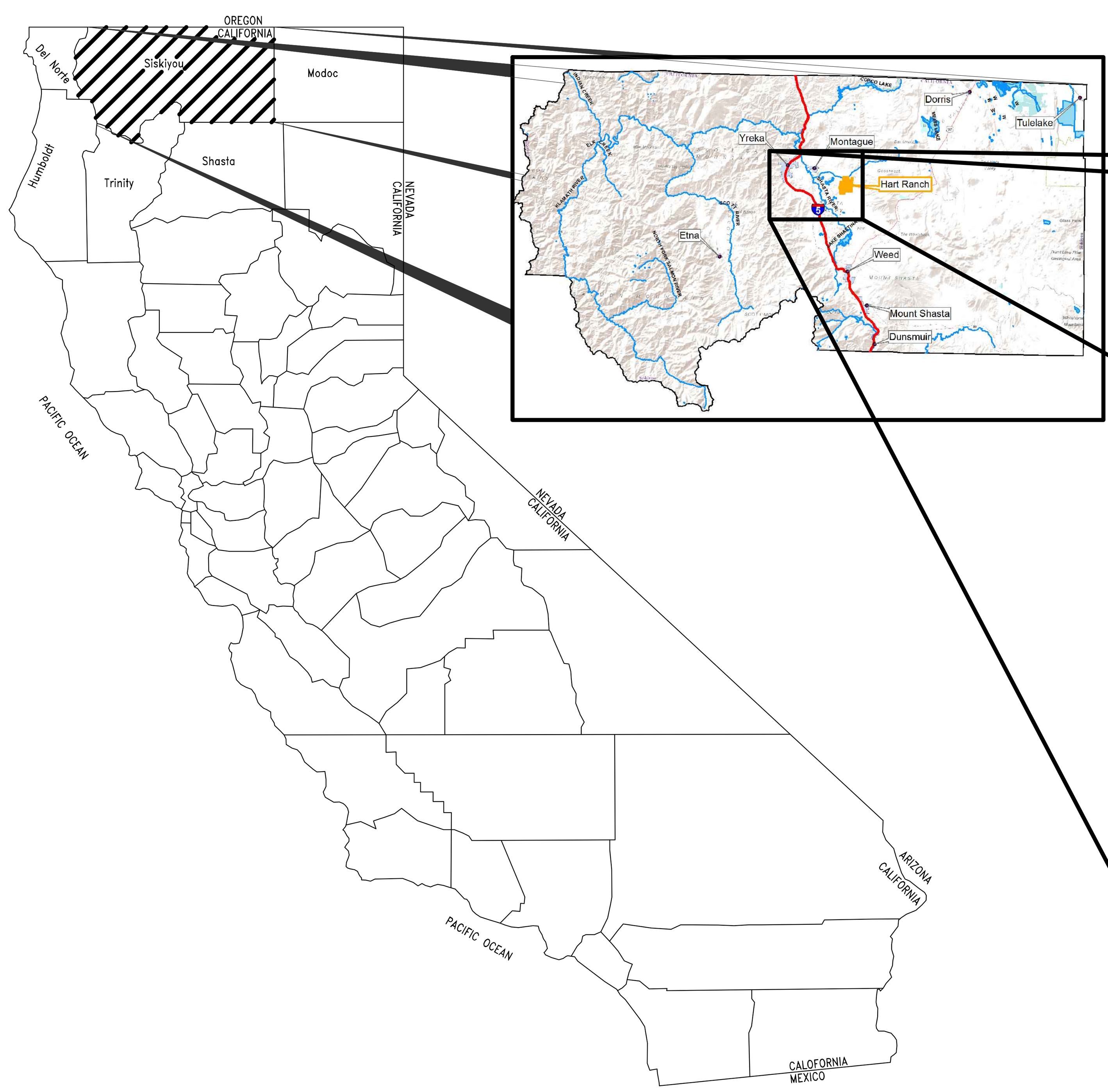
HART RANCH

Northside Stock Watering Facilities

75% DESIGN
NOT FOR CONSTRUCTION

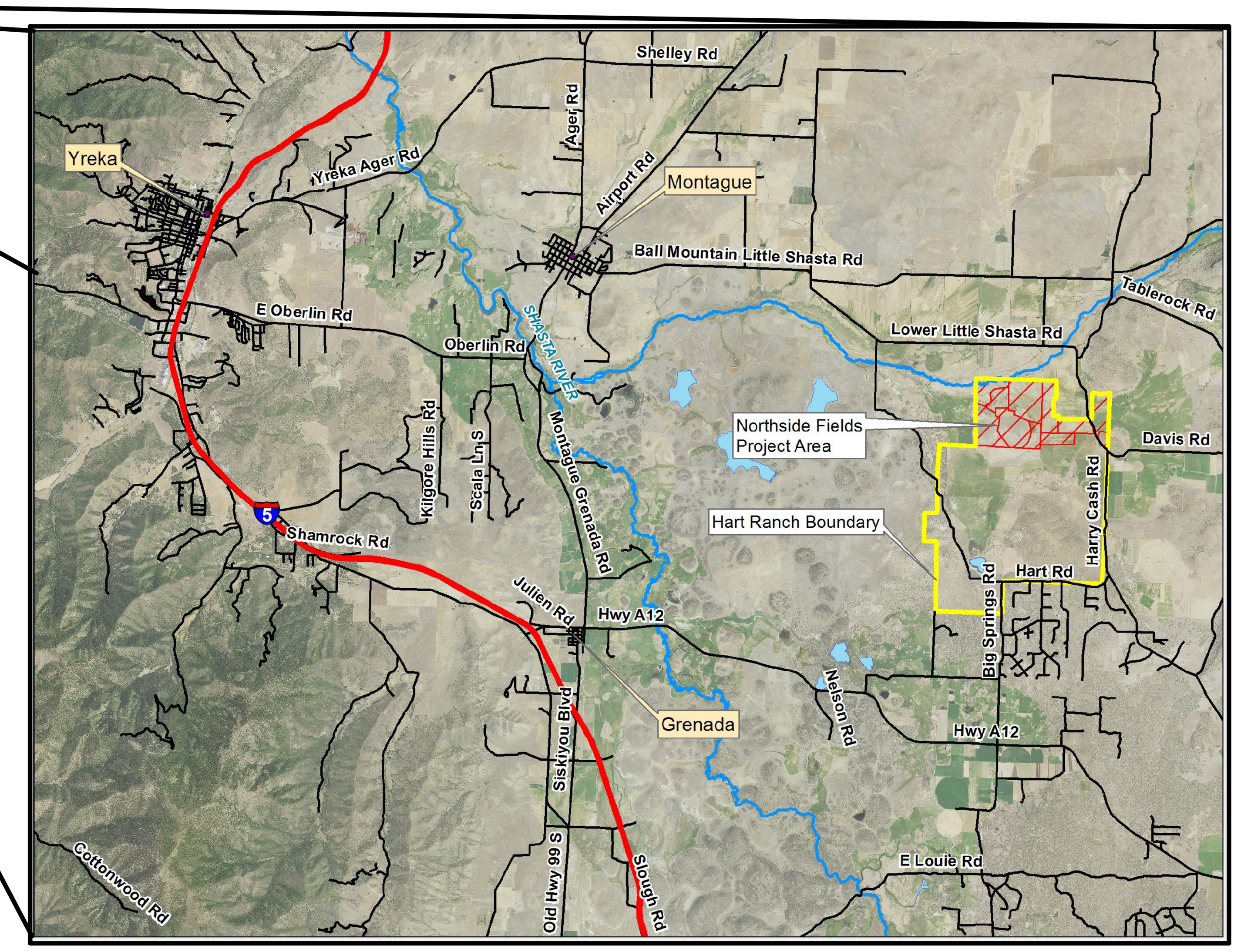
OWNER:
HART RANCH
CONTACT INFO

ENGINEER:
DAVIDS ENGINEERING, INC
TOMMY OSTROWSKI, PE
1772 PICASSO AVENUE, DAVIS, CA SUITE A
530-757-6107 EXT.108



Location Map

Scale: Not to Scale



Vicinity Map

Scale: Not to Scale

Abbreviations

2.5 : 1	HORIZONTAL : VERTICAL SLOPE
AB	AGGREGATE BASE
AC	ACRE
AF	ACRE-FEET
AP	ANGLE POINT
APP	APPROVED
APPROX	APPROXIMATE
BC	BEGINNING OF CURVE
BM	BENCH MARK
CFS	CUBIC FEET PER SECOND
CJ	CONSTRUCTION JOINT
C	CENTERLINE
CL	CLASS
CLSM	CONTROLLED LOW-STRENGTH MATERIAL
CLR	CLEARANCE
CONC	CONCRETE
CSP	CORRUGATED STEEL PIPE
CTR	CENTER
CTD	CENTERED
DEG	DEGREE
DIA	DIAMETER
DWG	DRAWING
(E)	EXISTING
E	ELECTRIC LINE
E.	EAST (COORDINATE)
EA	EACH
EC	END OF CURVE
EF	EACH FACE
EG	EXISTING GROUND
ELEC	ELECTRIC
ELEV	ELEVATION
EW	EACH WAY
F&I	FURNISH AND INSTALL
FG	FINISHED GRADE
FL	FLOWLINE
FT	FEET
FTO	FARMER TURNOUT
GALV	GALVANIZED
GB	GRADE BREAK
HDPE	HIGH DENSITY POLYETHYLENE
HWM	HIGH WATER MARK
INV	INVERT
L=	LENGTH =
LAT	LATERAL
LCW	LONG CRESTED WEIR
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
(N)	NEW
N.	NORTH (COORDINATE)
NTBD	NOT TO BE DISTURBED
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OH	OVERHEAD
PCC	POINT OF COMPOUND CURVATURE
PRC	POINT OF REVERSE CURVATURE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
REV	REVISION
RCP	REINFORCED CONCRETE PIPE
S=	SLOPE =
SCH	SCHEDULE
SE	STRAIGHT EMBEDMENT
SIM	SIMILAR
SST	STAINLESS STEEL
t	THICKNESS
TBR	TO BE REMOVED
TOB	TOP OF BANK
TOC	TOP OF CONCRETE STRUCTURE
TOL	TOP OF LINING
TOW	TOP OF WEIR WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
USBR	UNITED STATES BUREAU OF RECLAMATION
WSE	WATER SURFACE ELEVATION

Legend

BREAK LINE
CENTERLINE
HANDRAIL
SLOPE LINES
DRAINAGE DITCH
EASEMENT LINE
SECTION ARROW
DETAIL/SECTION NUMBER
FOUND ON SHEET

CONCRETE
EARTH
RIPRAP/AB
SAND
(E) FENCE
(N) FENCE
CULVERT
CONTOUR

Sheet Index:

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction 75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

Project Mgr:	BAC	
Project Eng:	TJO	
Designer:	TJO	
Checked:		
Dsgn/Drawn:	TJO	

Issue/Revision Description: | Date: | Rev No: | App By:

TITLE

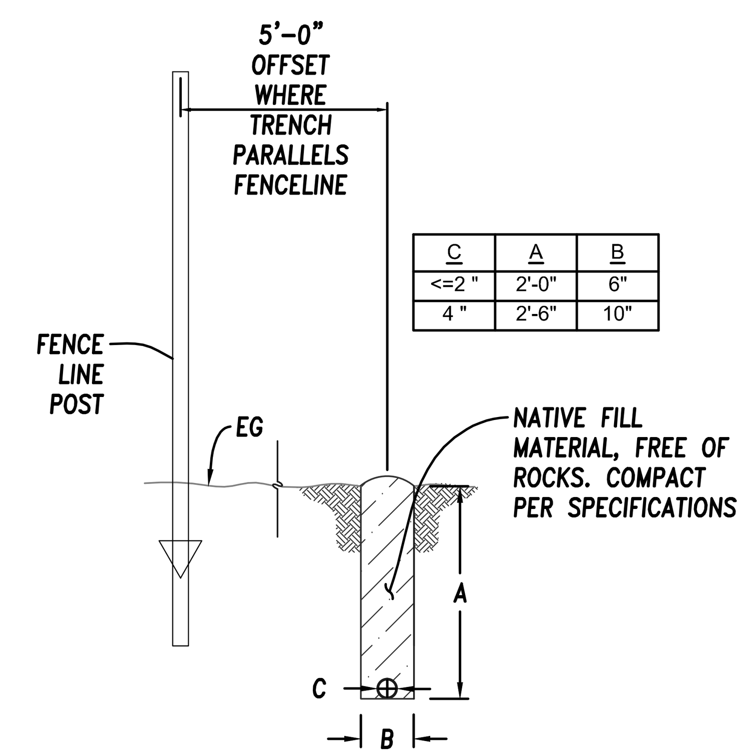
1

Sheet:	1 of 17
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016

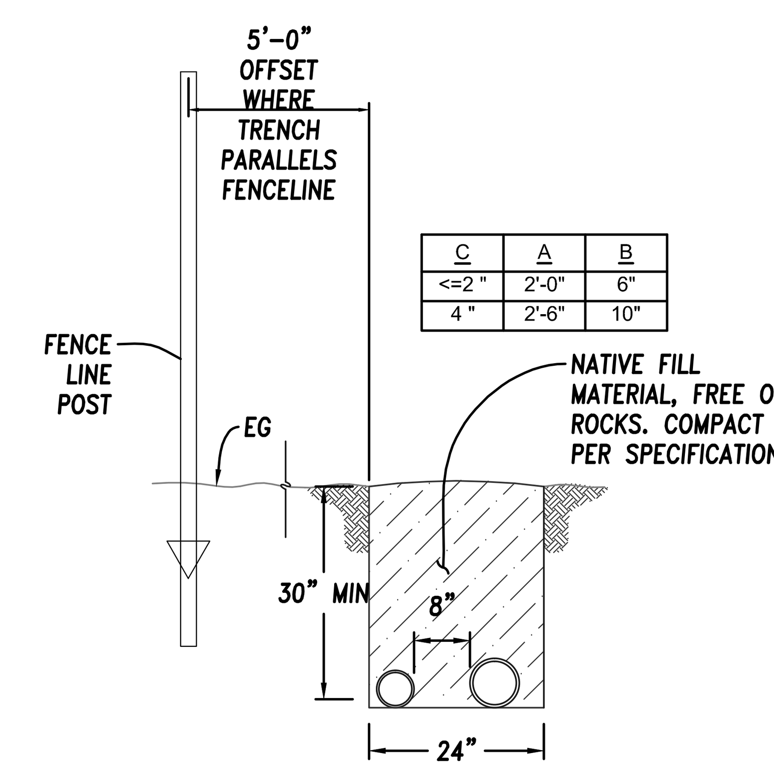
Know what's **below.**
Call before you dig.

General Notes:

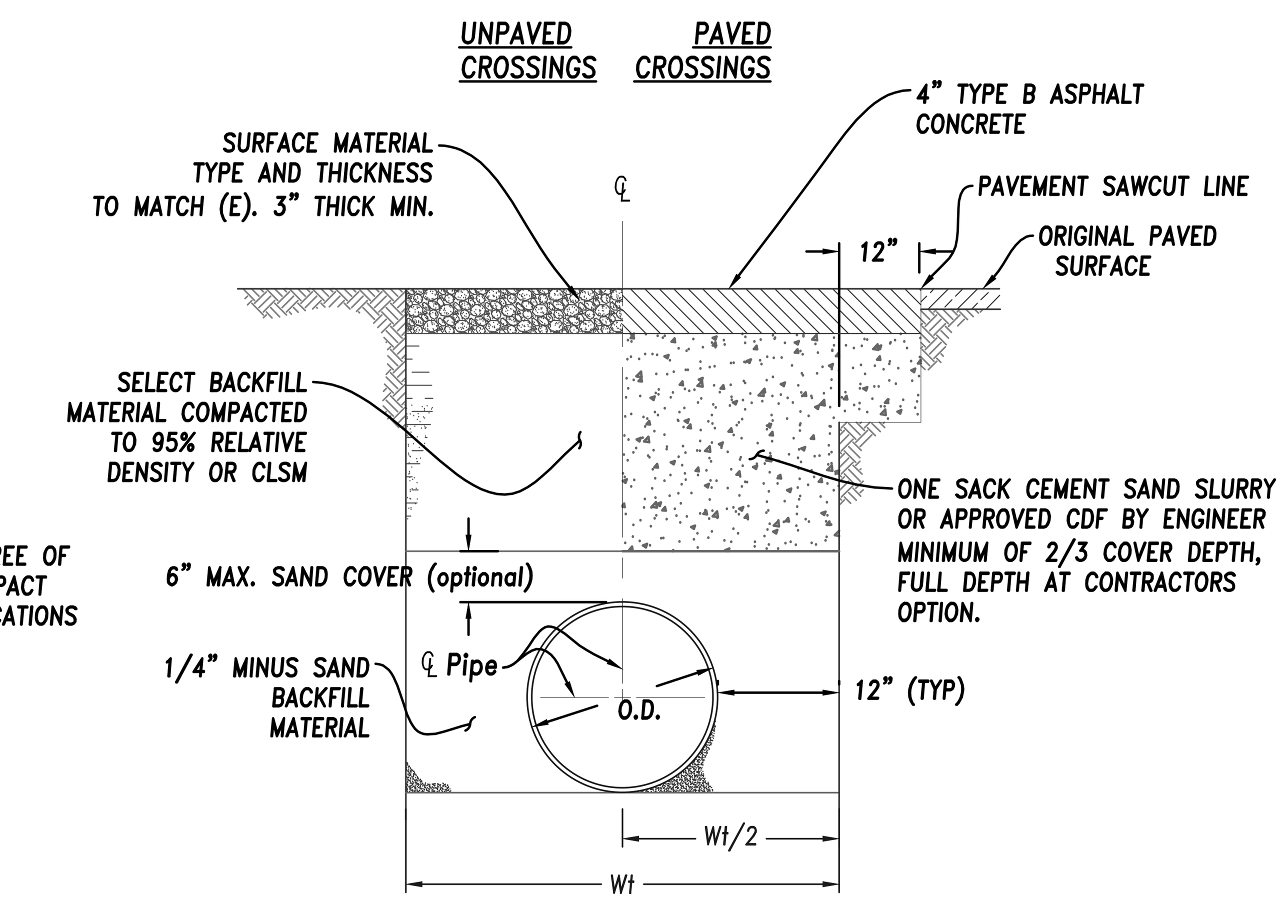
To Be Added



PIPE - Ø 1-4"



COMMON TRENCH - PIPE - Ø 4-6"



ROAD CROSSINGS

TYPICAL TRENCH DETAILS

General Structure Notes

To be added

DAVIDS ENGINEERING, INC
www.davidsengineering.com

http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction 75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

Issue/Revision Description:	Date:	Rev No:	App By:

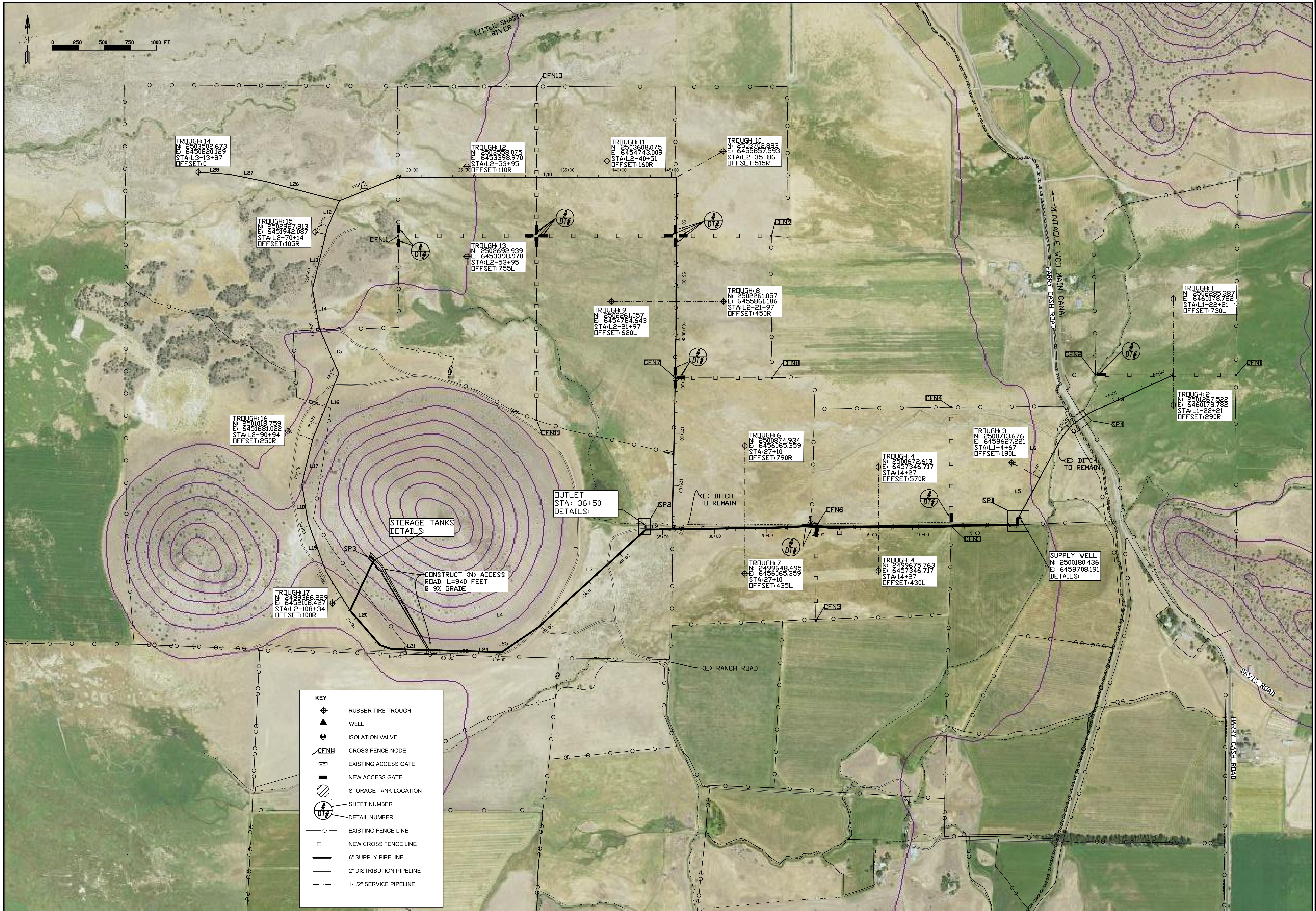
Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr:	BAC
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

GENERAL NOTES AND TYPICAL DETAILS

2

Sheet:	2 of 17
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016



DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction
75% Design

Hart Ranch
Little Shasta Valley, California

Northside Stockwatering Facilities

Project Mgr:	BAC
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

App By:	Rev No:	Date:	Issue/Revision Description:

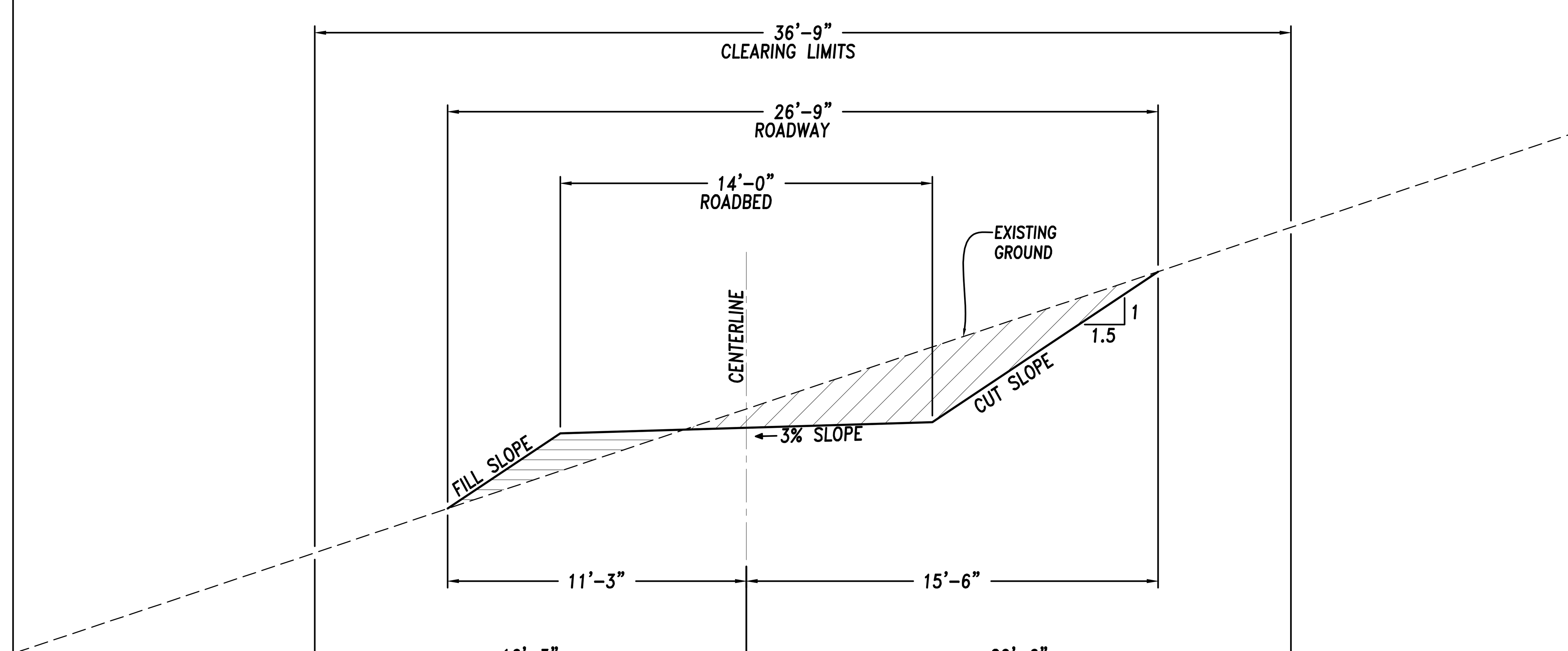
App By:	Rev No:	Date:	Issue/Revision Description:

System Overview

3

Sheet:	3 of 13
Proj #:	1088.15
Scale:	As Shown
Date:	October 12,2015

PLAN



TYPICAL ACCESS ROAD SECTION

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction
75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

Issue/Revision Description:	Date:	Rev No:	App By:

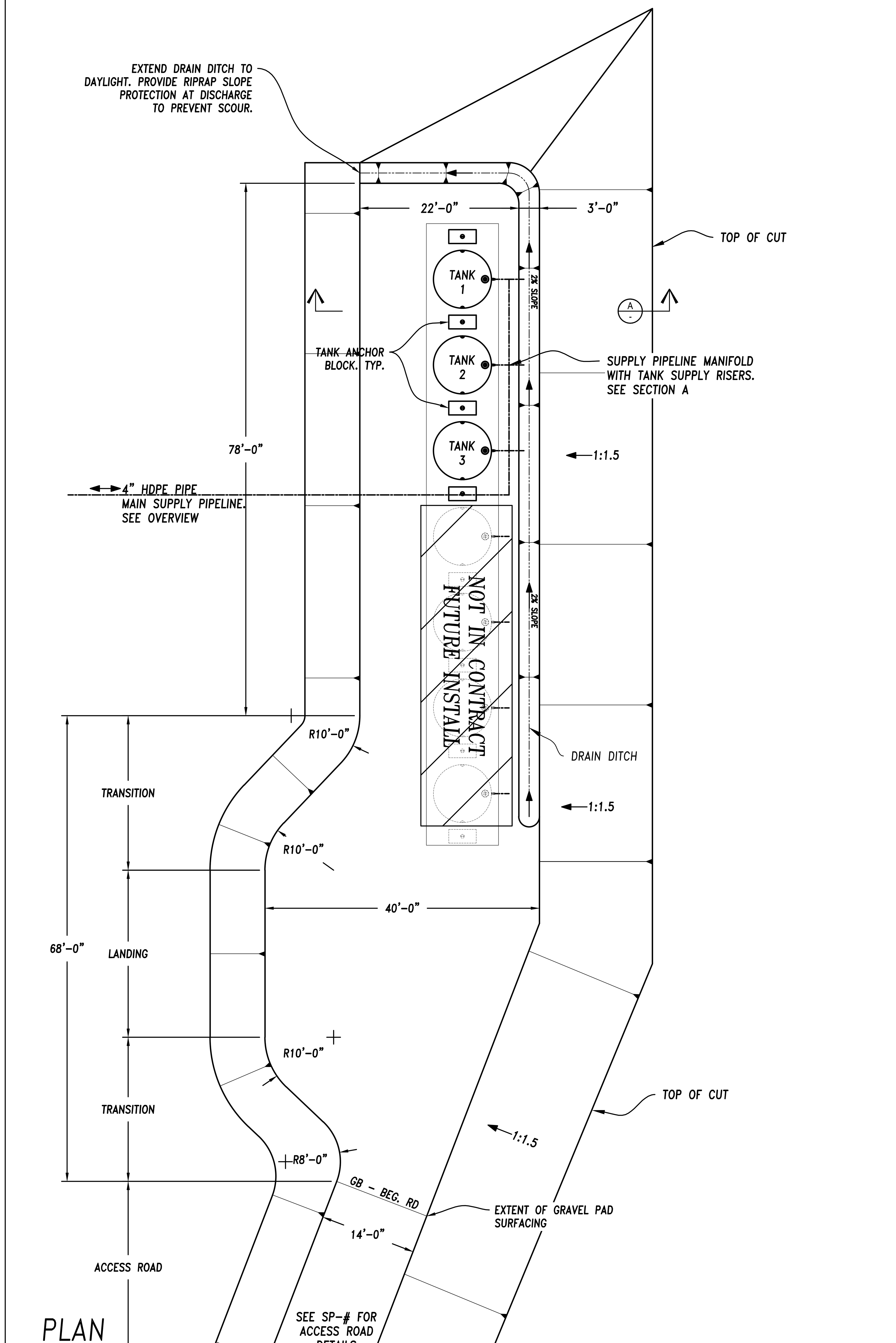
Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr: BAC
Project Eng: TJO
Designer: TJO
Checked:
Dsgn/Drawn: TJO

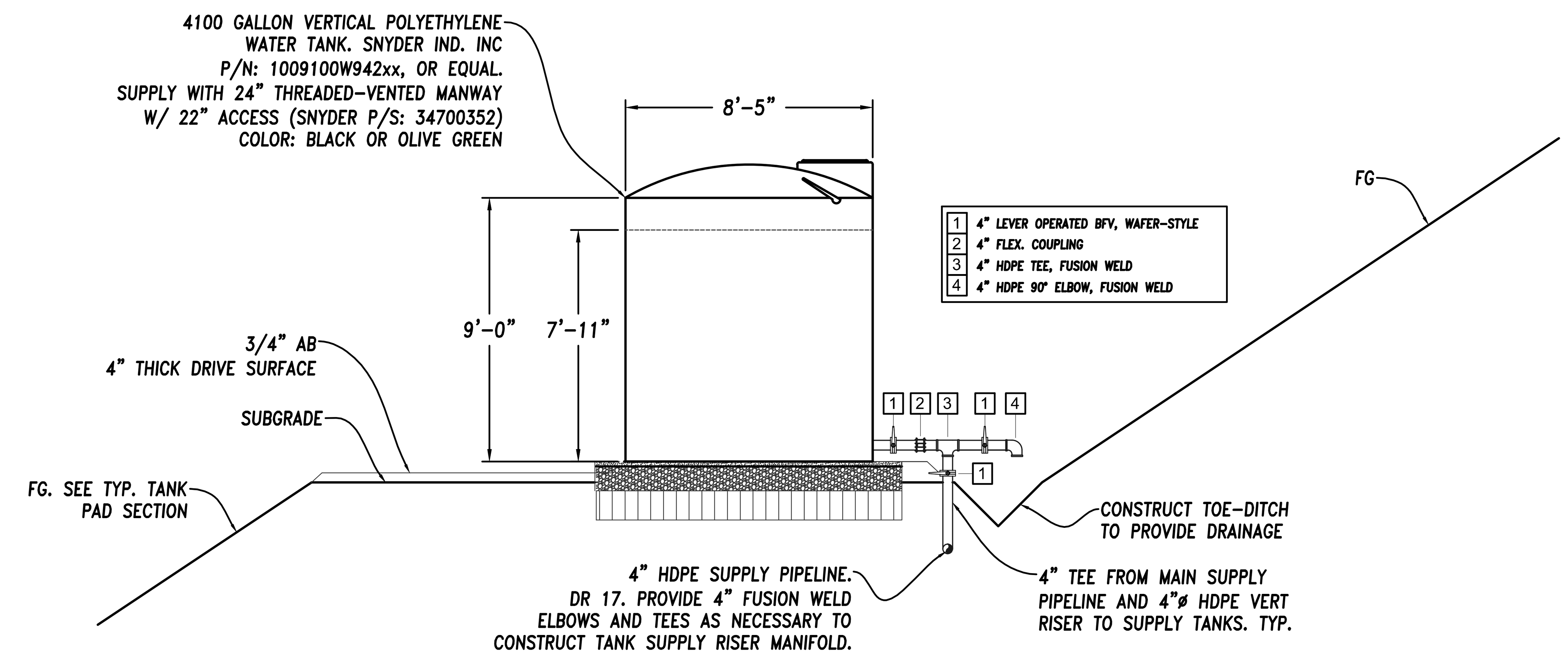
ELEVATED TANK ACCESS ROAD SITE PLAN

9

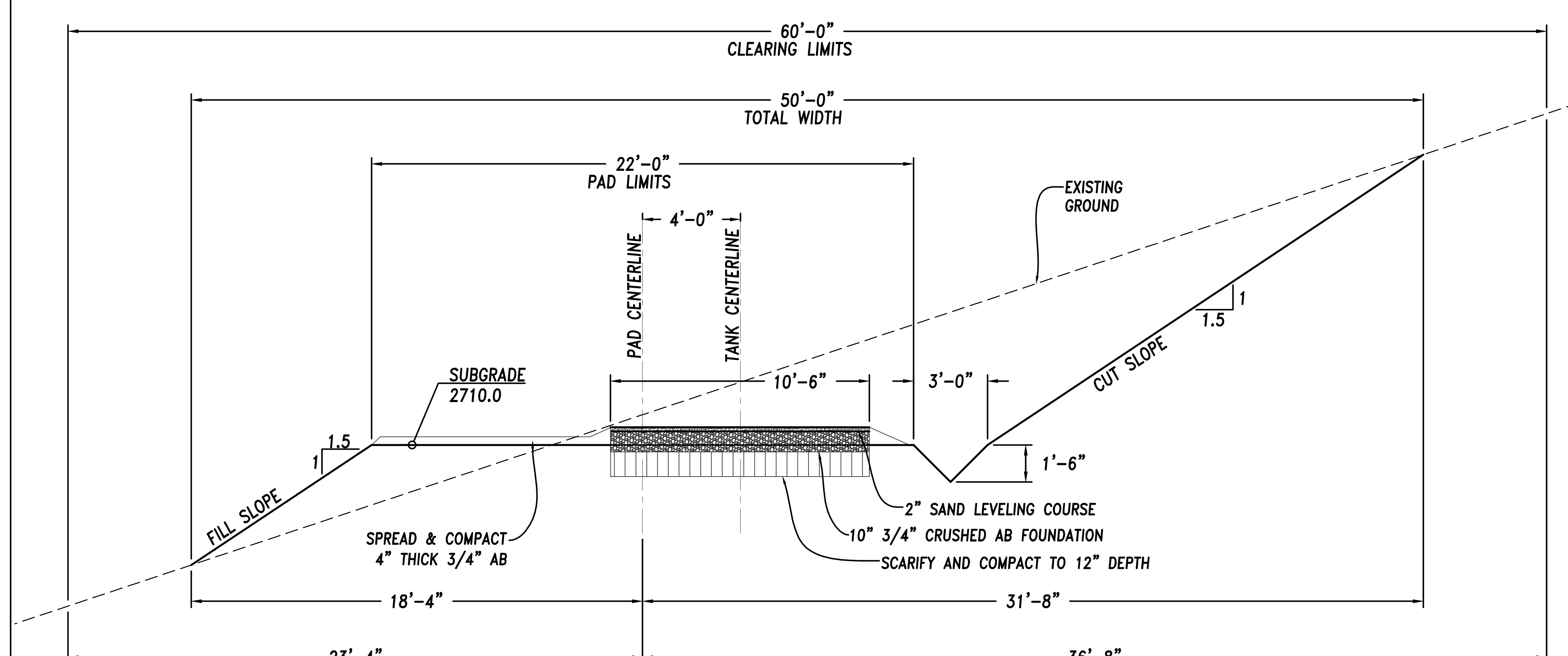
Sheet: 9 of 16
Proj #: 1088.04
Scale: Varies
Date: Aug. 19 2016



PLAN

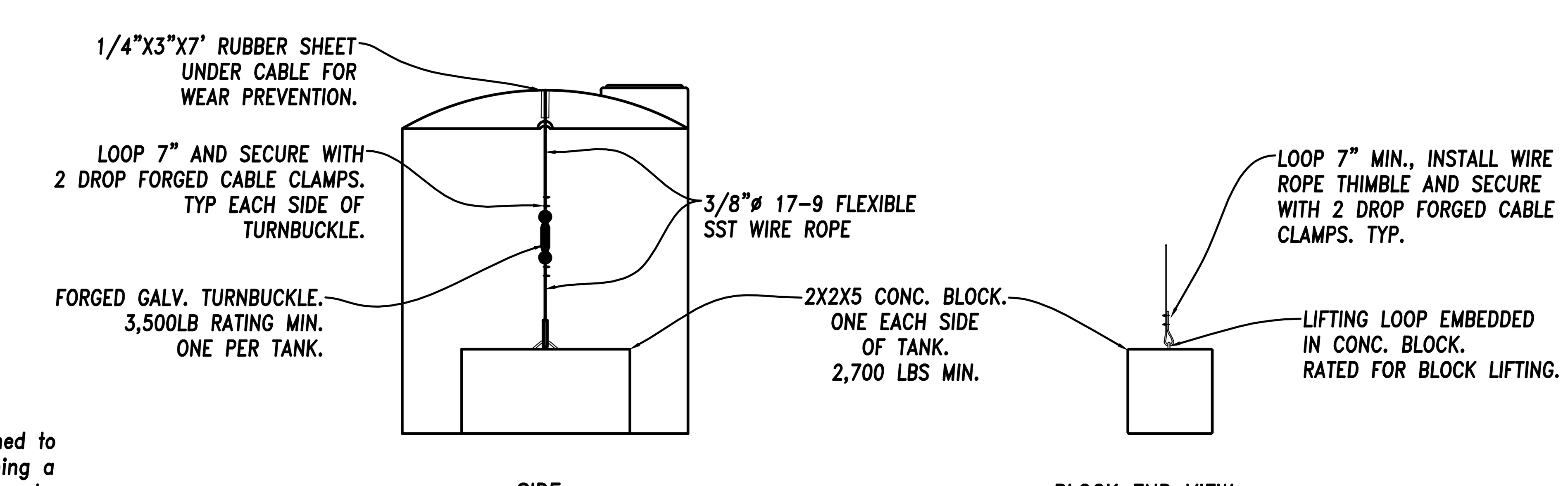


SECTION A



TYPICAL TANK PAD SECTION

Note:
Anchoring system designed to resistance wind loading assuming a maximum wind speed of 100 mph.



TANK ANCHORING SYSTEM

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction 75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

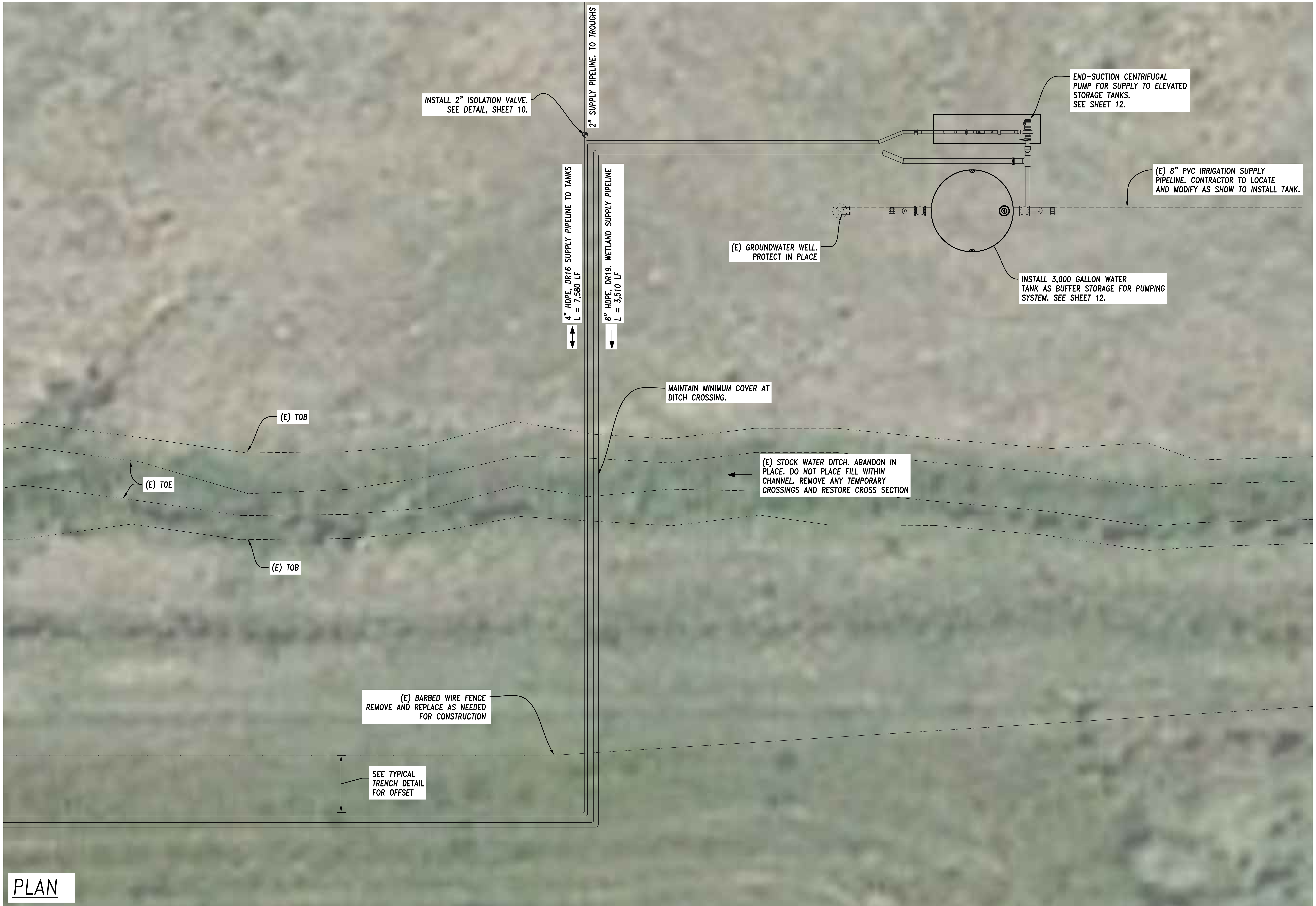
Project Mgr:	Project Eng:	Designer:	Checked:	Dsgn/Drawn:	App By:
BAC	TJO	TJO		TJO	

Rev No:	Date:	Issue/Revision Description:	App By:

ELEVATED TANK SITE PLAN AND DETAILS

10

Sheet:	10 of 16
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016



DAVIDS ENGINEERING, INC
www.davidsengineering.com

http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction 75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

Project Mgr:	BAC
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

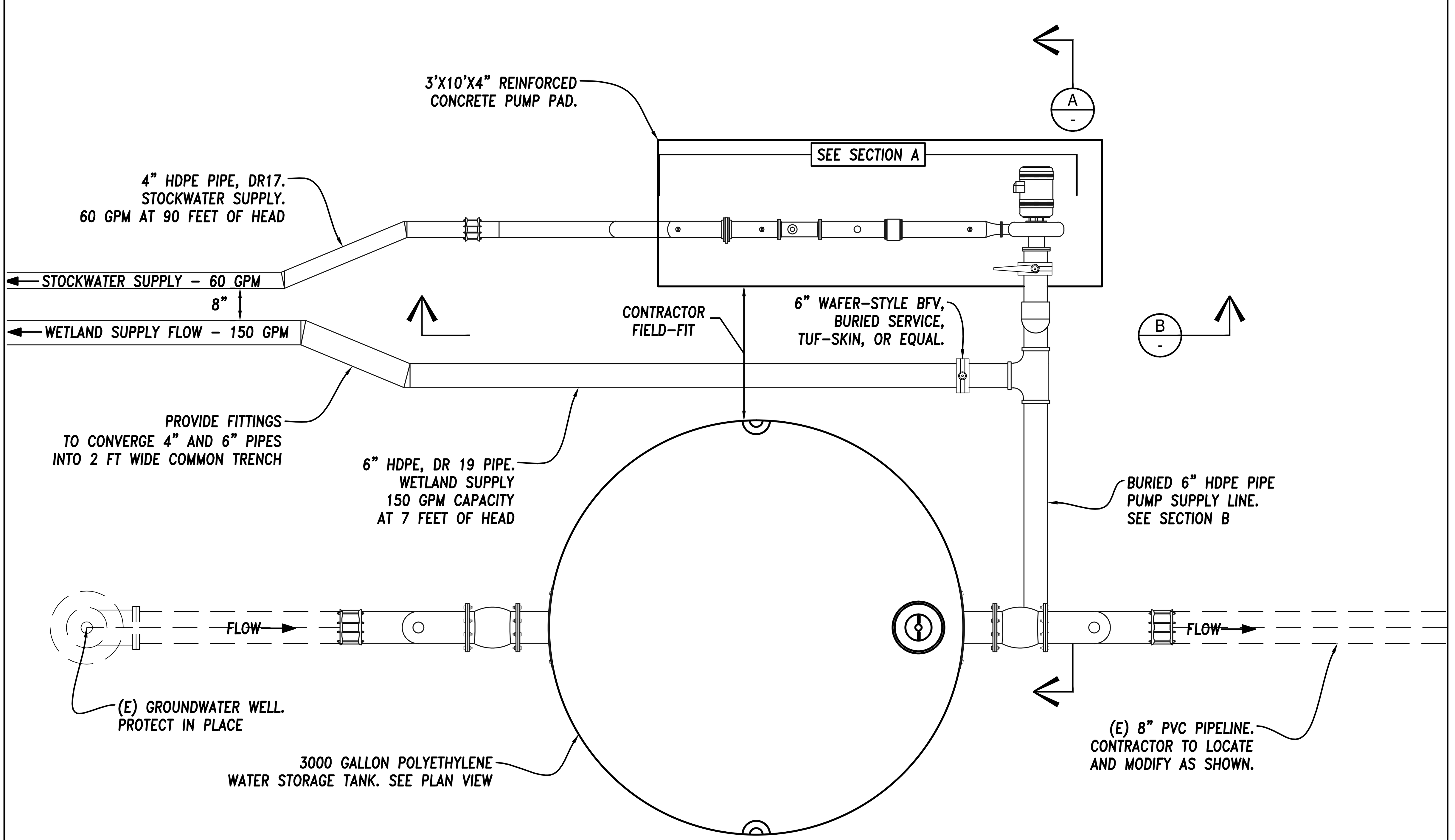
Issue/Revision Description:	Date:	Rev No:	App By:

Issue/Revision Description:	Date:	Rev No:	App By:

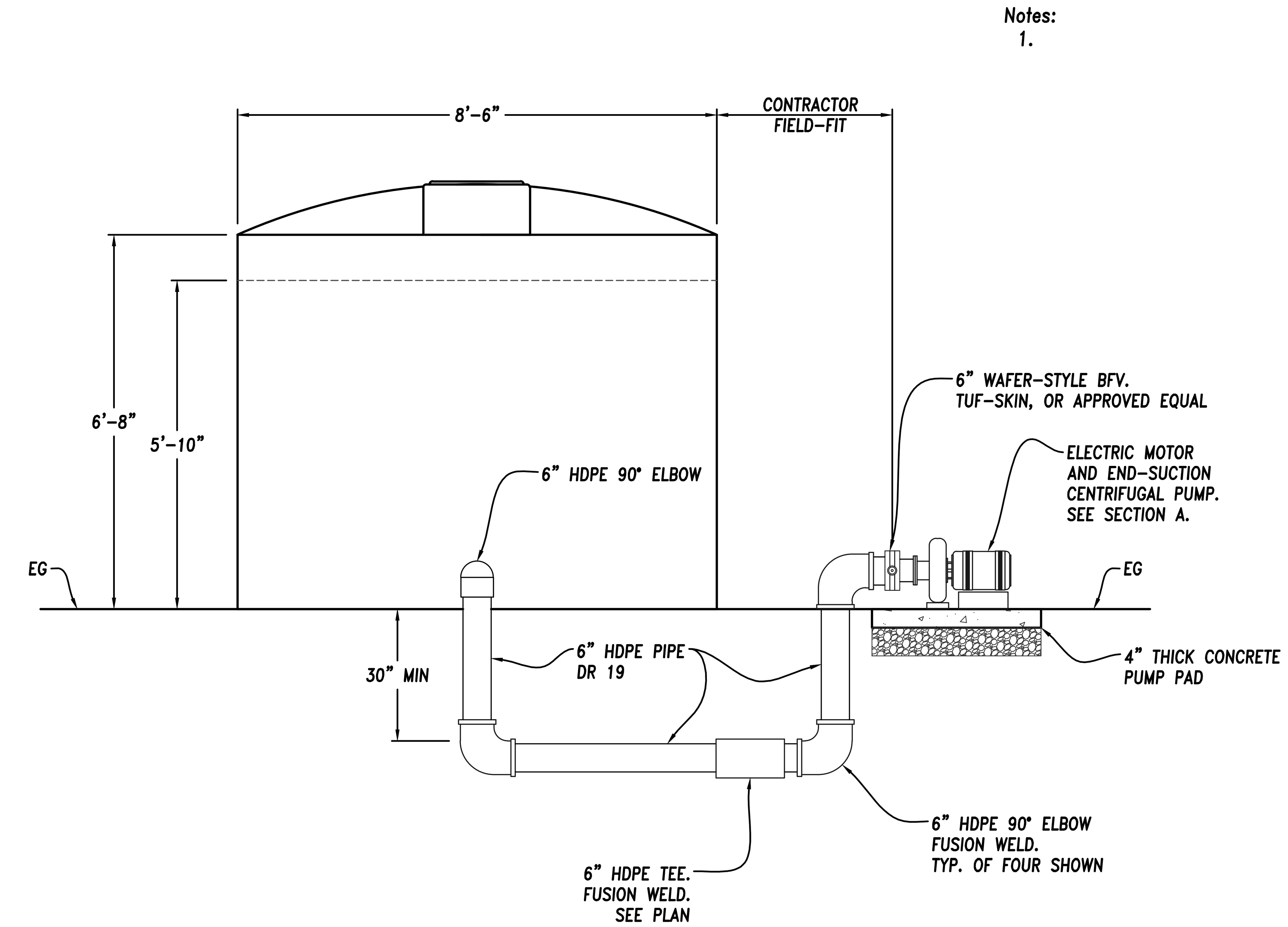
PUMP STATION SITE PLAN

11

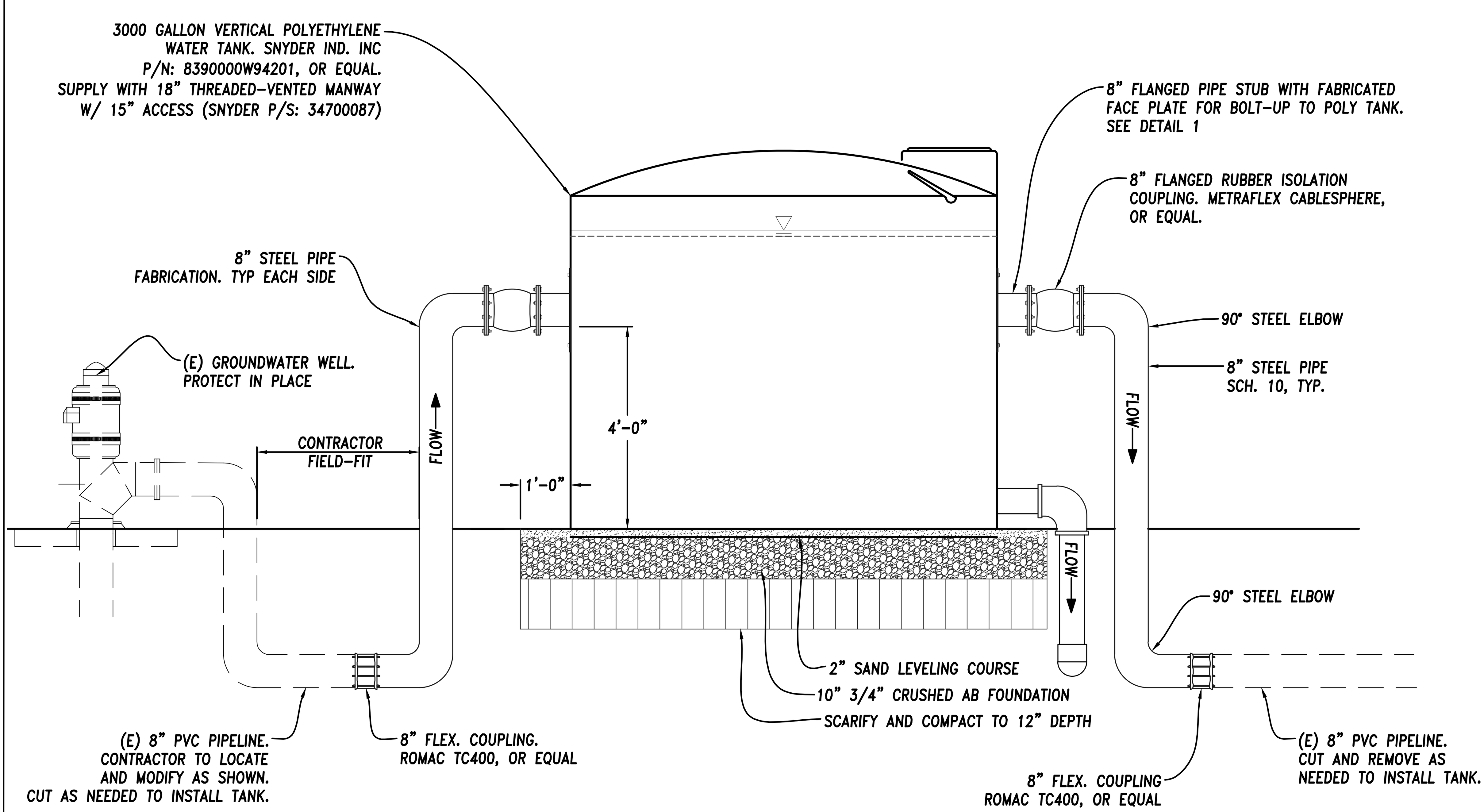
Sheet:	11 of 16
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016



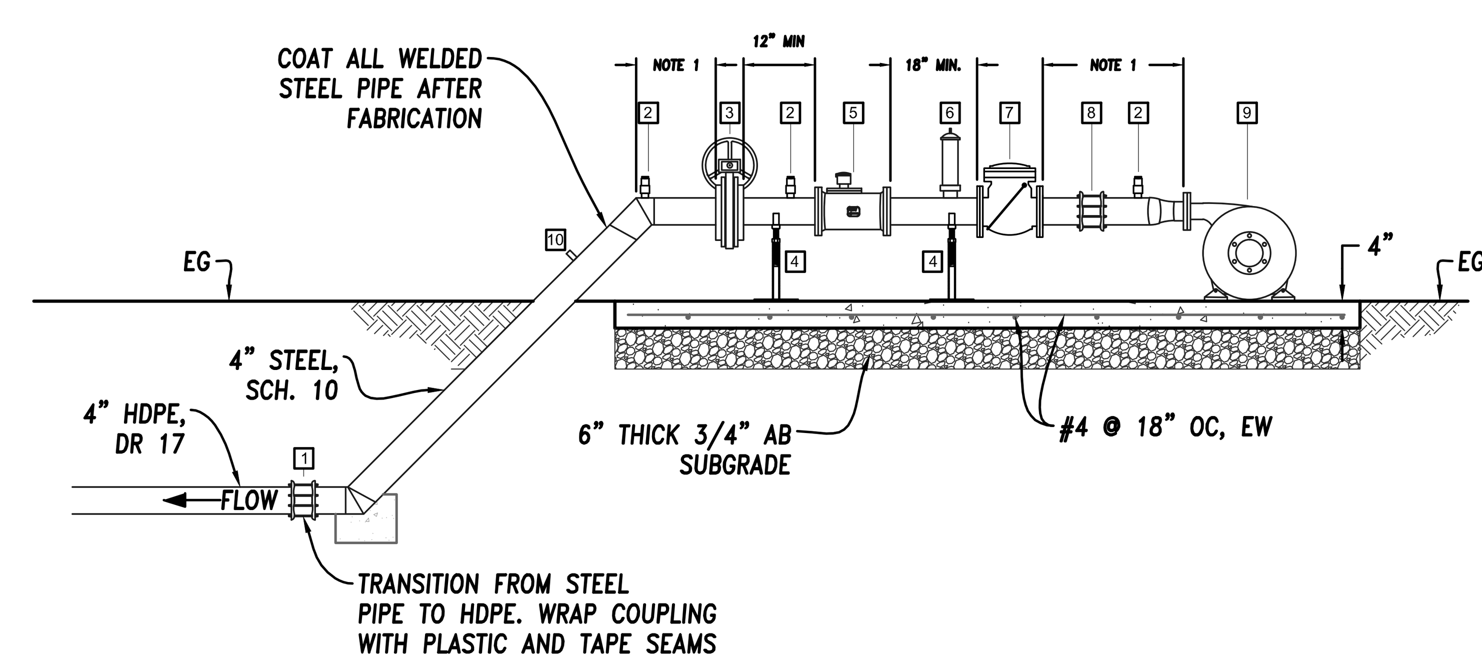
PLAN



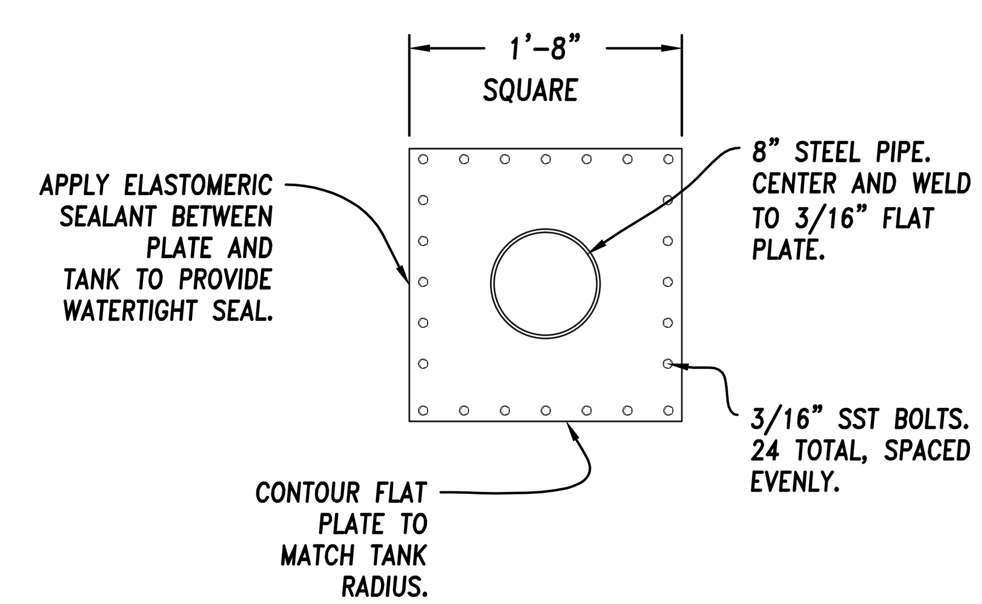
SECTION A



ELEVATION



SECTION B



DETAIL 1

Item No.	Description
1	4" Flexible coupling. Steel to PVC. ROMAC TC400, or equal
2	2" CAV. Install on welded nipple
3	4" BFV, FLG. Gear operator and handwheel. Tuf Skin..., or equal
4	Pipe support. See detail 2
5	4" Magnetic flow meter. FLG. Seametrics AG2000, or equal
6	2" Pressure relief valve. Waterman AA-96, or equal
7	4" FLG swing check valve.
8	4" dismantling coupling. Restrain joint using welded lugs and tie rod (qty 2).
9	HP motor and centrifugal end suction pump. 60 GPM at Feet
10	Pressure sensor - 0-100 psi, +/-2% accuracy or better

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction 75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

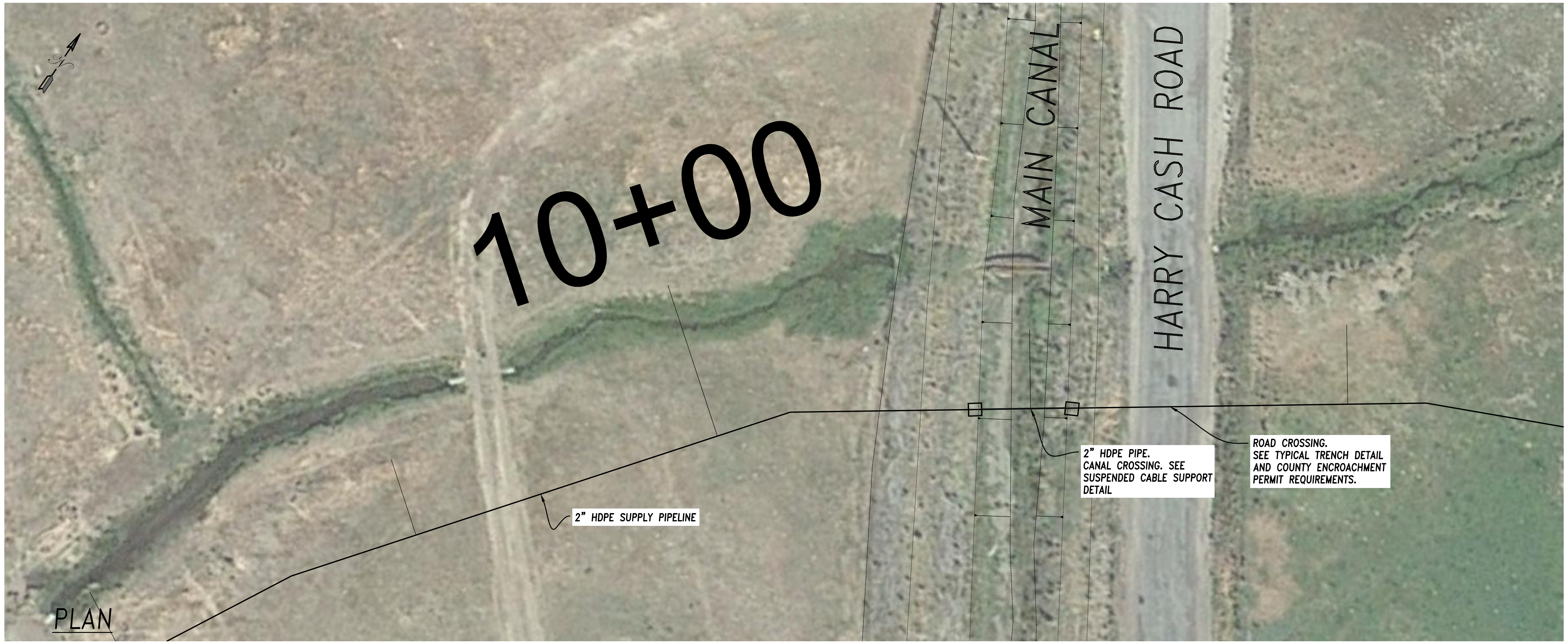
Project Mgr:	BAC
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

Rev No:	Date:	Issue/Revision Description:	App By:

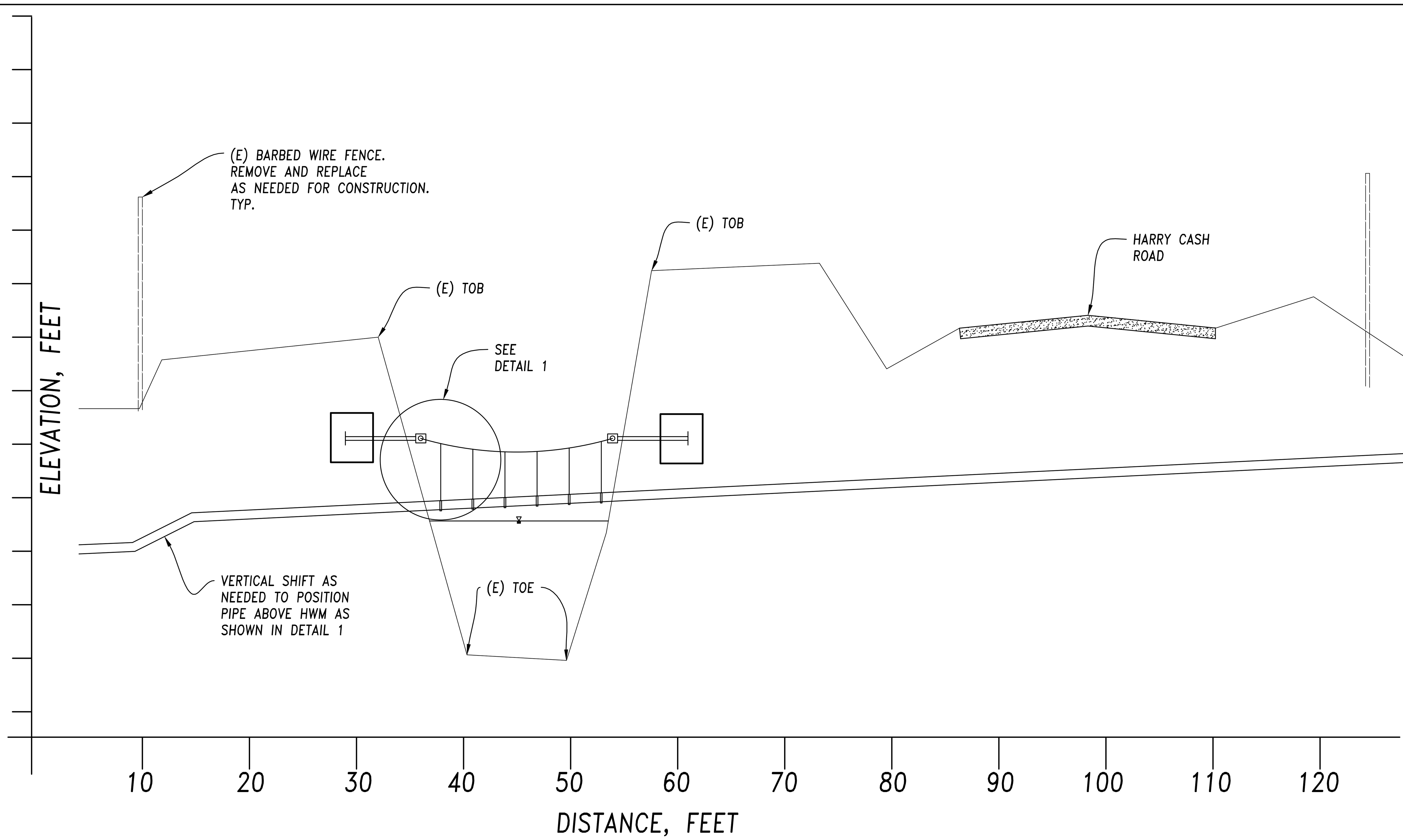
PUMP STATION DETAILS

12

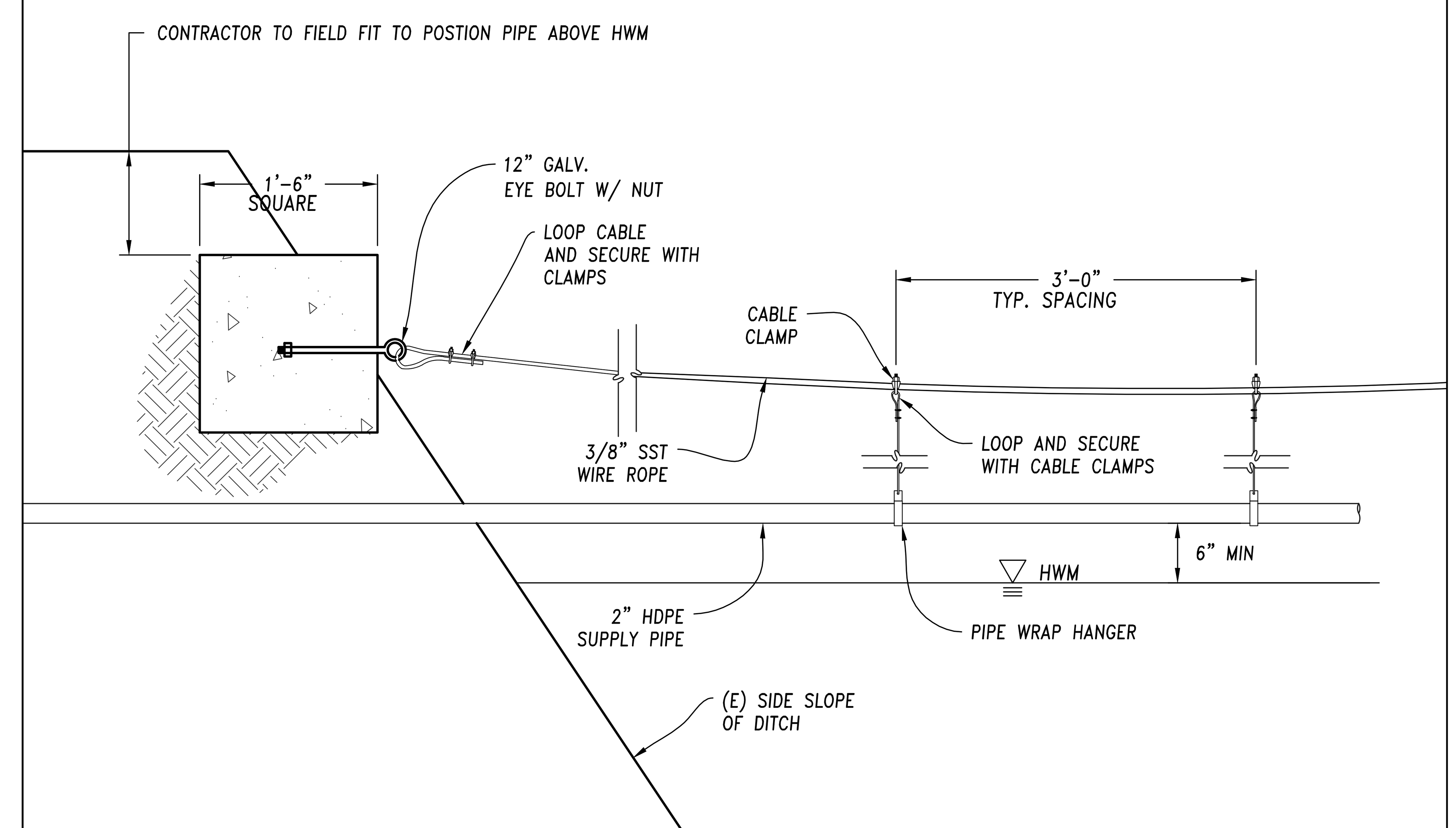
Sheet:	12 of 16
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016



PLAN



PROFILE



PROFILE – SUSPENDED CABLE PIPE SUPPORT

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction
75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

Project Mgr:	BAC
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

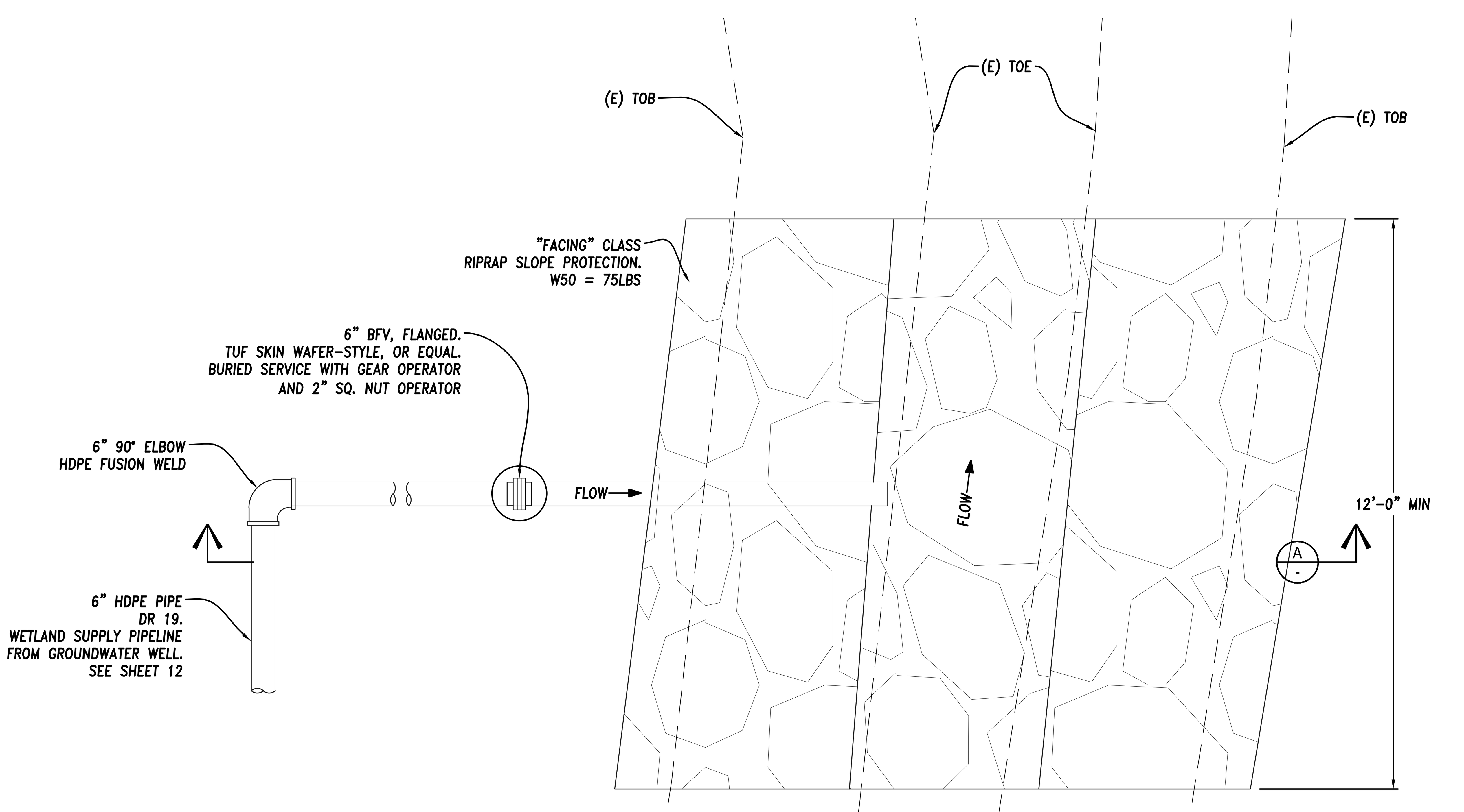
Issue/Revision Description:	Date:	Rev No:	App By:

CANAL AND ROAD CROSSING

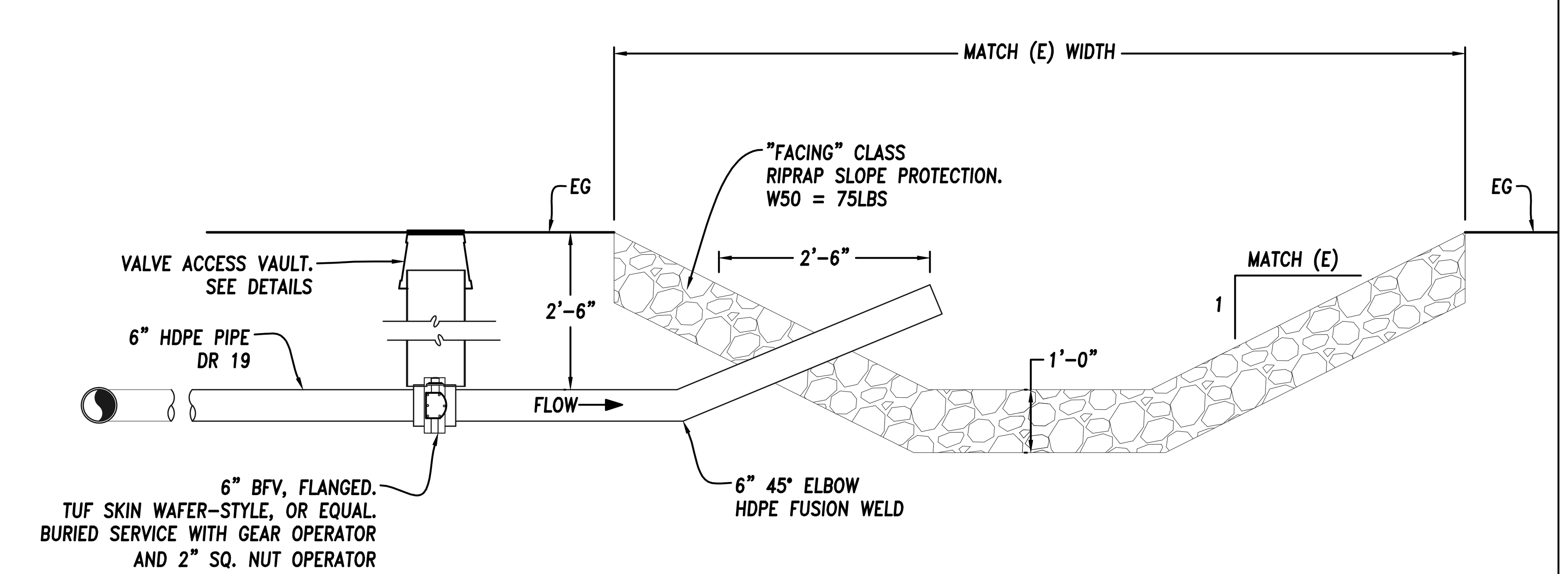
13

Sheet:	13 of 16
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016

PLAN



DISCHARGE SITE PLAN



SECTION A

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction
75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

Project Mgr:	Project Eng:	Designer:	Checked:	Dsgn/Drawn:
BAC	TJO	TJO		TJO

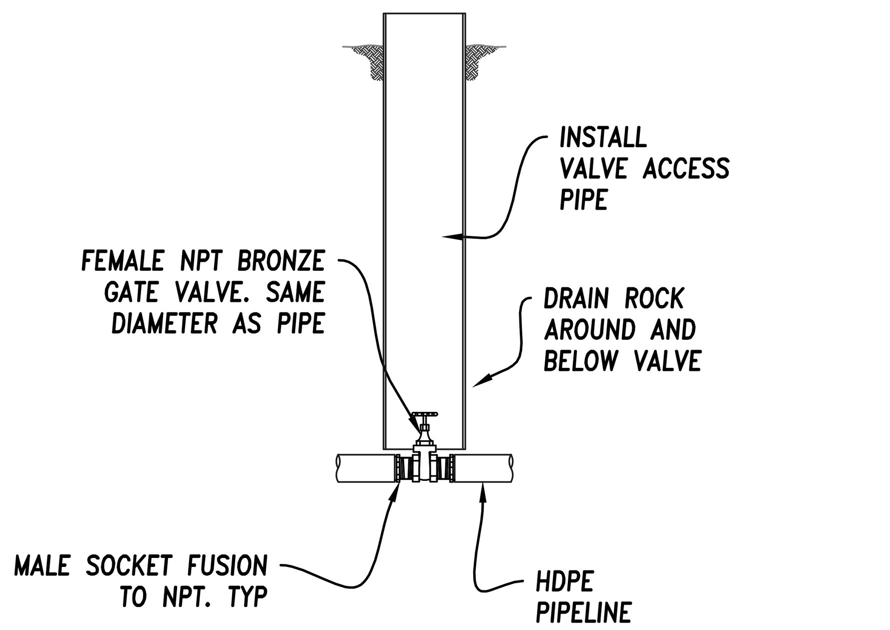
Rev No:	Date:	App By:	Issue/Revision Description:

Rev No:	Date:	App By:	Issue/Revision Description:

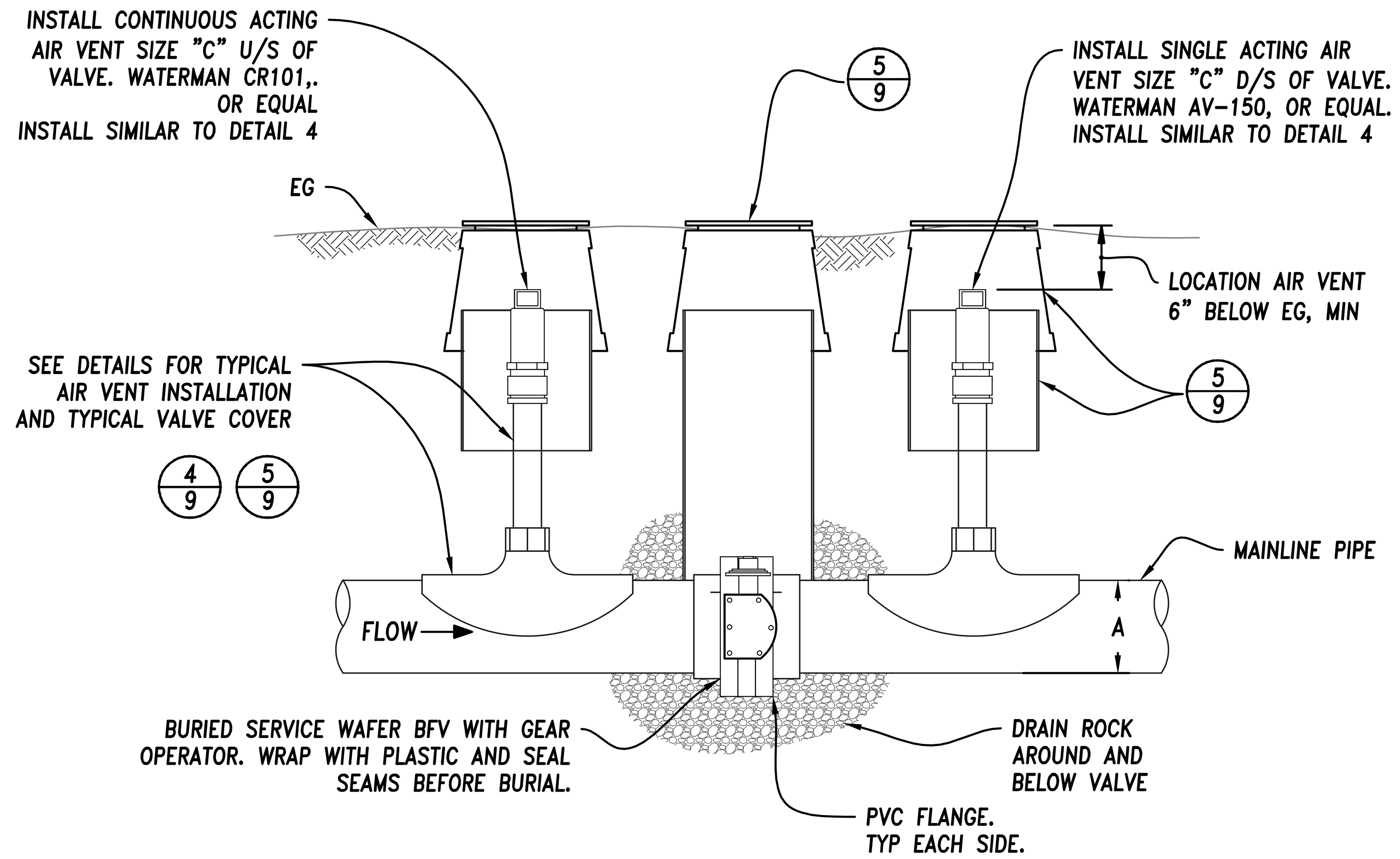
SUPPLEMENTAL FLOW OUTLET

14

Sheet:	14 of 17
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016

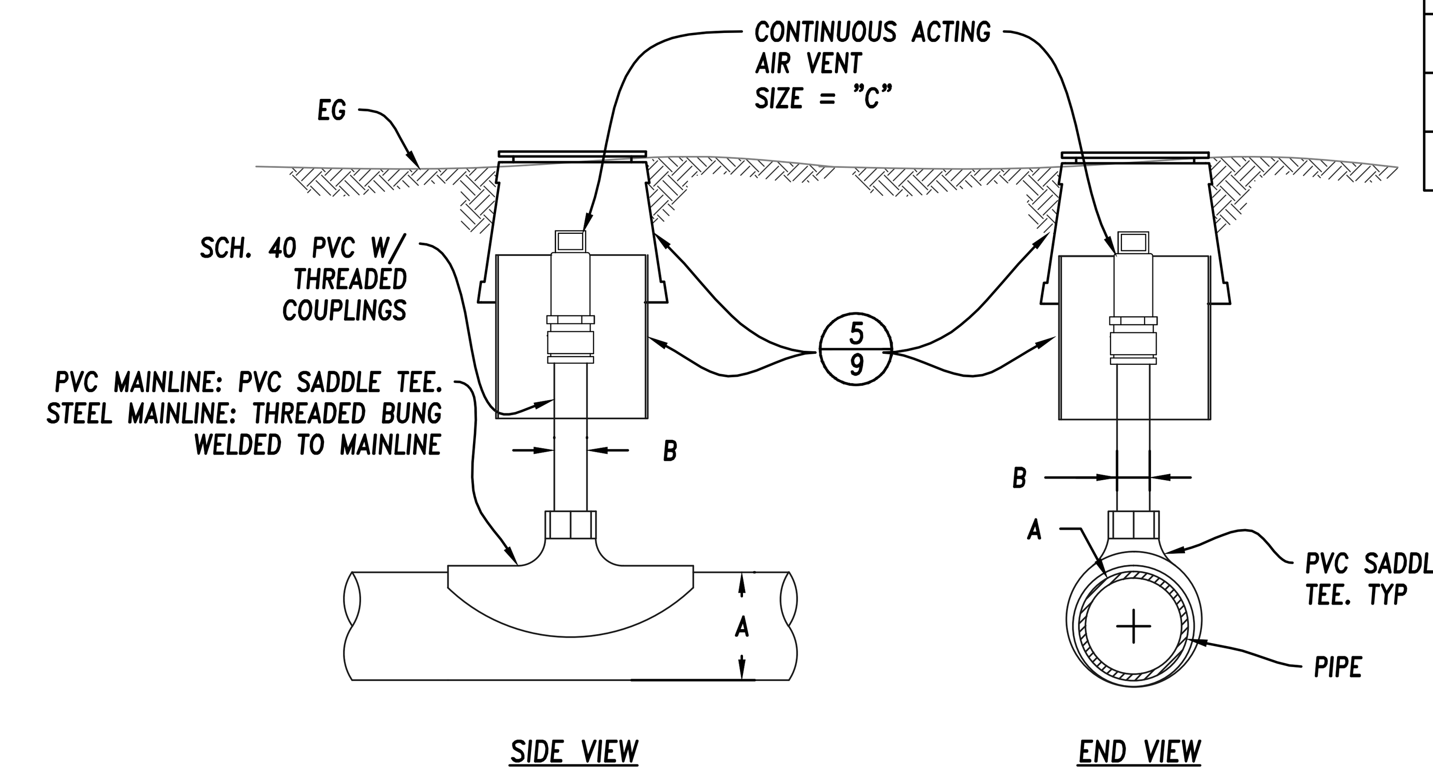


TYPICAL ISOLATION VALVE – <4"ø

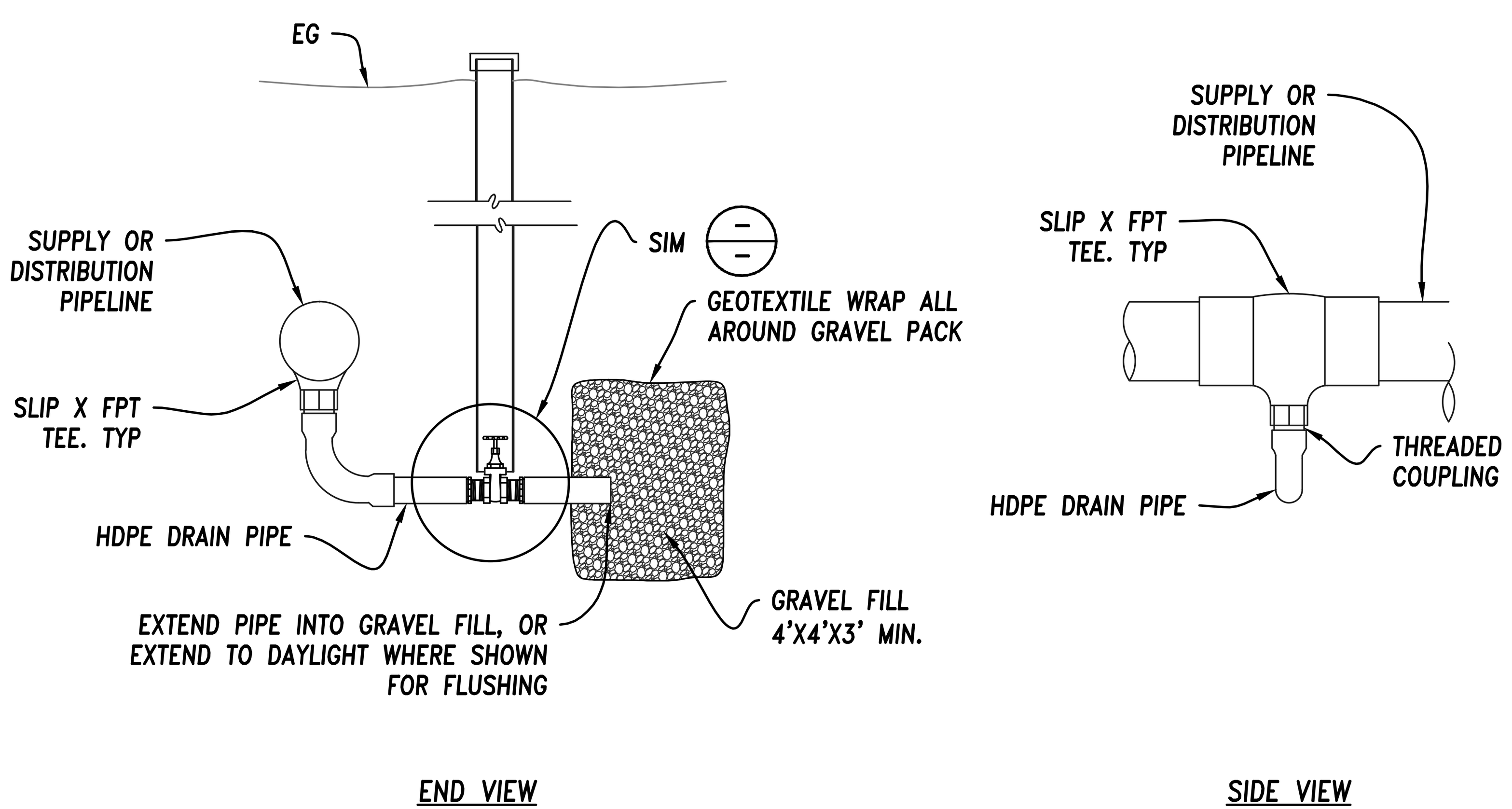


TYPICAL ISOLATION VALVE ASSEMBLY – 4-6"ø

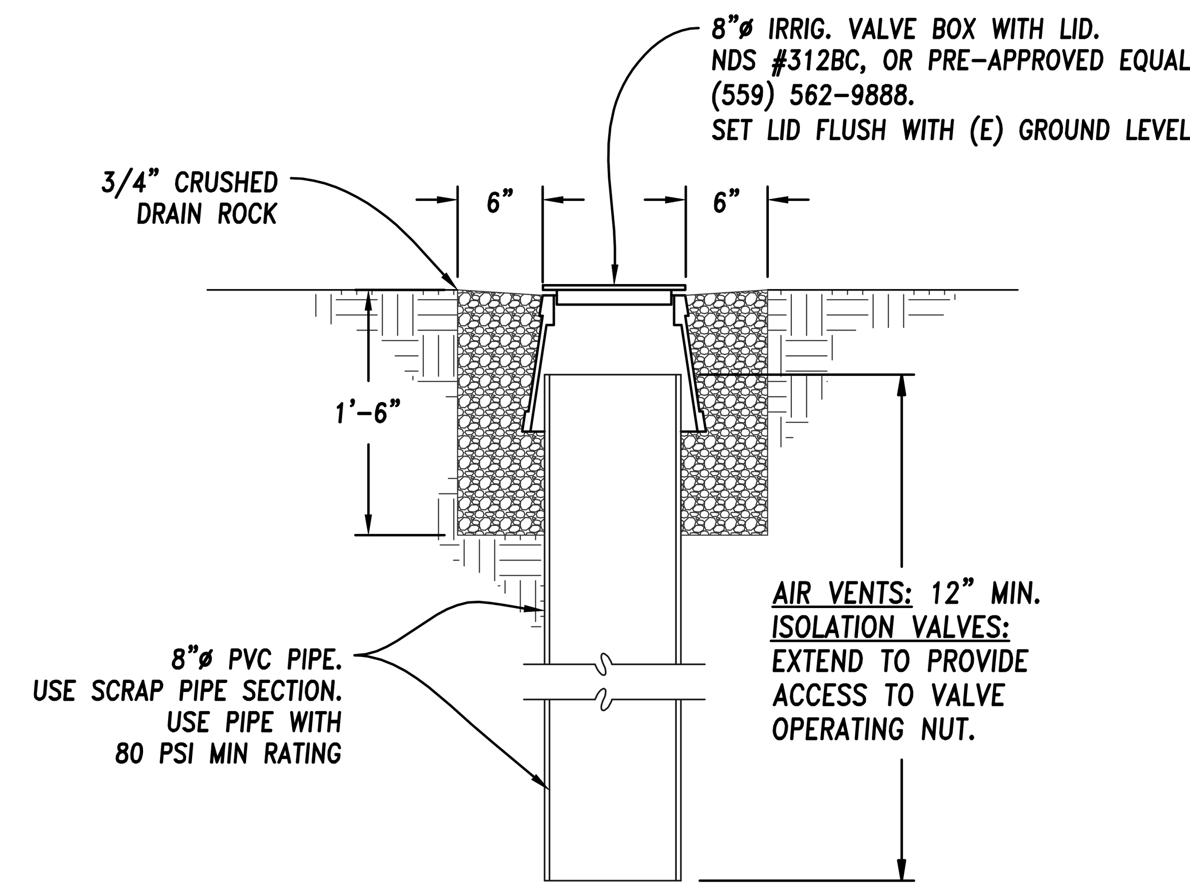
A	B	C
<=6 "	2"	2"
8-12 "	3"	3"
>12"	4"	4"



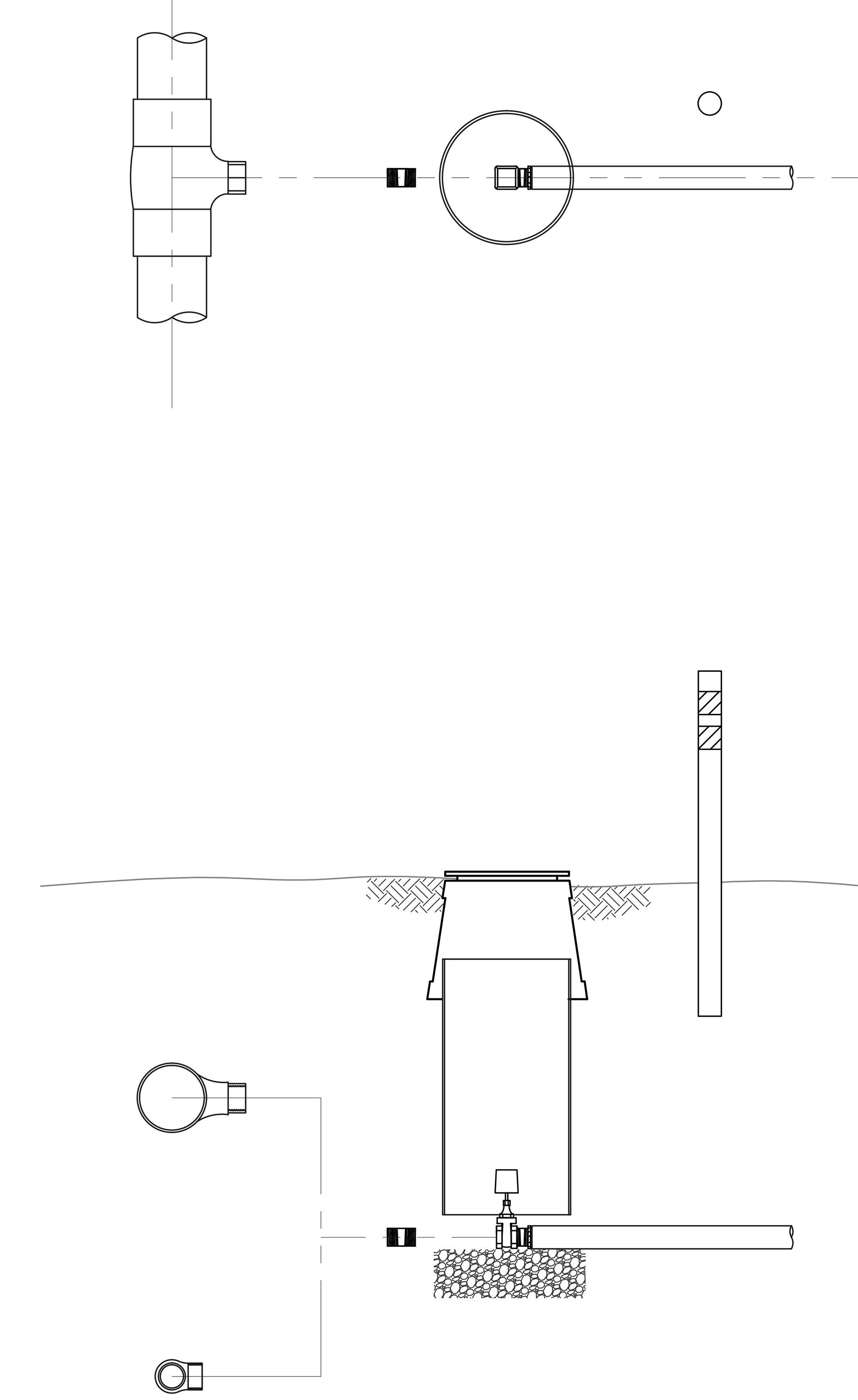
TYPICAL AIR VENT DETAIL



PIPELINE DRAIN AND FLUSHING ASSEMBLY



TYPICAL VALVE AND AIRVENT ACCESS COVER



TYPICAL SERVICE CONNECTION

DAVIDS ENGINEERING, INC
www.davidsengineering.com

http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction 75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

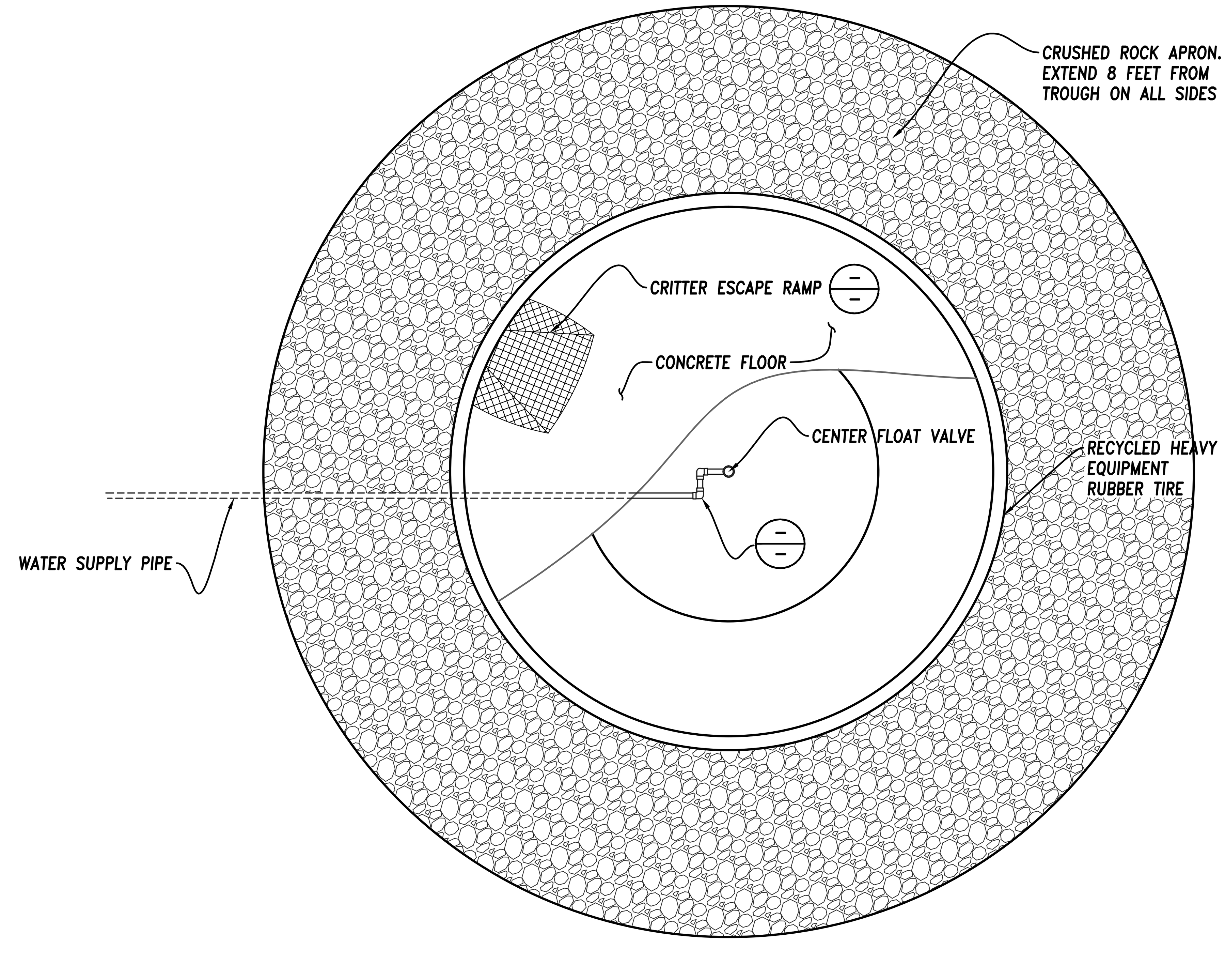
Issue/Revision Description:	Date:	Rev No:	App By:
Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr: BAC
Project Eng: TJO
Designer: TJO
Checked:
Dsgn/Drawn: TJO

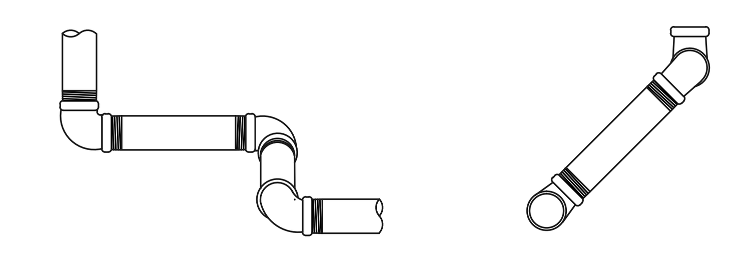
PIPELINE DETAILS

15

Sheet:	15 of 17
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016

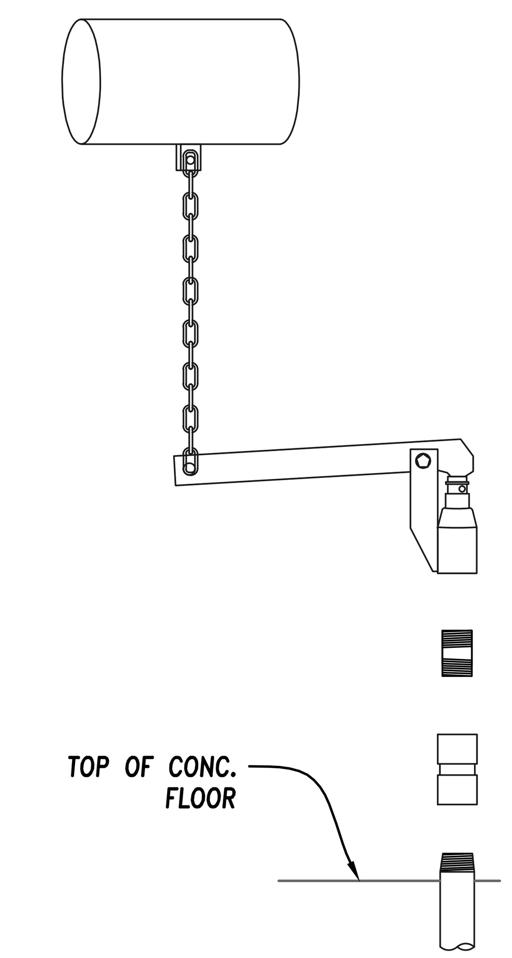


TYPICAL TIRE TROUGH – PLAN VIEW

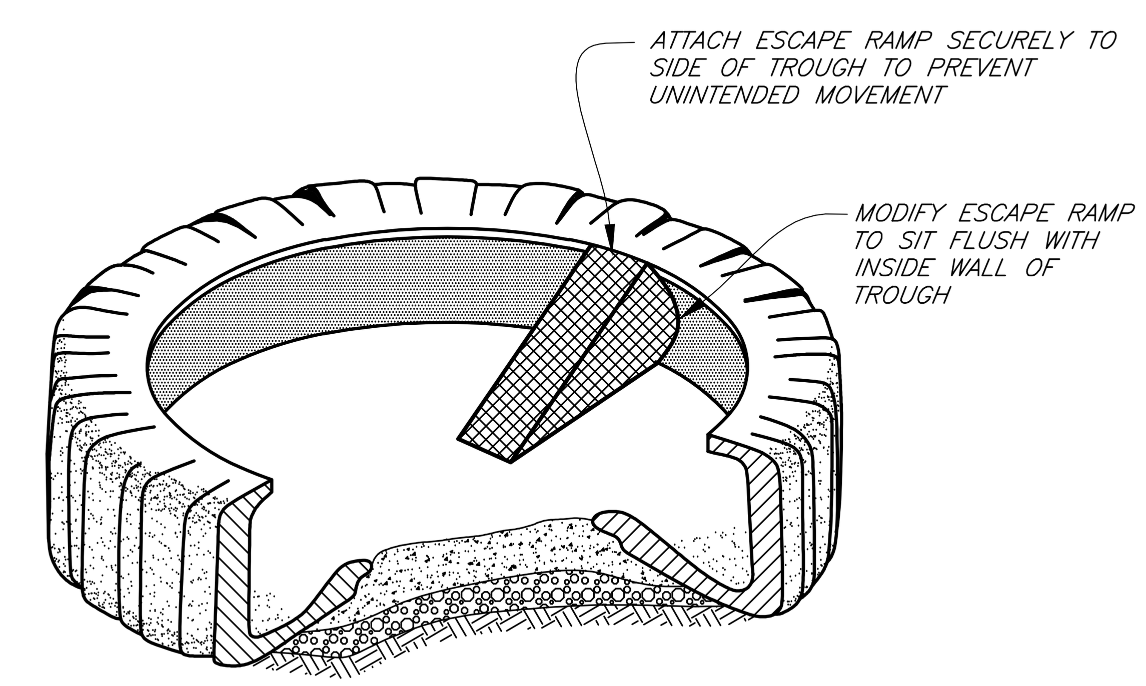


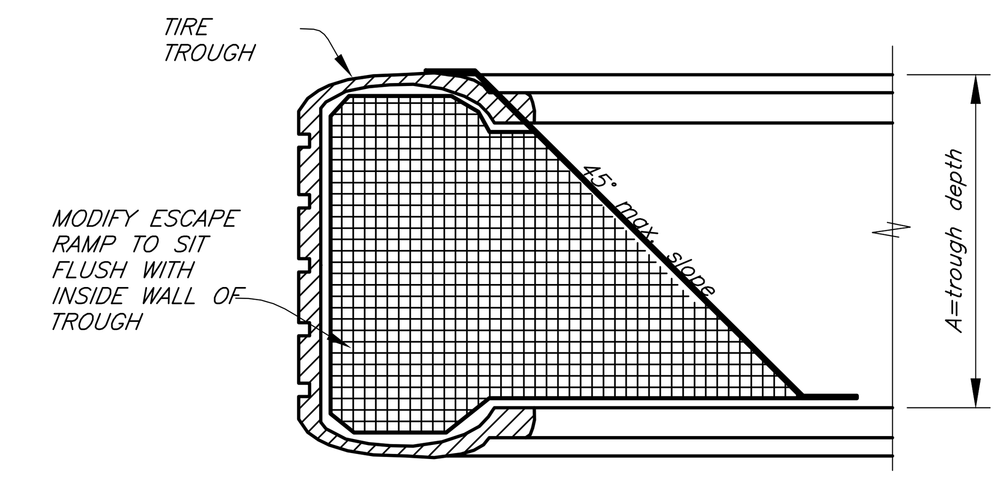
INSTALL PIPE FITTINGS AS SHOWN UNDER TROUGH TO ACCOMMODATE TROUGH SETTLING.

EXPANSION COUPLING DETAIL



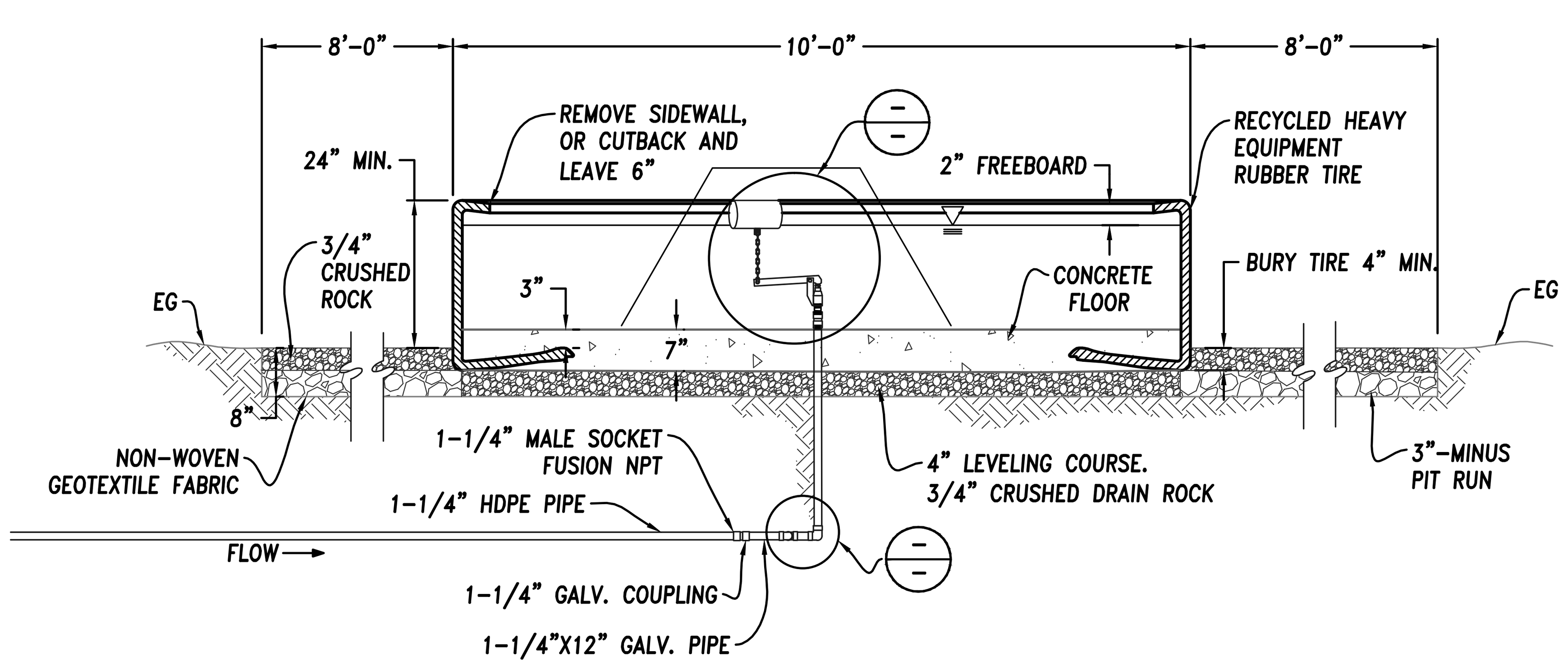
FLOAT VALVE AND FLOAT ASSEMBLY DETAIL



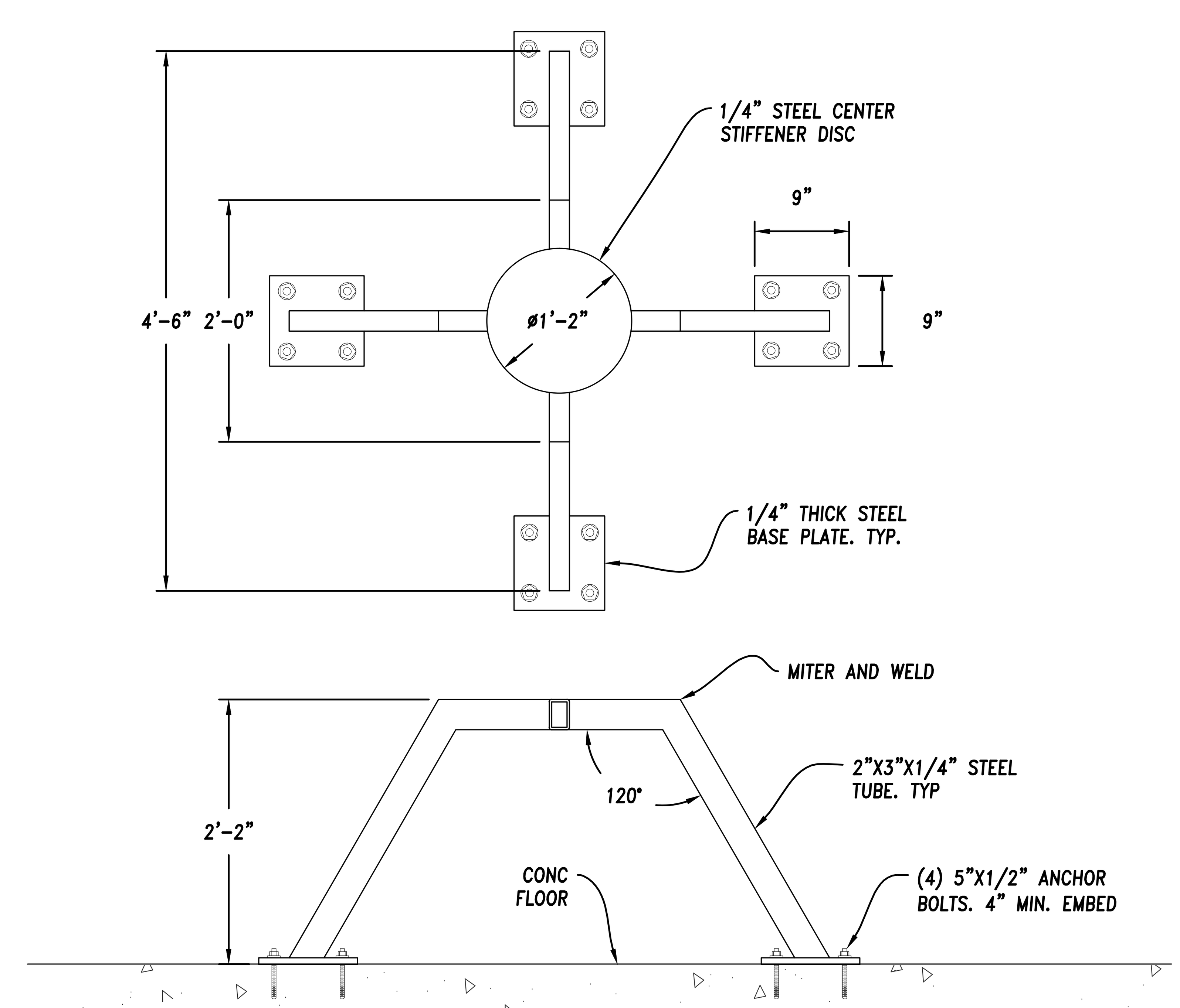


SECTION VIEW

TYPICAL TIRE TROUGH AND ESCAPE RAMP



TYPICAL TIRE TROUGH – SECTION A



FLOAT VALVE PROTECTION CAGE

REQUIREMENTS

1. *Escape ramps shall extend to bottom of trough and be flush with inside wall of the trough to provide safe and easy egress at low water levels.*
2. *Escape ramps shall be sloped no steeper than 45 degrees, to allow animals to climb out without slipping back into the water.*
3. *Escape ramps shall be built of tractive, long lasting materials, such as painted or coated metal grating, or high-strength plastic composites. Expanded metal escape ramps shall be 11 or 13 gauge with 1/2 inch mesh and shall be finished with a rust-inhibiting paint or coating.*
4. *Escape ramps shall be securely attached to the trough rim. Recommend attaching ramp with metal-tapping screw and washer, or a bracket with a bolt and wing nut for easy removal during trough maintenance. Secured attachment shall keep ramp from being moved loose by livestock, animals or freezing water.*

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction 75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

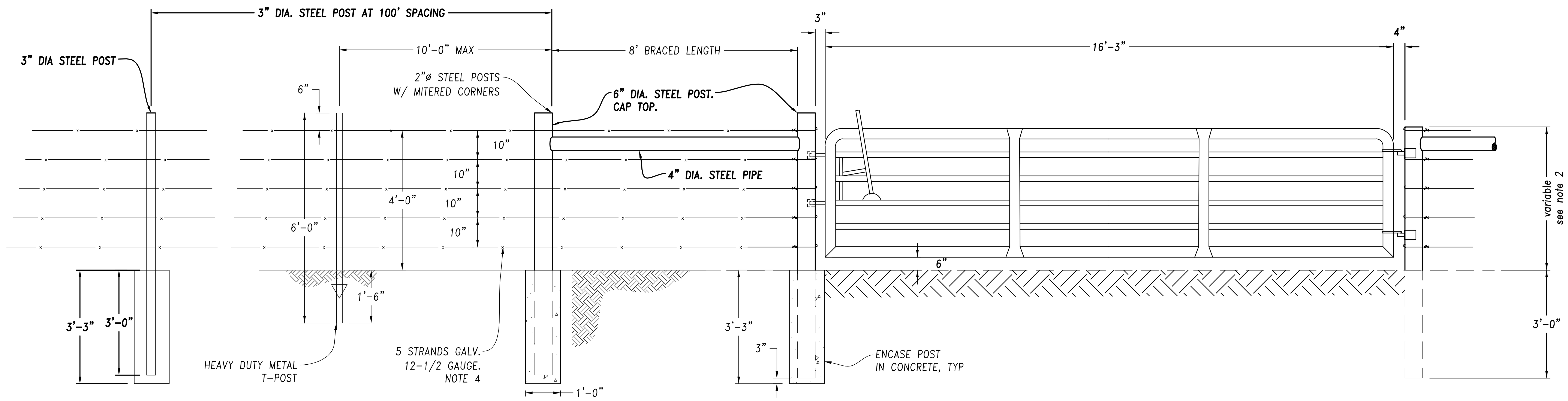
Issue/Revision Description:	Date:	Rev No:	App By:

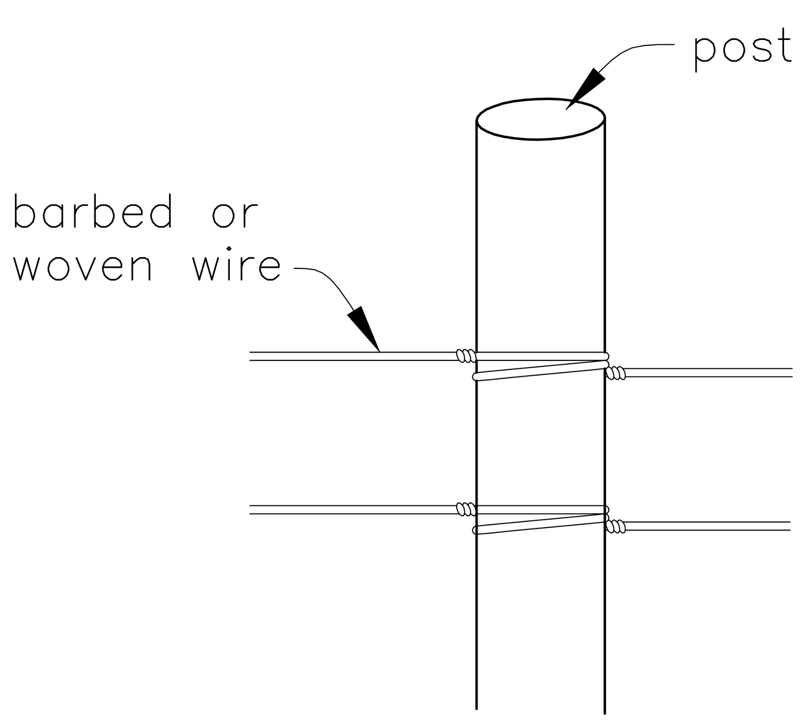
Project Mgr:	Project Eng:	Designer:	Checked:	Dsgn/Drawn:
BAC	TJO	TJO		TJO

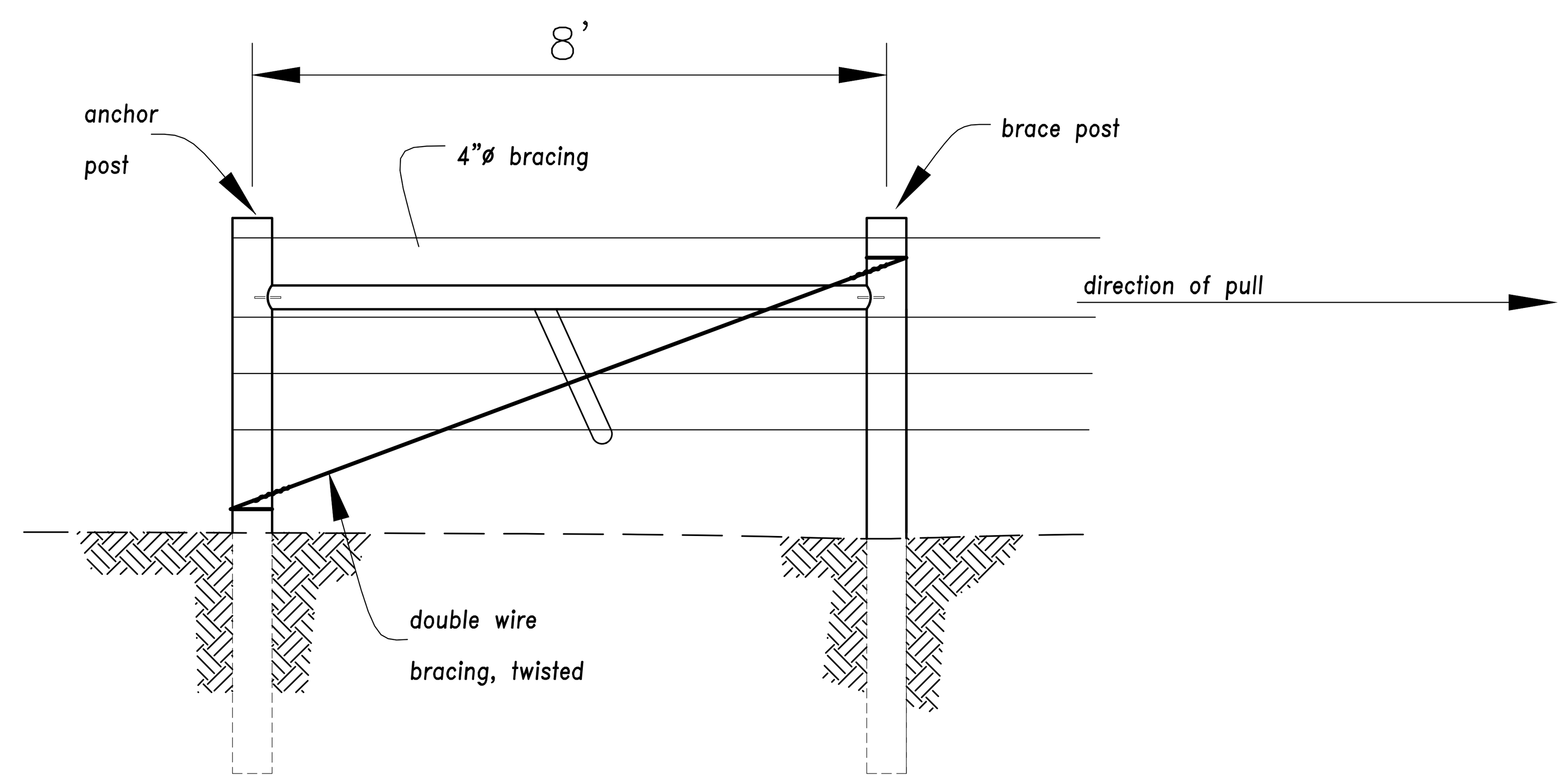
RUBBER TIRE TROUGH DETAILS

16

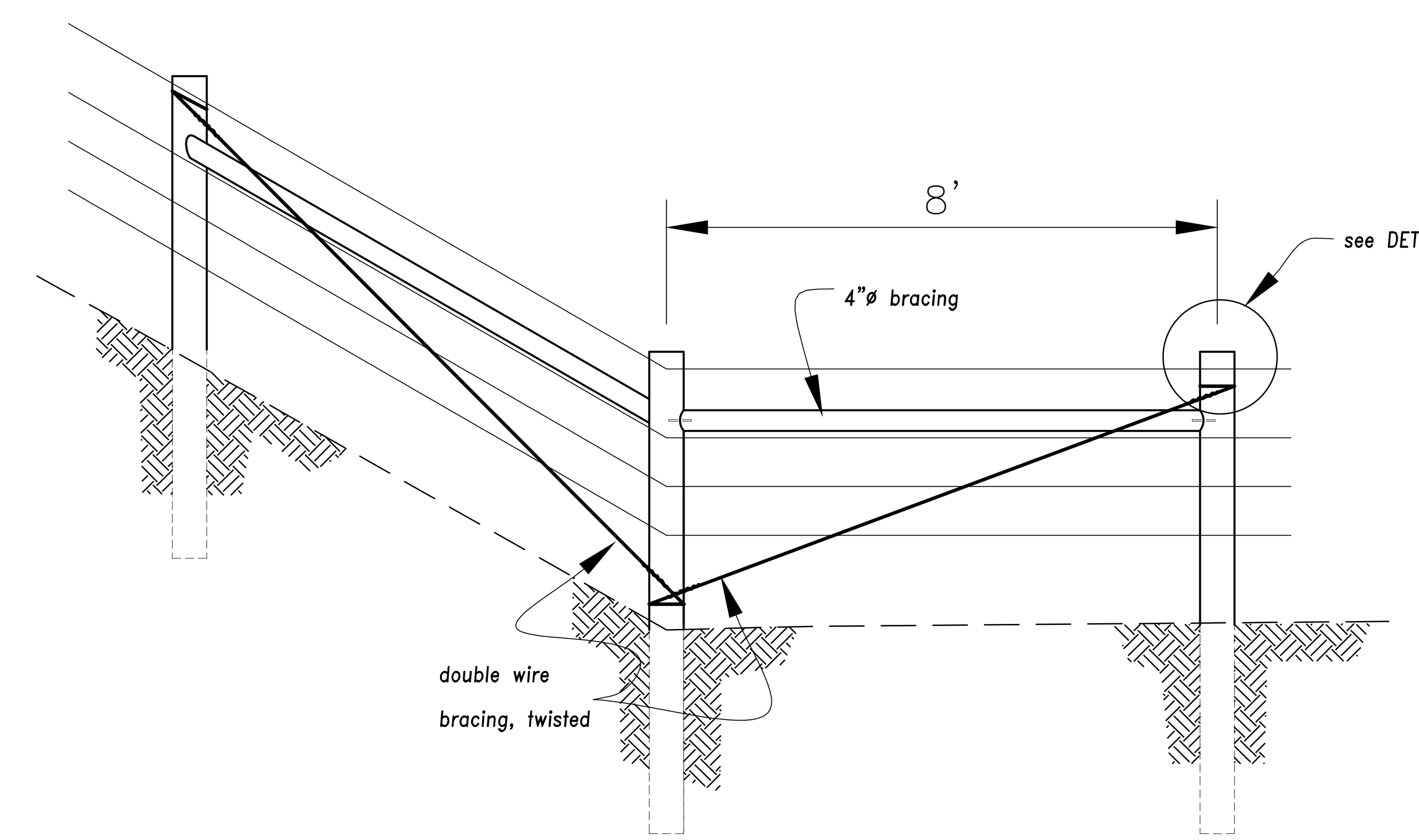
Sheet:	16 of 17
Proj #:	1088.15
Scale:	Varies
Date:	Aug. 19 2016







1—SPAN END



CORNER BRACE

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

Not For Construction 75% Design

Hart Ranch
Little Shasta Valley, California
Northside Stockwatering Facilities

Issue/Revision Description:	Date:	Rev No:	App By:

Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr:	BAC
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

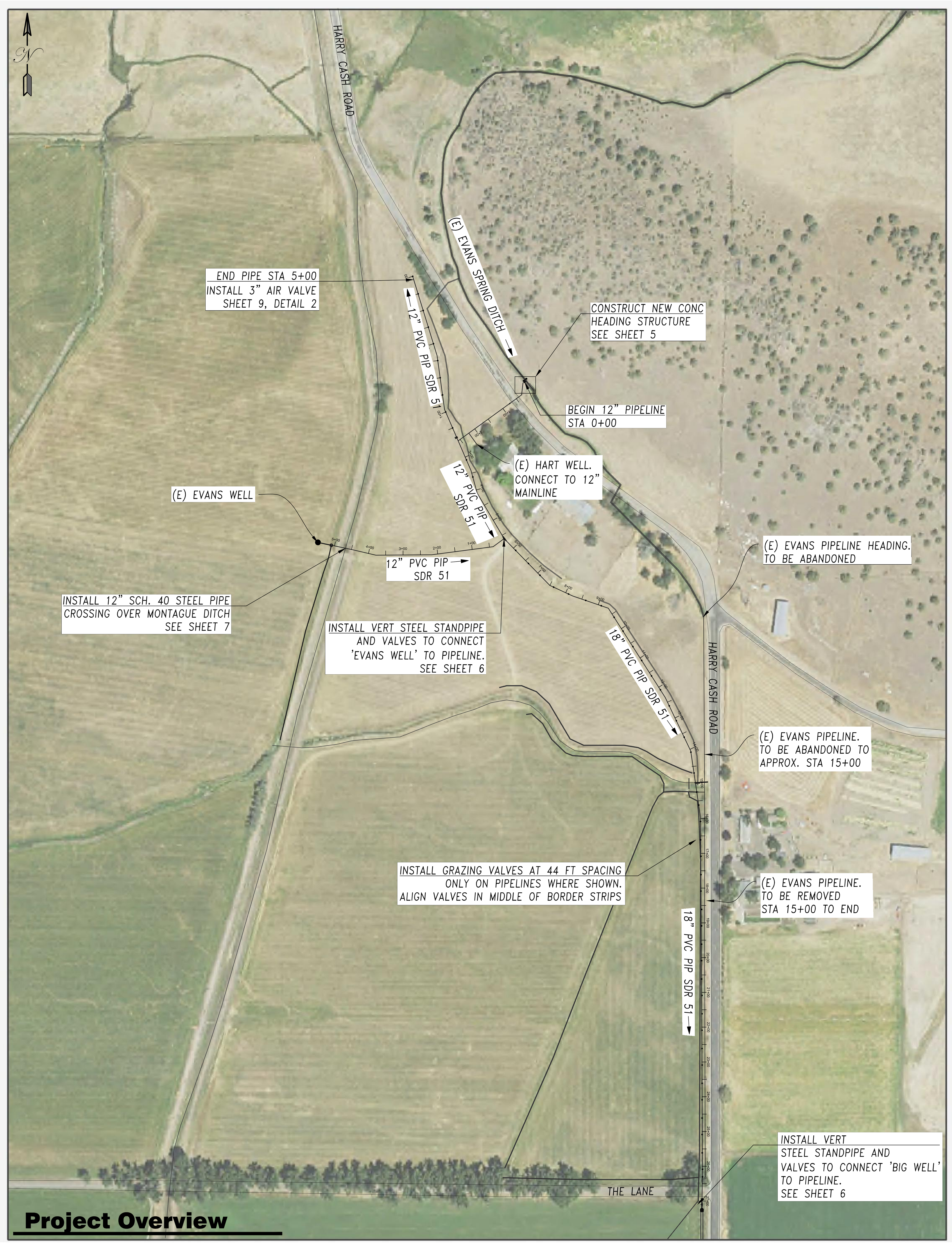
FENCING DETAILS

17

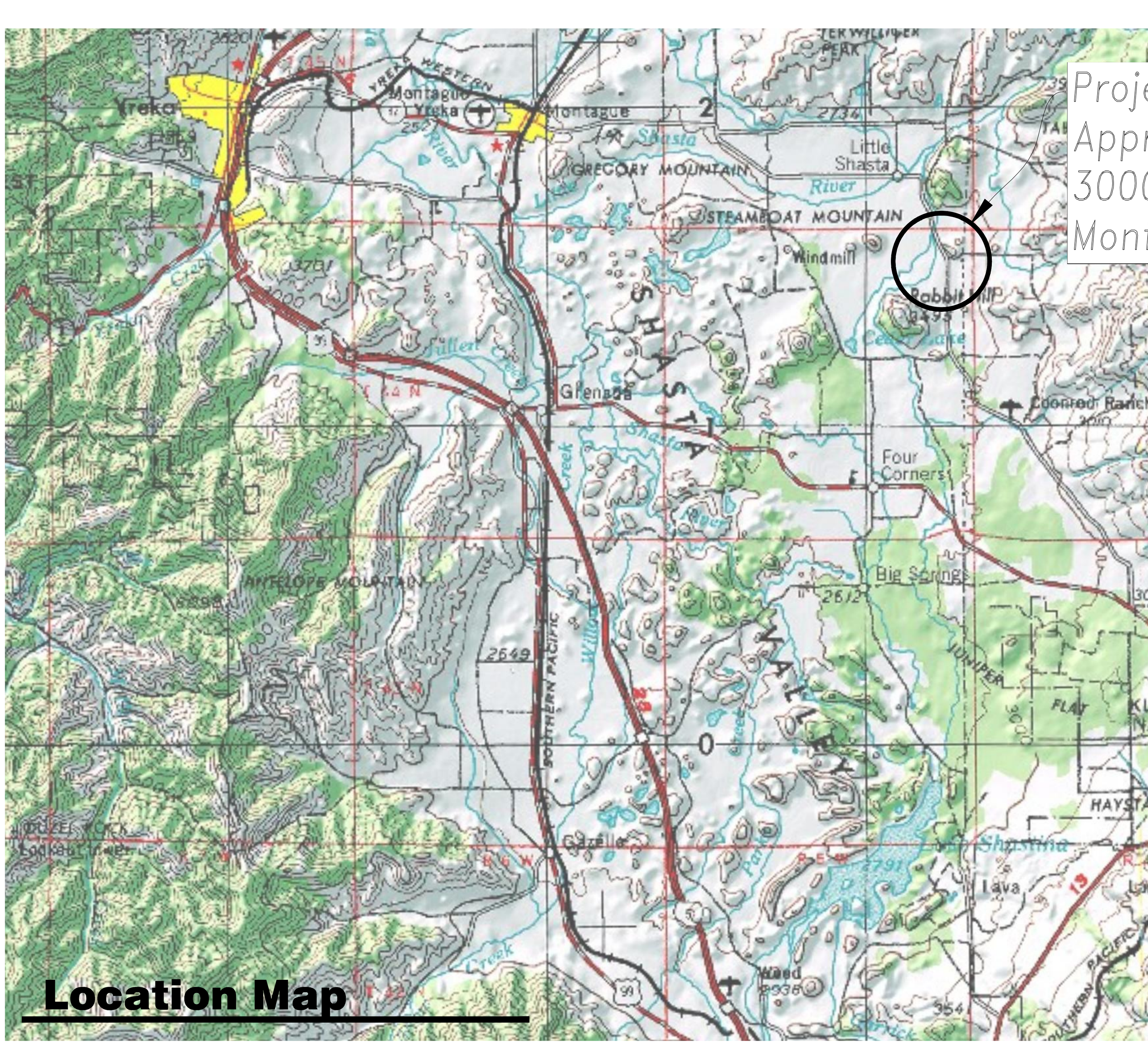
Sheet:	17 of 17
Proj #:	1088.04
Scale:	Varies
Date:	Aug. 19 2016

APPENDIX C

Hart Ranch Main Pipeline Replacement 100% Design
Davids Engineering, Inc.
July 2016



Project Overview



Location Map

Project Location
Approximate Street Address:
3000 Harry Cash Road
Montague, CA 96064

Know what's **below.** **Call** before you dig.

RELEASED FOR BIDDING ONLY
12/31/16

Sheet Index:

Notes

1. All construction shall be in accordance with these drawings and the specifications bearing the project name "Hart Ranch Evans Spring Pipeline Replacement Project".
2. Landowner shall be responsible for obtaining any needed permits, easements, and/or right-of-ways.
3. Contractor will be responsible for locating and protecting all utilities. Special safety precautions to be taken when working in the vicinity of gas, oil, and electrical lines (buried and overhead).
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 shall be staked by the contractor and verified by the Engineer prior to construction.
6. Contact the Owner and the Engineer at least 7 days prior to construction.

Owner:
Hart Ranch
Contact: Blair Hart
Cell: 530-598-1051

Engineer:
Davids Engineering
Contact: Tommy Ostrowski, PE
Office: 530-757-6107 ext. 108
Cell: 805-305-5335
Email: tommy@davidsengineering.com

Legend

BREAK LINE
CENTERLINE
SECTION ARROW
DETAIL/SECTION NUMBER
FOUND ON SHEET
CONCRETE
EARTH
RIPRAP/AB
SAND

PIPELINE SUMMARY

DIAMETER	TYPE	LENGTH,FT
6"	PVC PIP SDR 51	65
12"	PVC PIP SDR 51	1562
18"	PVC PIP SDR 51	2150

Abbreviations

2.5 : 1	HORIZONTAL : VERTICAL SLOPE	INV	INVERT
AC	ACRE	L=	LENGTH =
AF	ACRE-FEET	MAX	MAXIMUM
APPROX	APPROXIMATELY	MIN	MINIMUM
BFV	BUTTERFLY VALVE	(N)	NEW
BM	BENCH MARK	NTBD	NOT TO BE DISTURBED
CFS	CUBIC FEET PER SECOND	O.C.	ON CENTER
CL	CLASS	O.D.	OUTSIDE DIAMETER
CLEAR.	CLEARANCE	PIP	PLASTIC IRRIGATION PIPE
CONC	CONCRETE	PSI	POUNDS PER SQUARE INCH
CTR	CENTER	PVC	POLYVINYL CHLORIDE
CTD	CENTERED	REV	REVISION
DEG	DEGREE	S=	SLOPE =
DIA	DIAMETER	SCH	SCHEDULE
DTL	DETAIL	SHT	SHEET
(E)	EXISTING	SDR	STANDARD DIMENSION RATIO
EA	EACH	SIM	SIMILAR
EF	EACH FACE	STA	STATION
EG	EXISTING GROUND	SST	STAINLESS STEEL
ELEV	ELEVATION	t	THICKNESS
EW	EACH WAY	TBR	TO BE REMOVED
FG	FINISHED GRADE	TOB	TOP OF BANK
FL	FLOWLINE	TOC	TOP OF CONCRETE STRUCTURE
FT	FEET	TOW	TOP OF WEIR WALL
GALV	GALVANIZED	TYP	TYPICAL
HWM	HIGH WATER MARK	UNO	UNLESS NOTED OTHERWISE
HWL	HIGH WATER LEVEL	VERT	VERTICAL
		WSE	WATER SURFACE ELEVATION

Project Mgr:	TJO		
Project Eng:	TJO		
Designer:	TJO		
Checked:	GGD/RF		
Dsgn/Drawn:	TJO		

1

Project Overview

HART RANCH

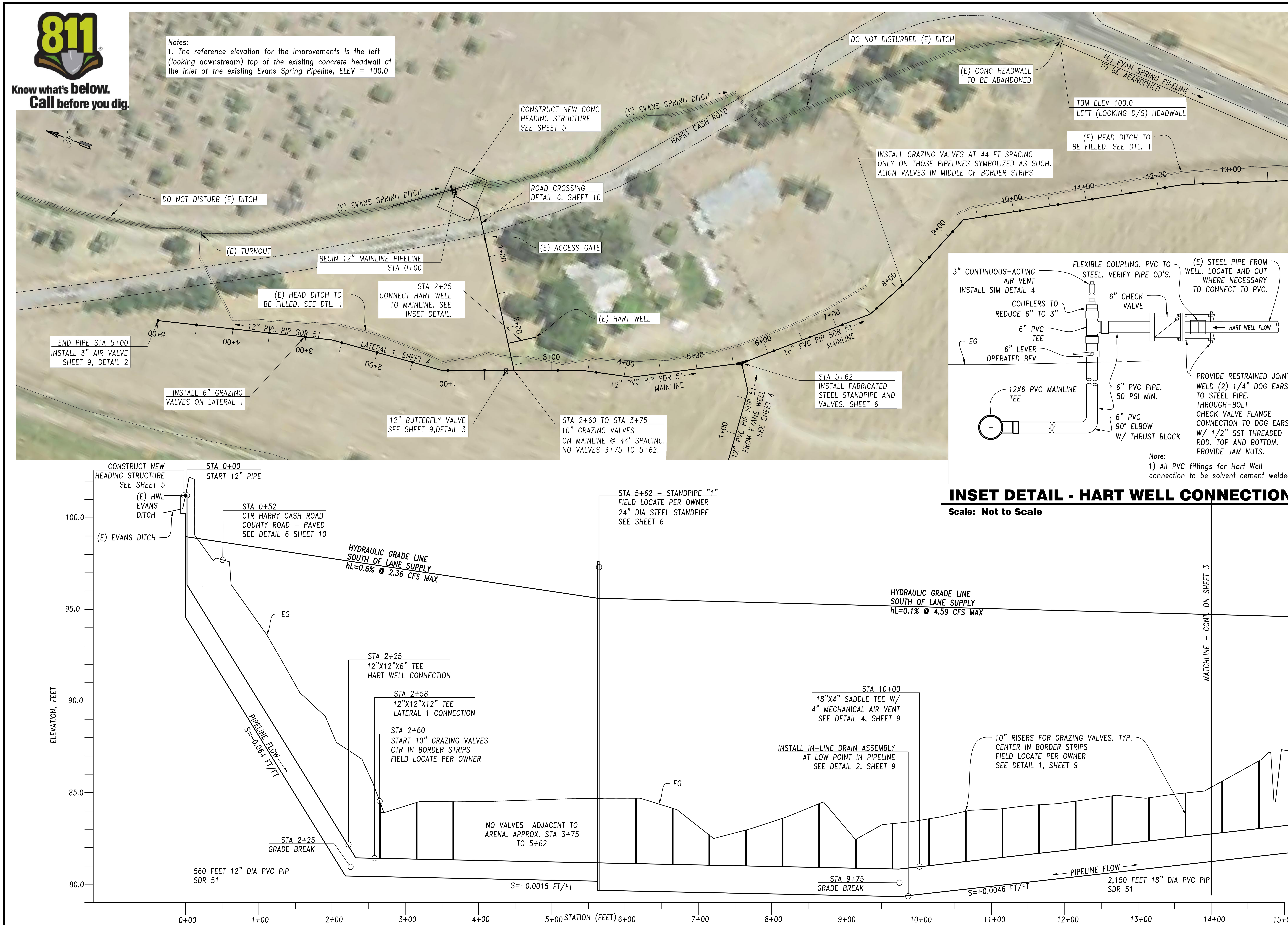
MAINLINE PIPE
REPLACEMENT

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA
For Bidding Purposes Only

App By:	Rev No:	Date:	Issue/Revision Description:	App By:	Rev No:	Date:	Issue/Revision Description:

Sheet: 1 of 10
Proj #:
Scale: As Shown
Date: Dec 31, 2016

DAVIDS ENGINEERING, INC
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107
Fax: (530) 757-6118



DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

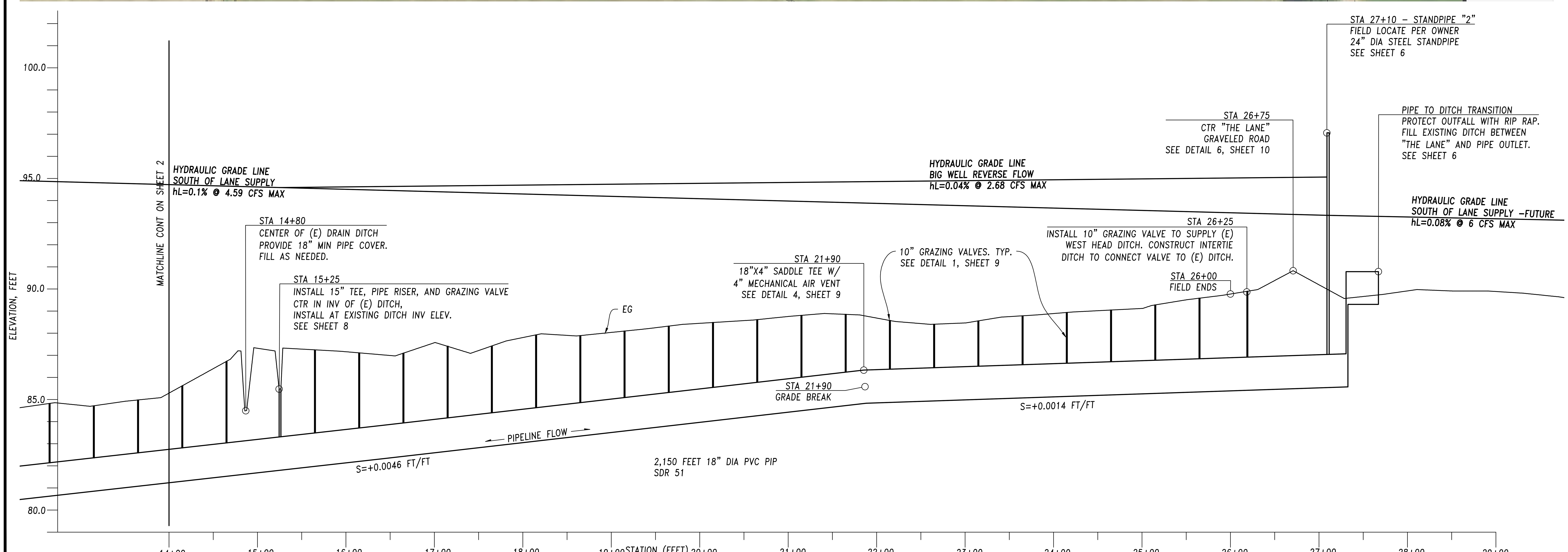
HART RANCH

MAINLINE PIPE REPLACEMENT

PLAN AND PROFILE - MAIN 1

2

Sheet:	2 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

HART RANCH

MAINLINE PIPE REPLACEMENT

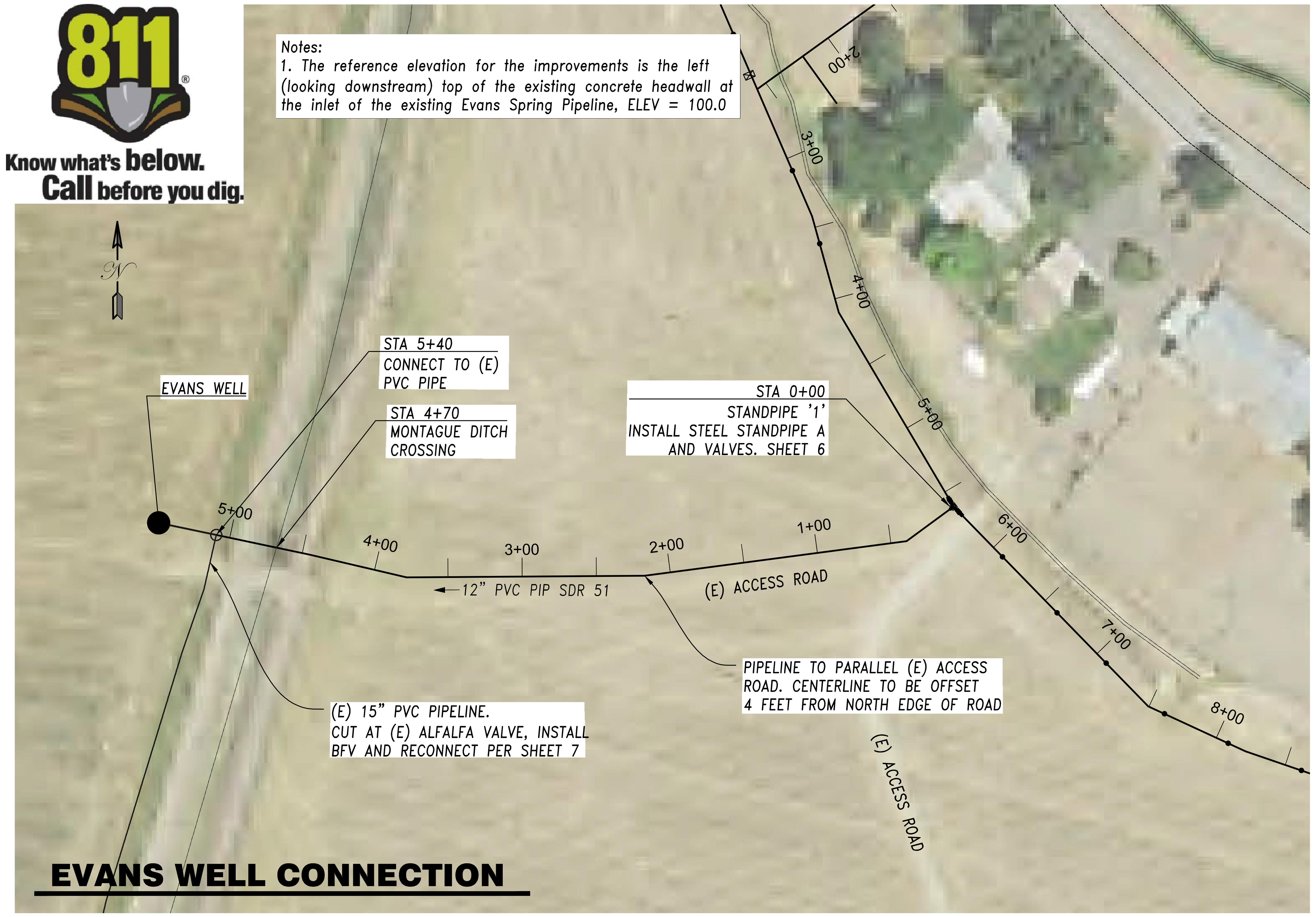
Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

Issue/Revision Description: | Date: | Rev No: | App By:

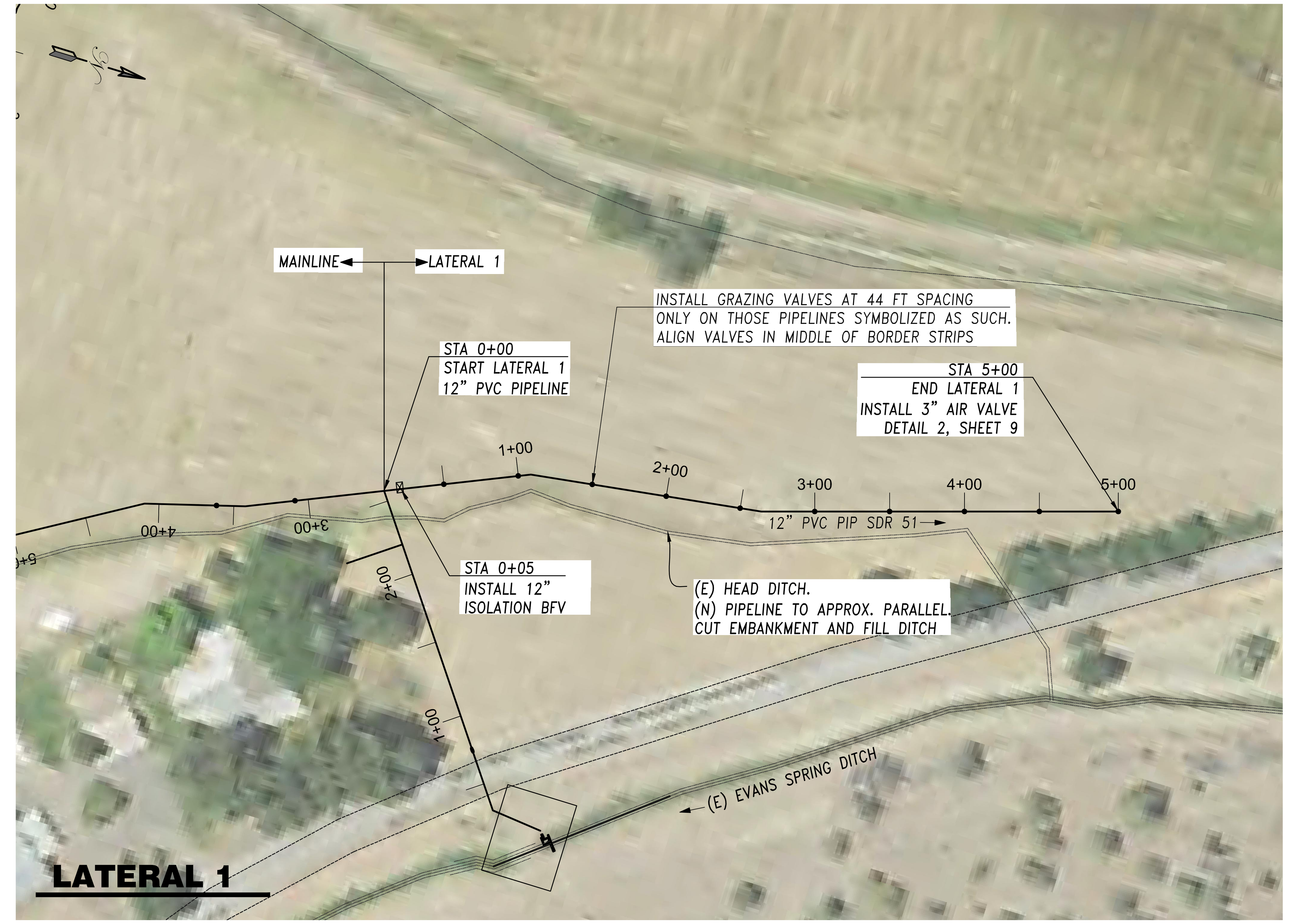
PLAN AND PROFILE - MAIN 2

3

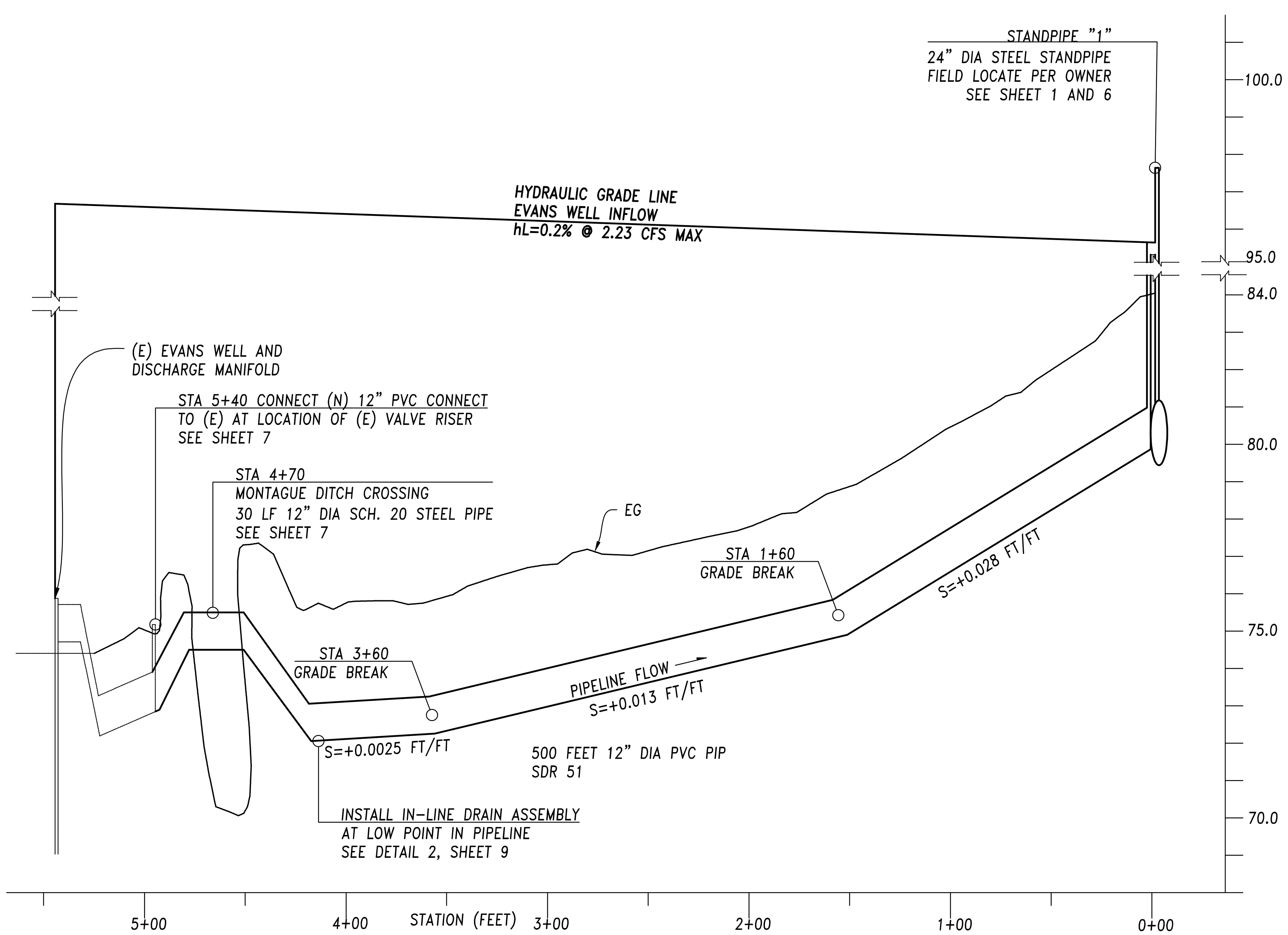
Sheet:	3 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016

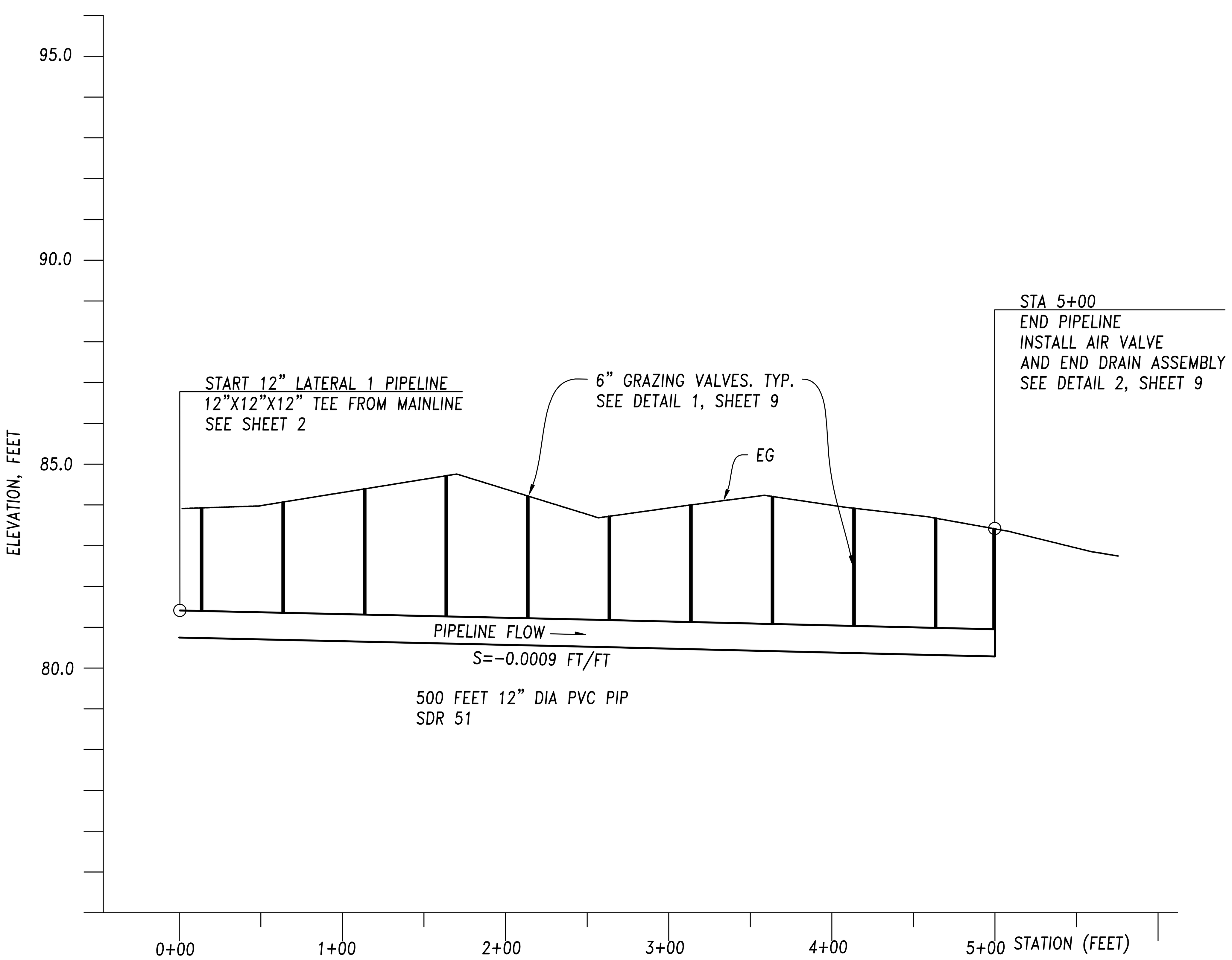


EVANS WELL CONNECTION



LATERAL 1





DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER
THOMAS J. OSTROWSKI
C 82665
EXP.
CIVIL
STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

MAINLINE PIPE REPLACEMENT

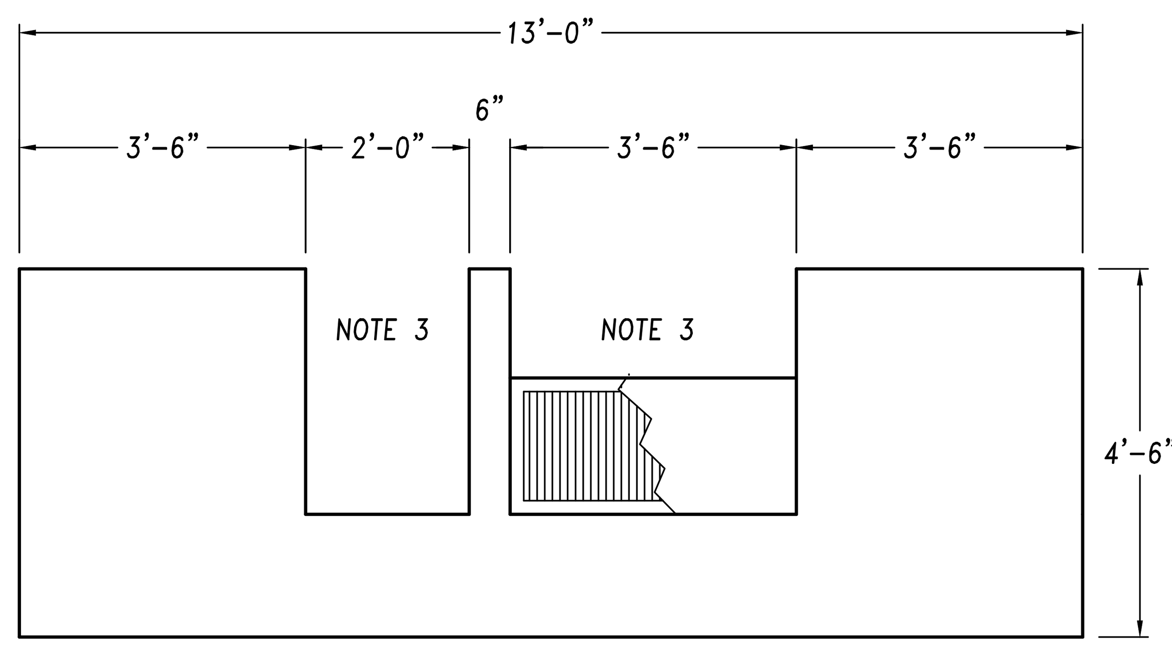
Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

Issue/Revision Description:	Date:	Rev No:	App By:

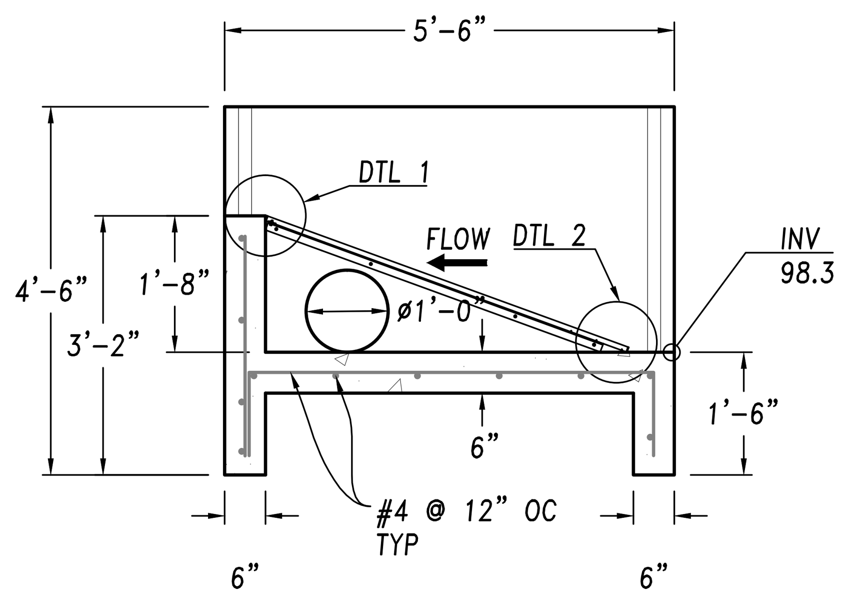
PLAN PROFILE - LATERAL 1 & EVANS WELL CONNECTION

4

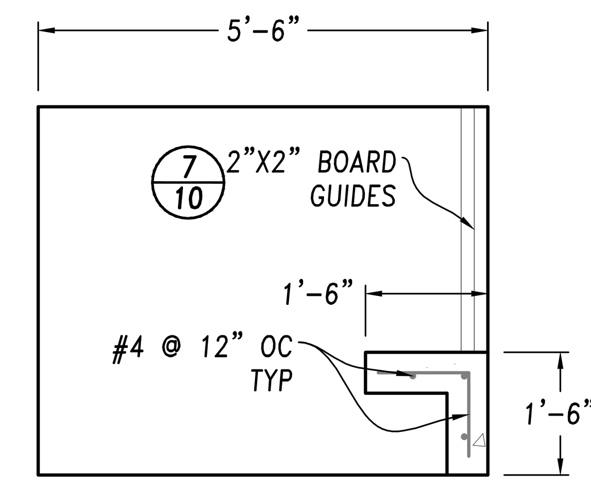
Sheet:	4 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



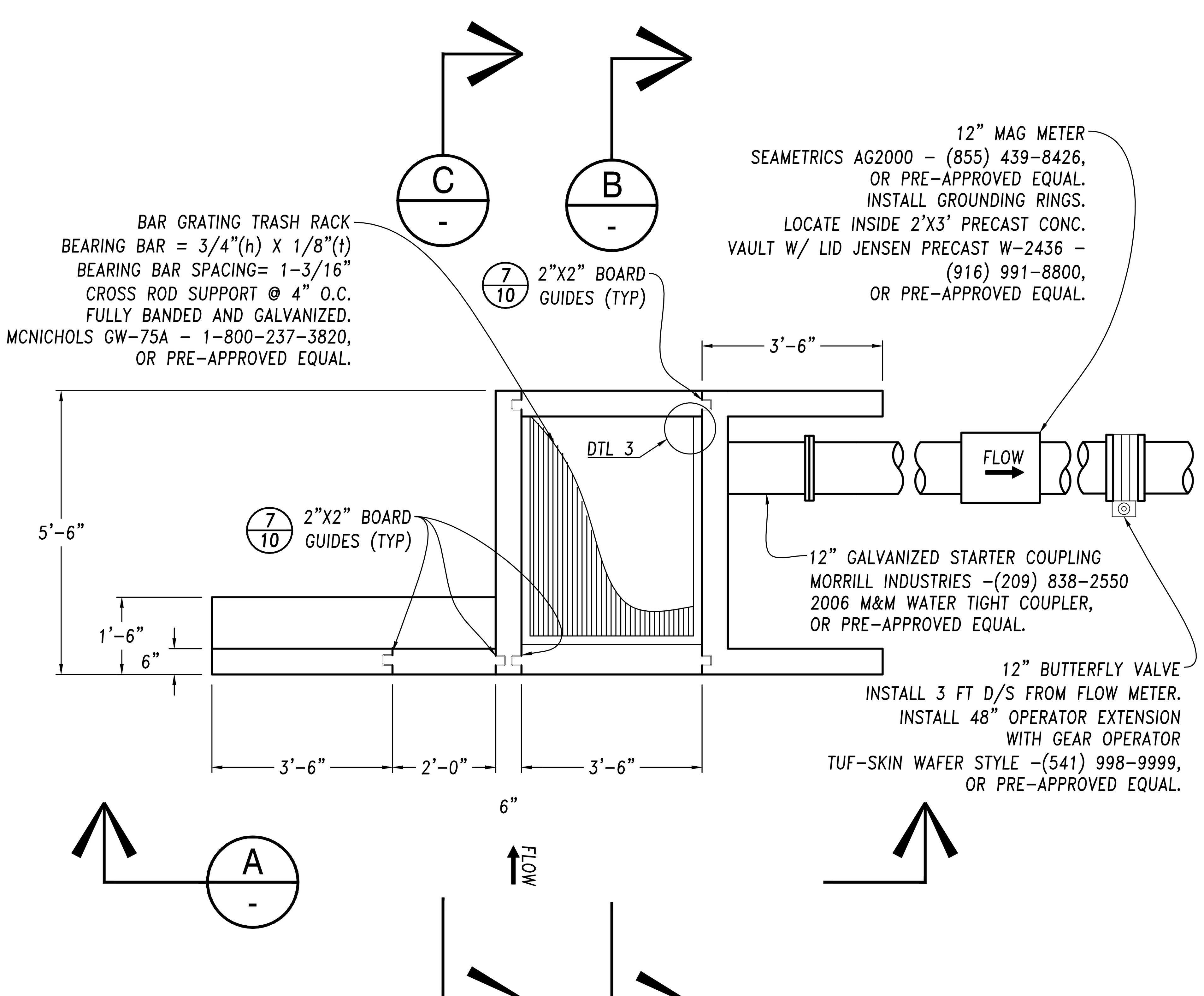
Section A



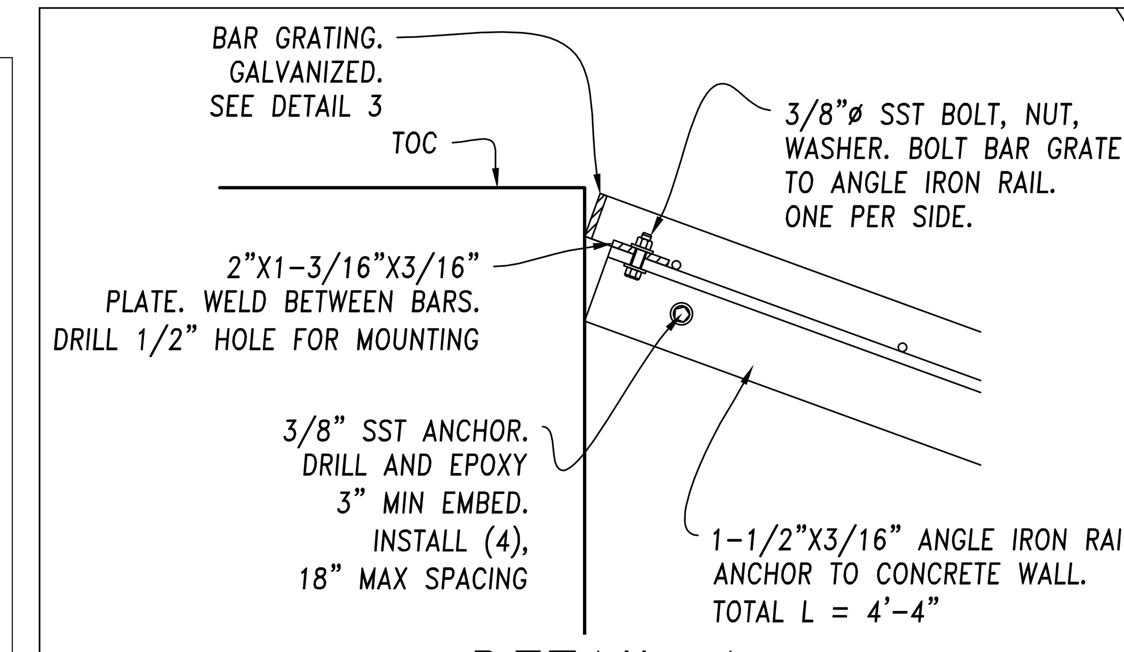
Section B



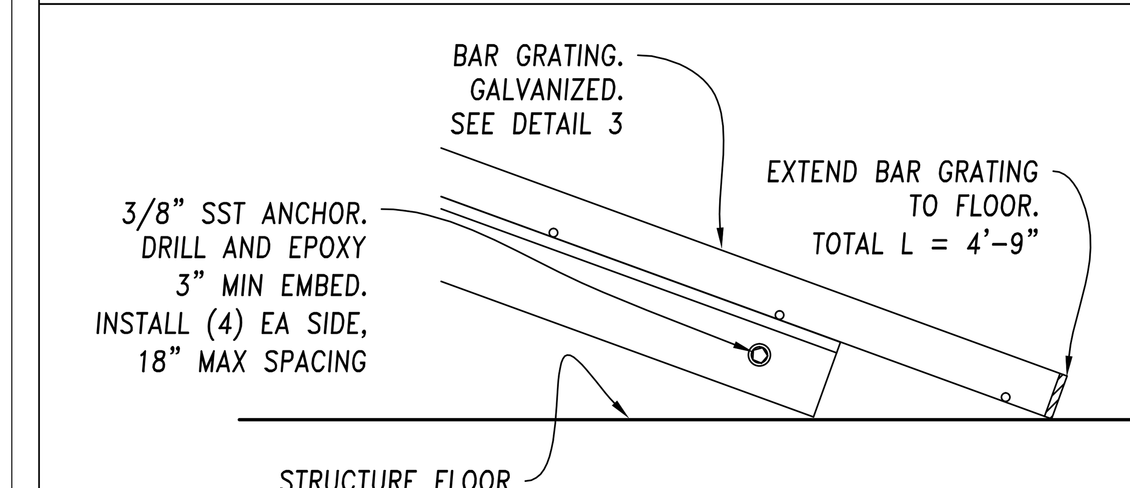
Section C



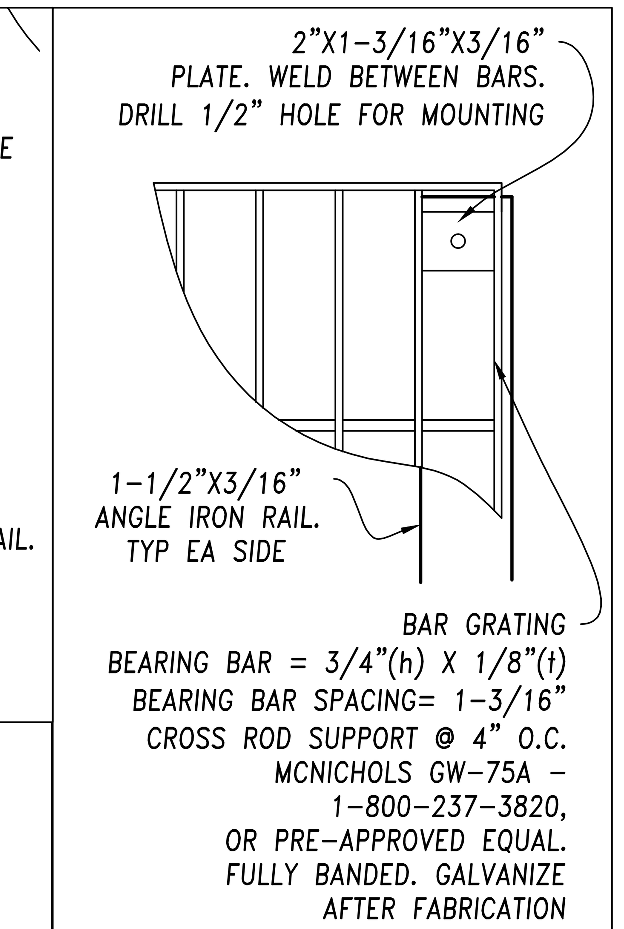
PLAN



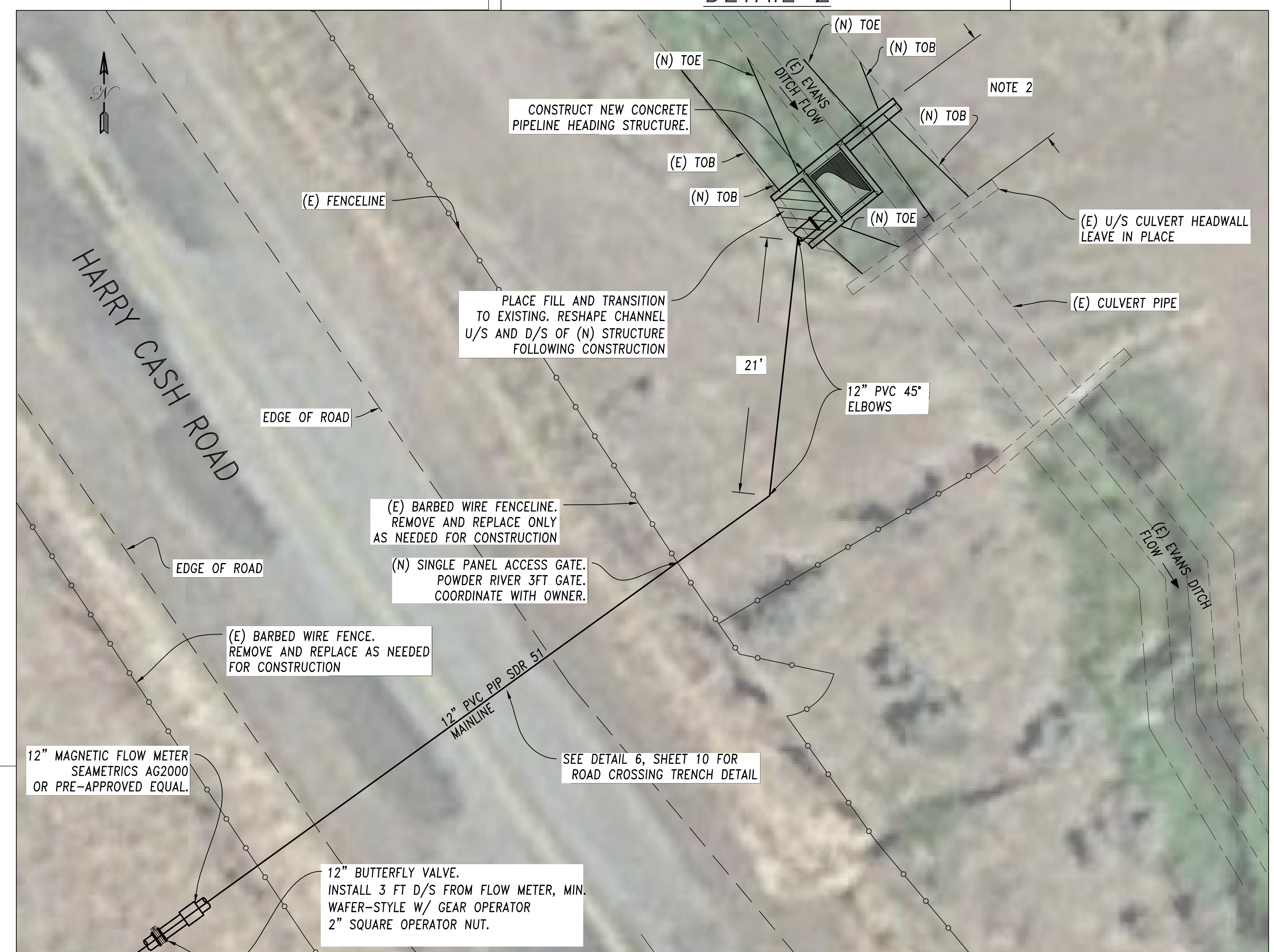
DETAIL 1



DETAIL 2



DETAIL 3



Notes:

1. The reference elevation for the improvements is the left (looking downstream) top of the existing concrete headwall at the inlet of the existing Evans Spring Pipeline. Reference elevation = 100.0

2. The upstream face of the new headwall shall be located 10 feet upstream from the inlet of the existing culvert and oriented perpendicular to the flow direction in the existing channel.

3. Contractor to provide 2x6 boards for each bay so they can be stacked in the board guides and extend to the top of the structure. Boards shall be cut to length for each bay.

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

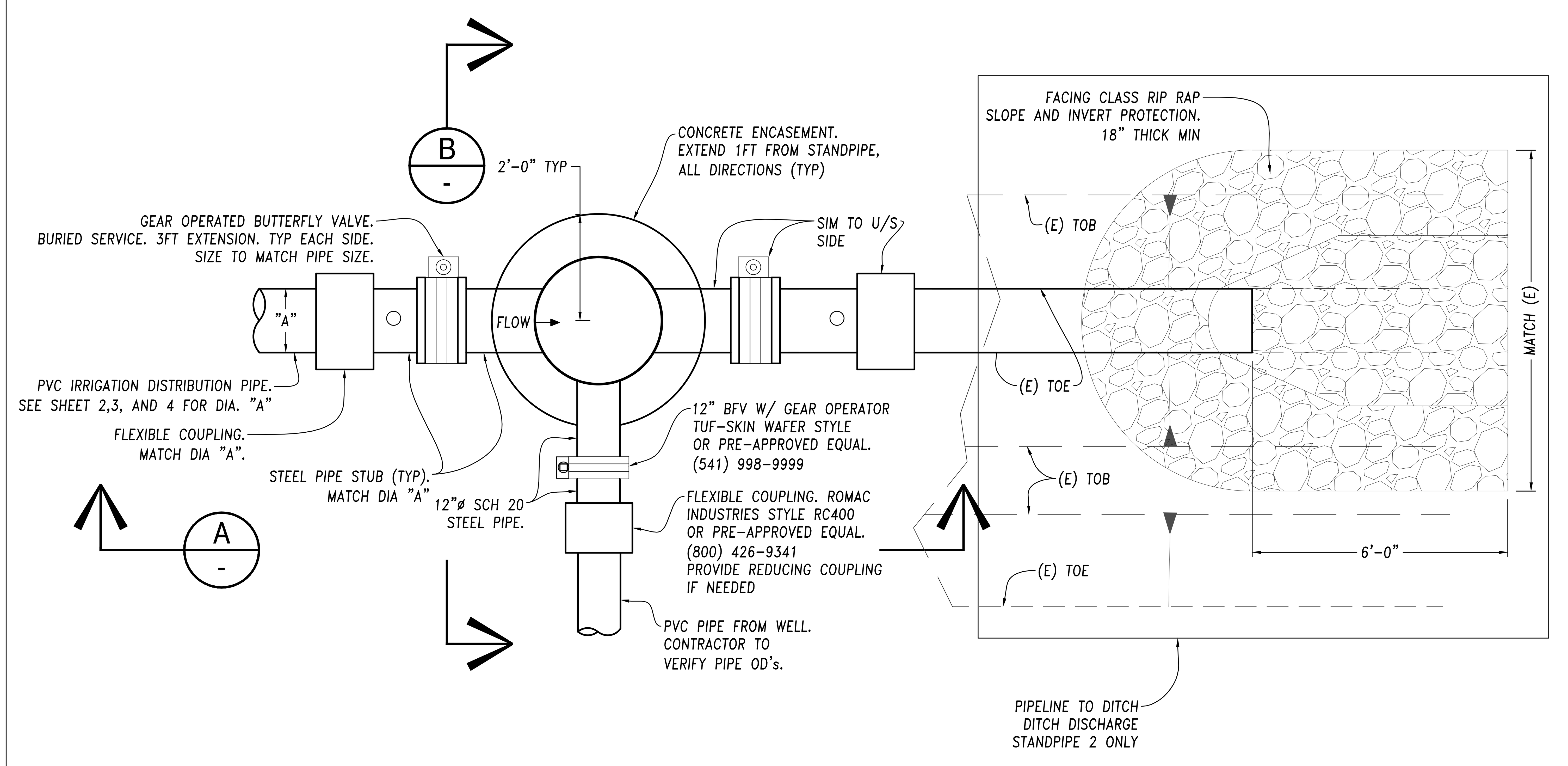
MAINLINE PIPE REPLACEMENT

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

PIPELINE HEADING

5

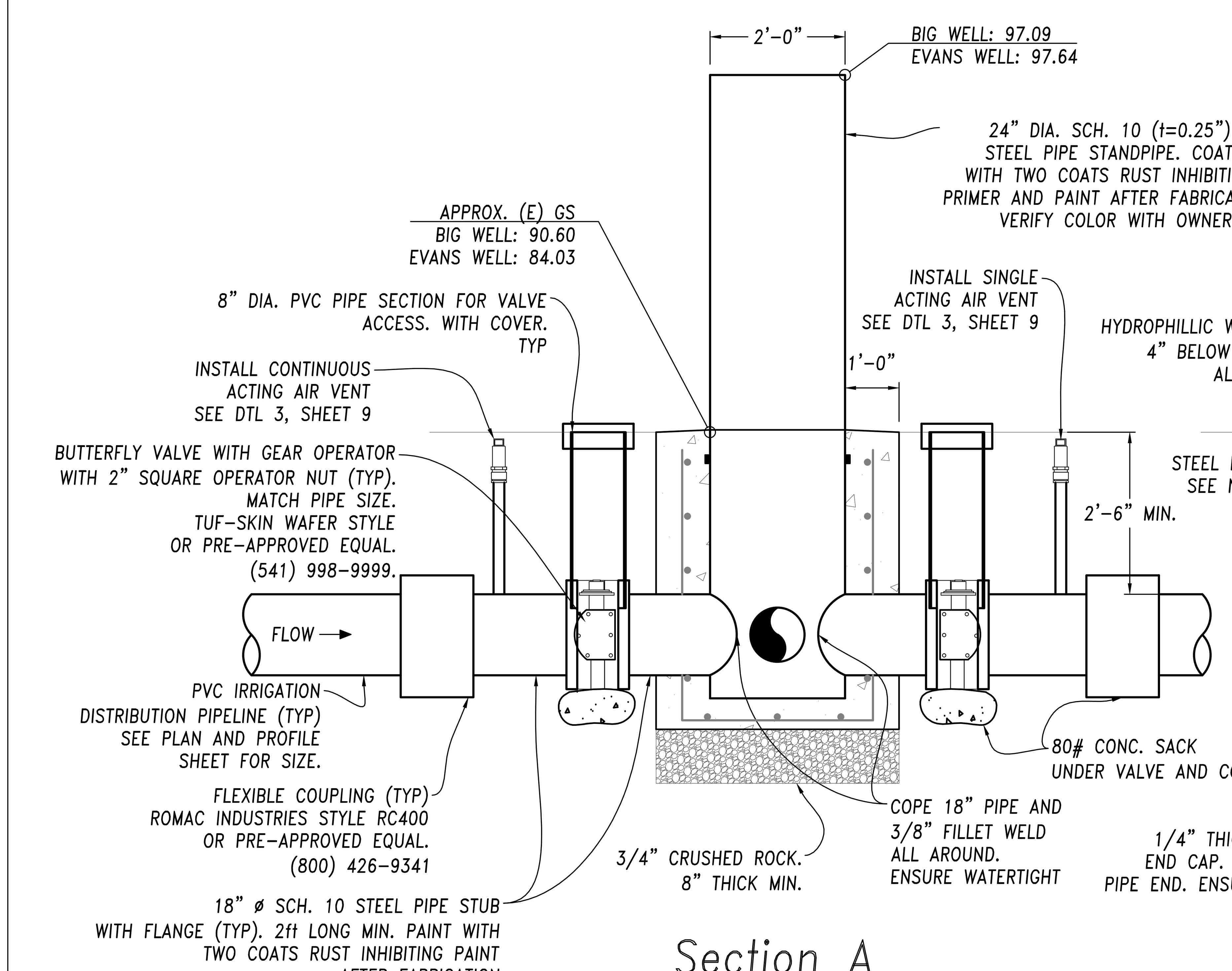
Sheet:	5 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



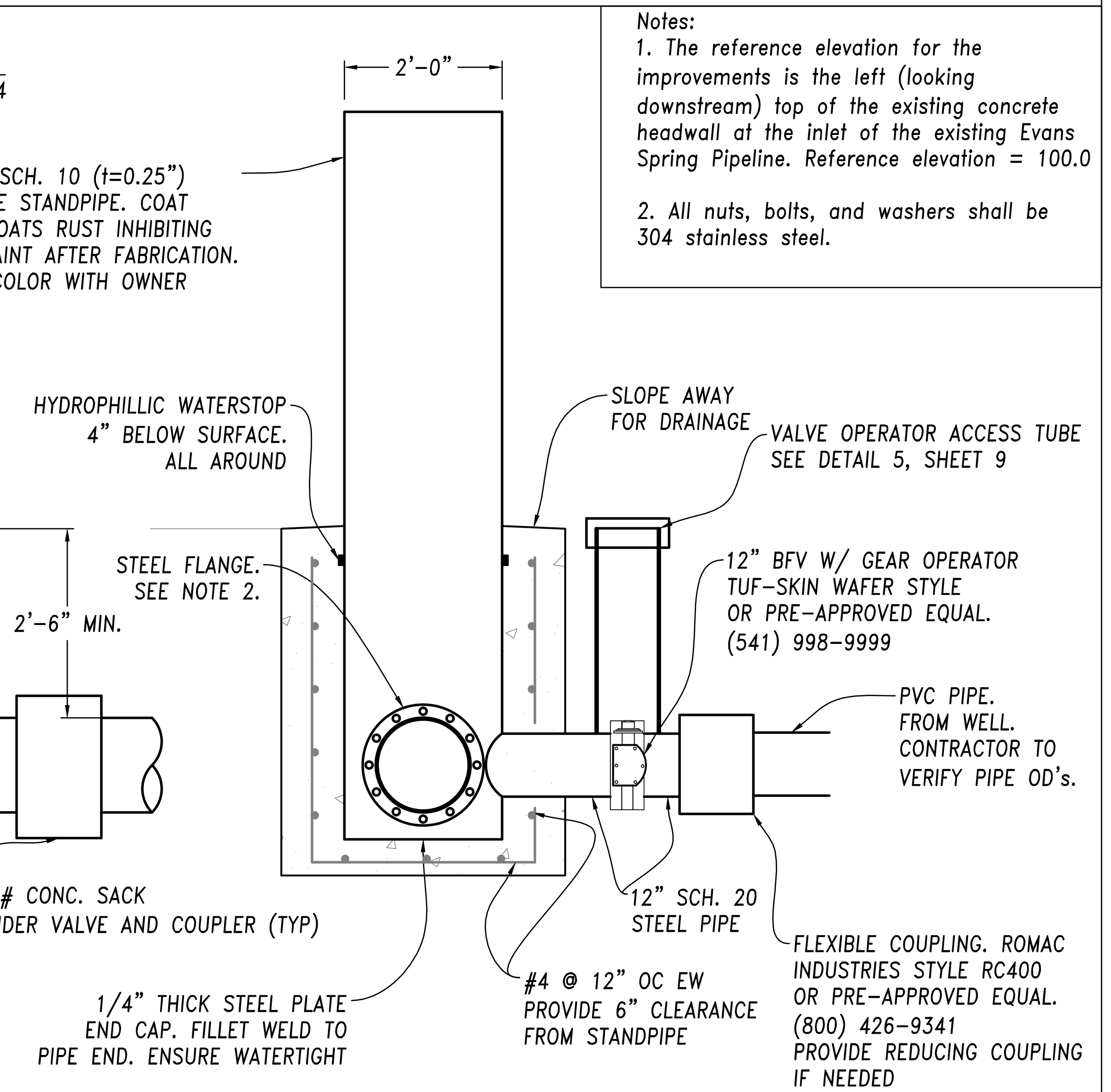
PLAN

Notes:
1. The reference elevation for the improvements is the left (looking downstream) top of the existing concrete headwall at the inlet of the existing Evans Spring Pipeline. Reference elevation = 100.0

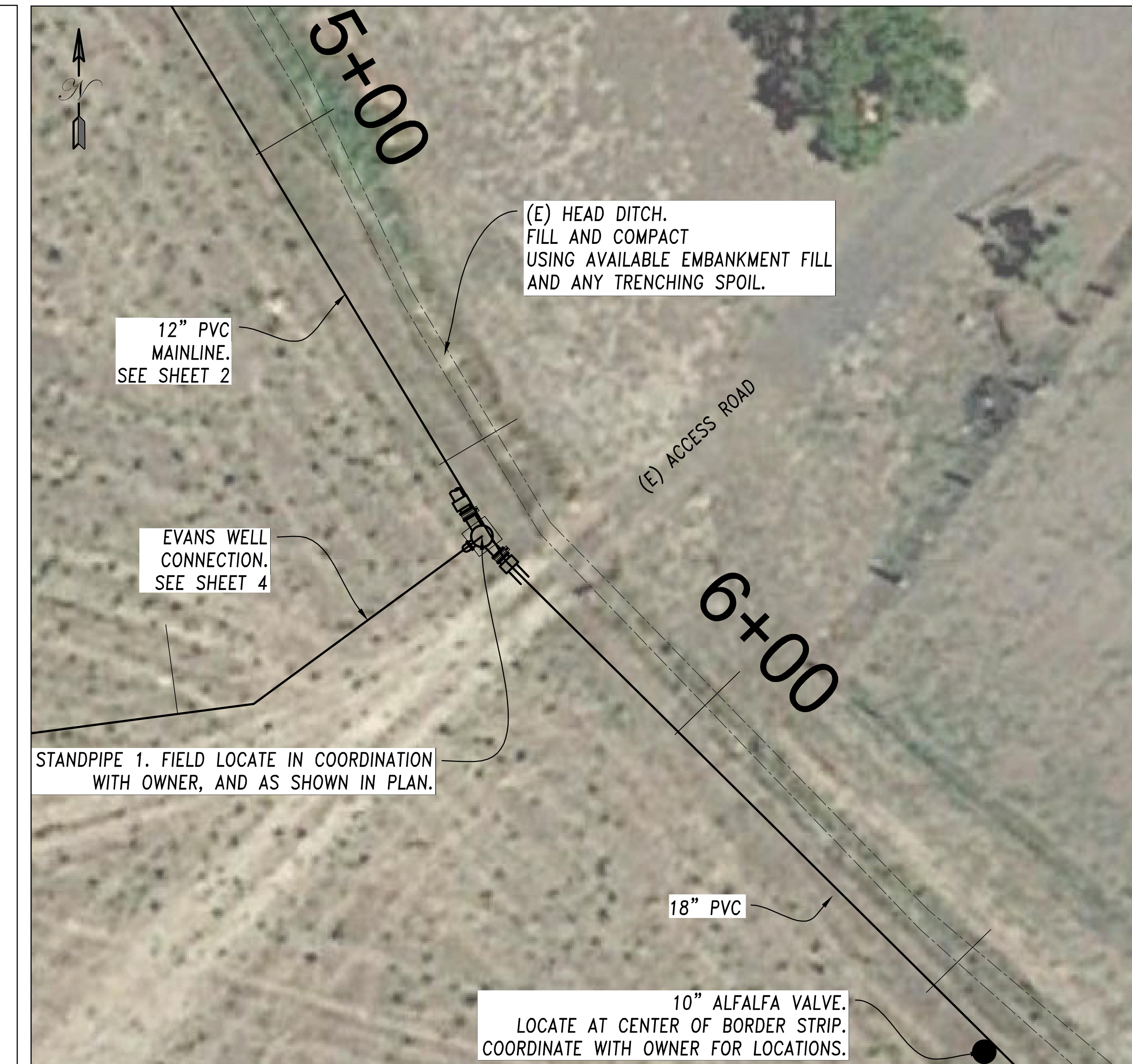
2. All nuts, bolts, and washers shall be 304 stainless steel.



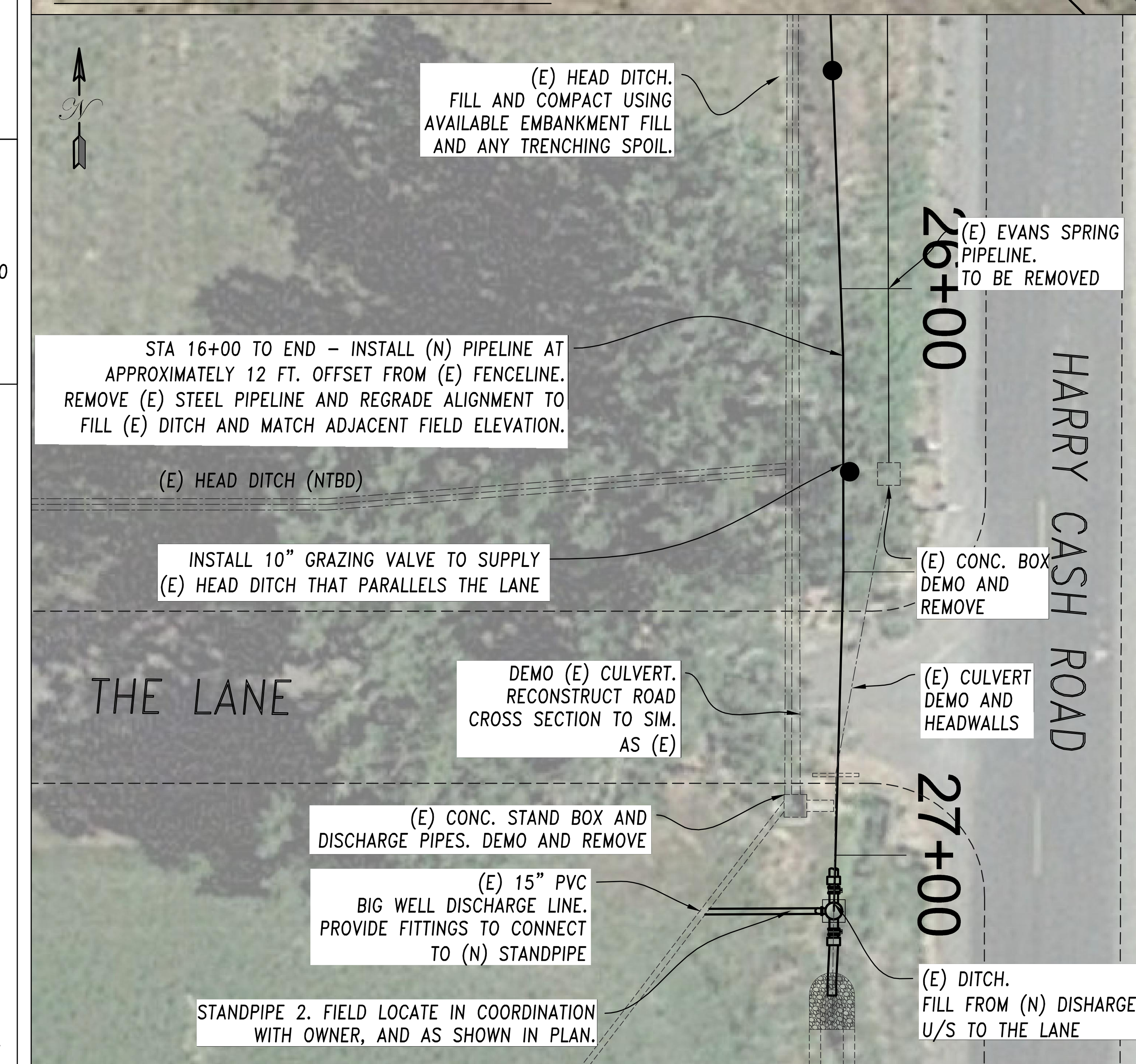
Section A



Section B



STANDPIPE 1 -NODE 3



STANDPIPE 2 -NODE 4

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

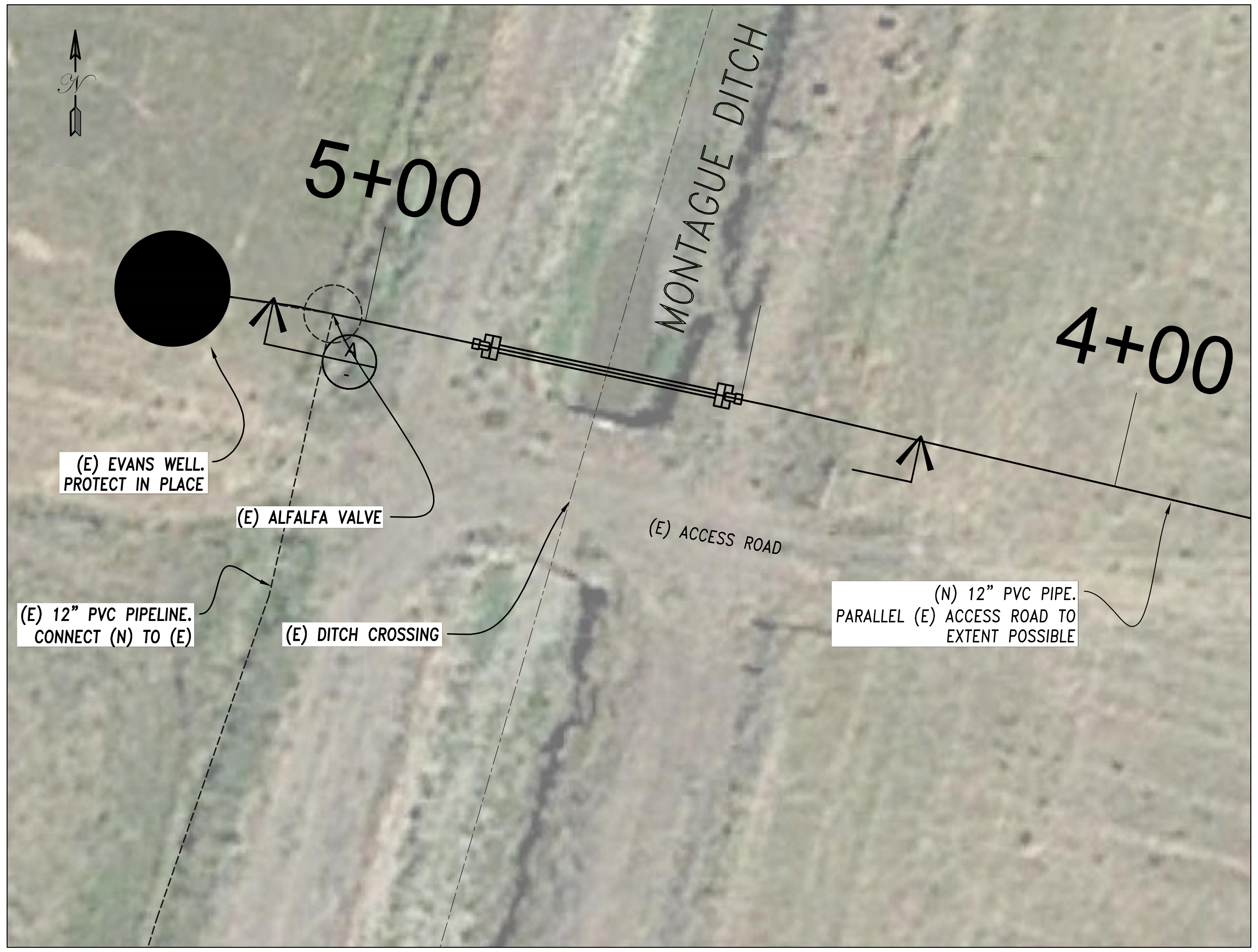
MAINLINE PIPE REPLACEMENT

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

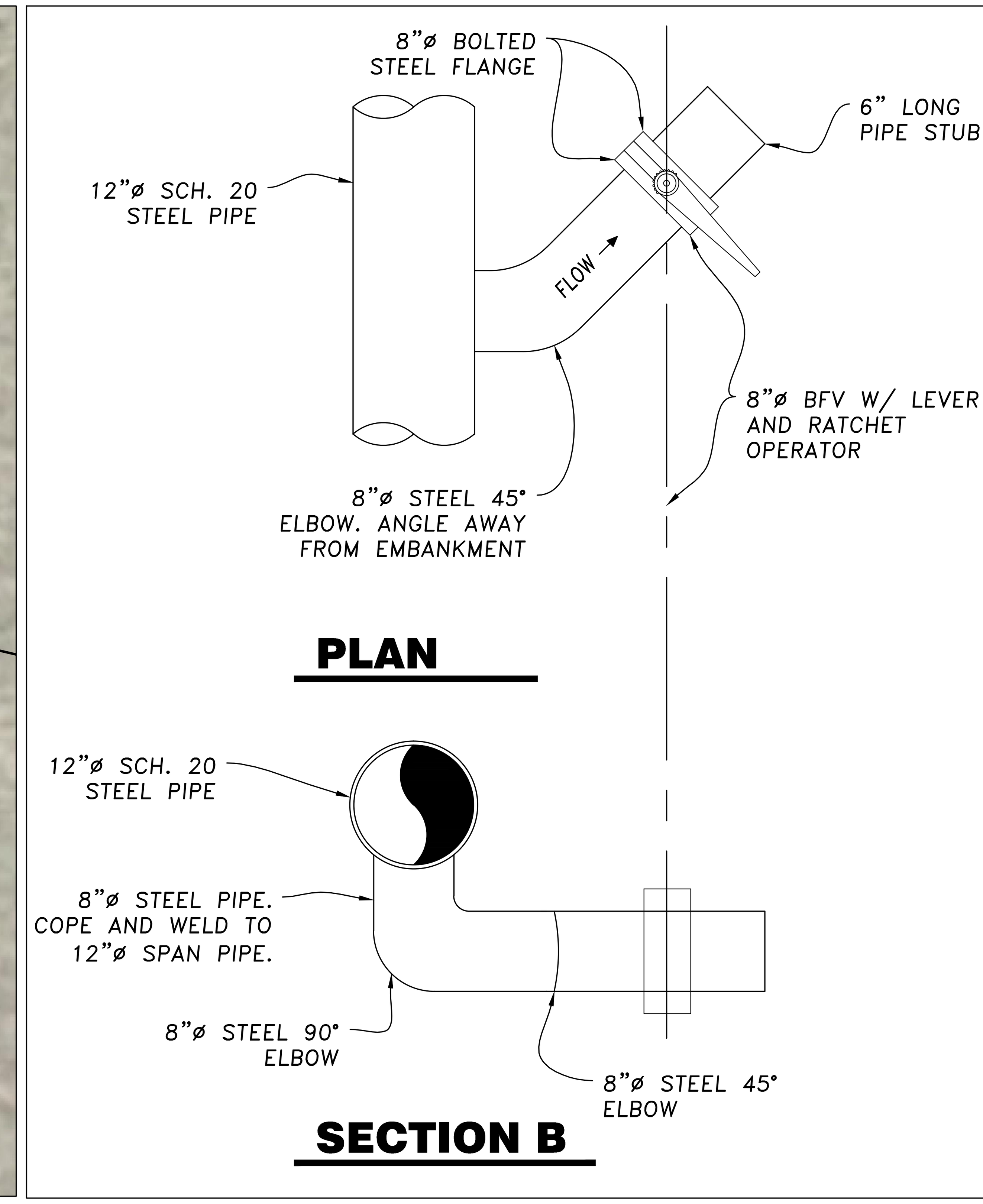
STANDPIPE DETAILS

6

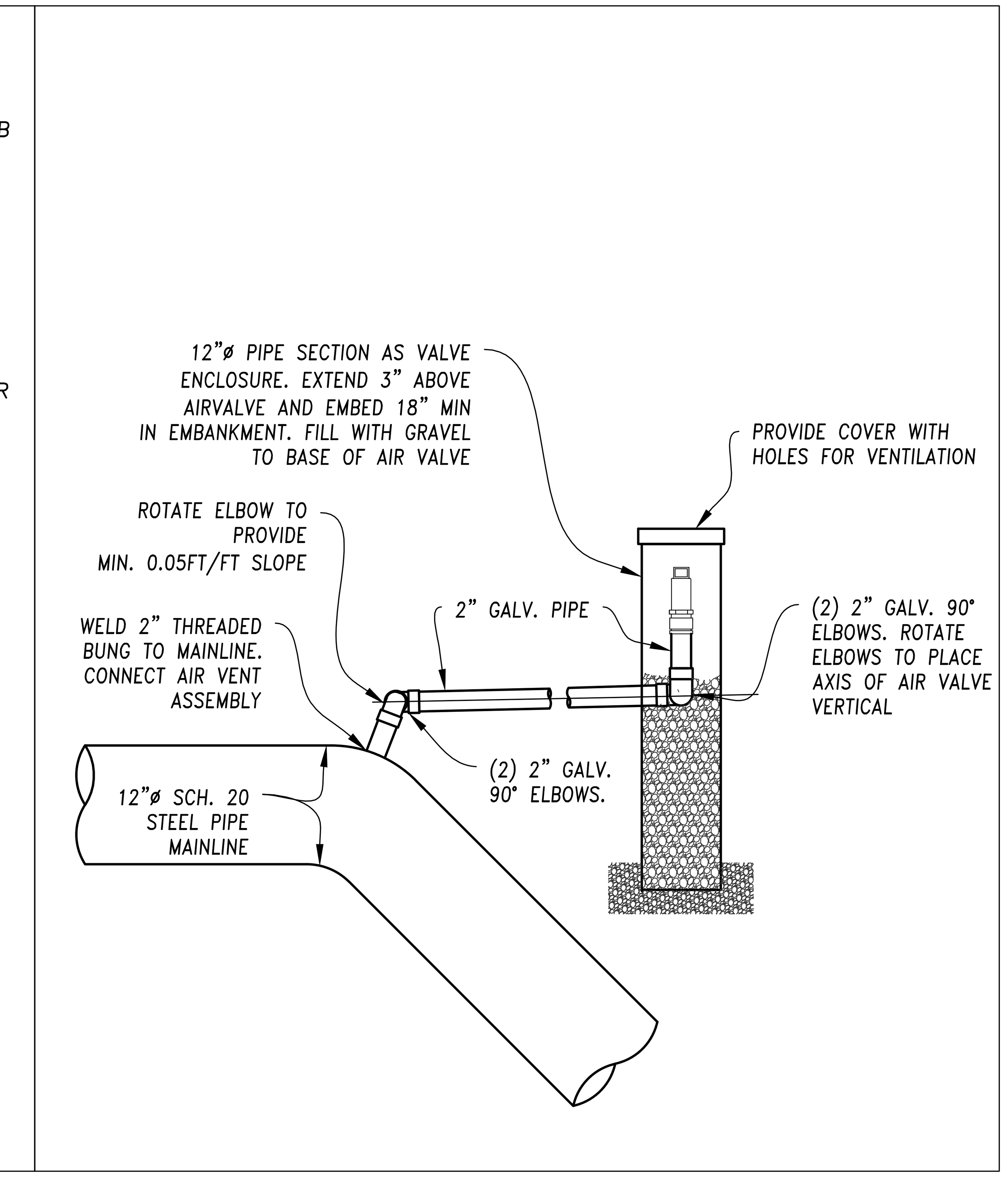
Sheet:	6 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



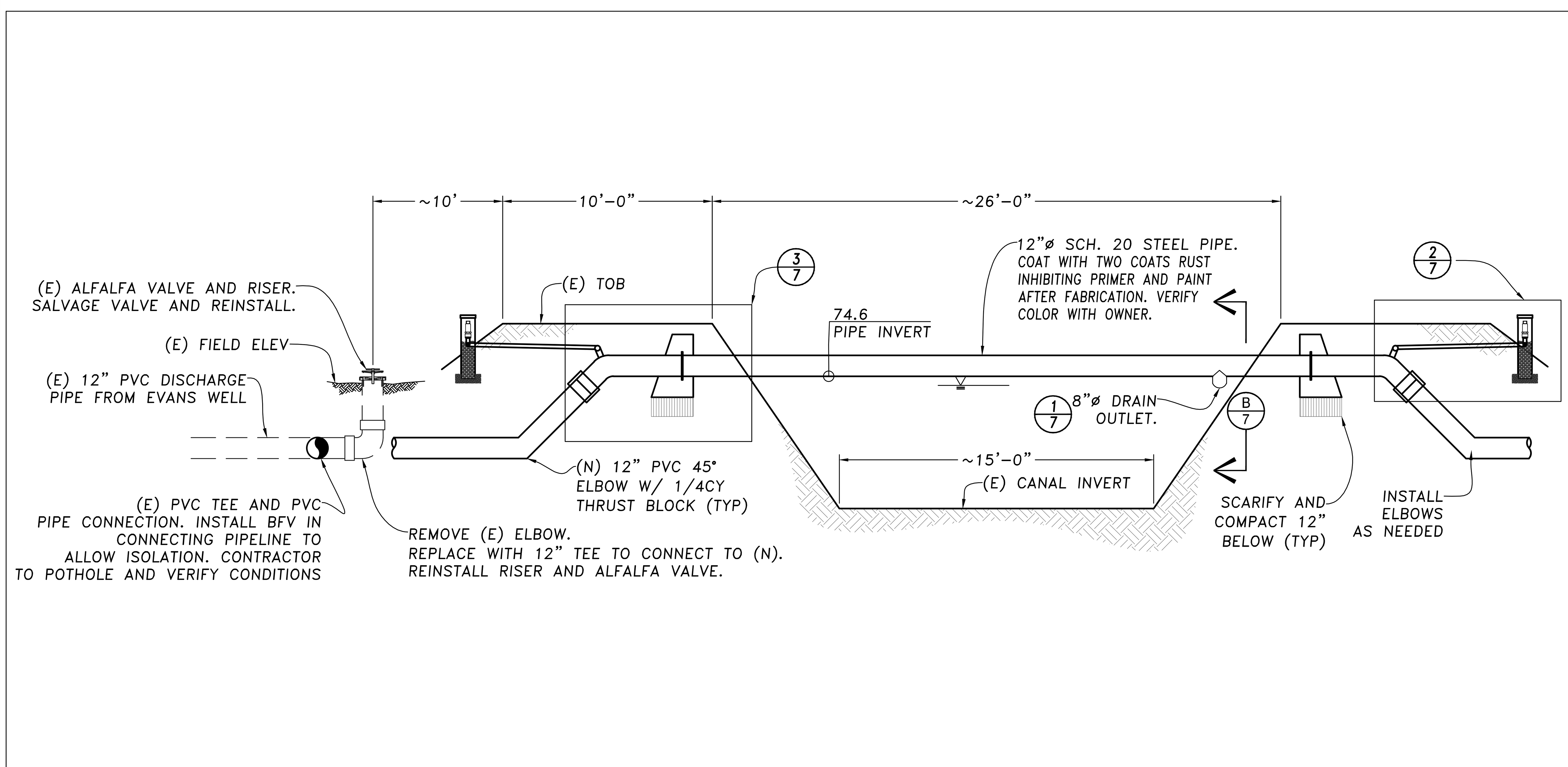
PLAN



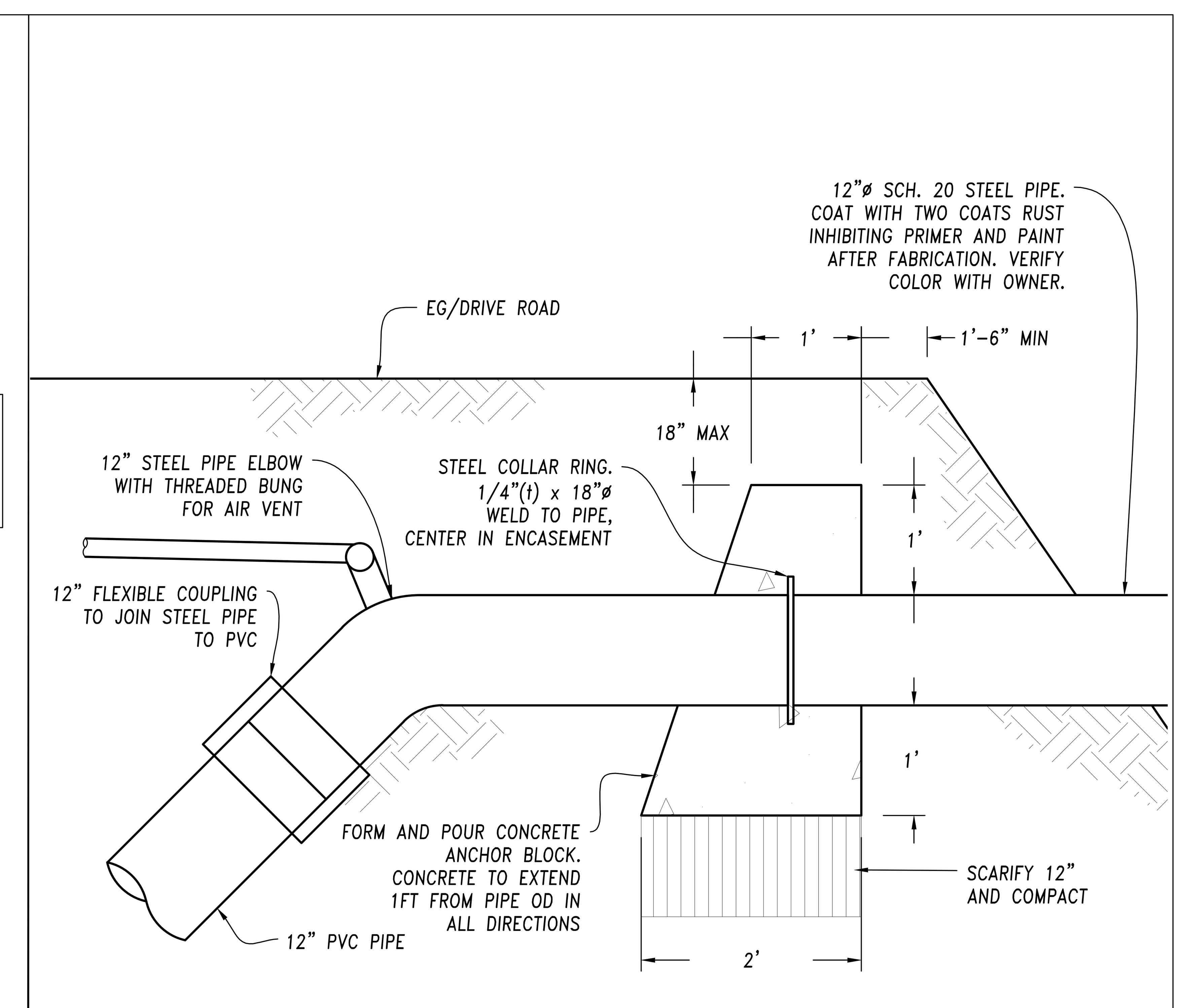
DETAIL 1. DRAIN VALVE OUTLET



DETAIL 2. AIR VALVE ASSEMBLY



PROFILE – SECTION A-A



DETAIL 3. PIPE SUPPORTS

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

MAINLINE PIPE REPLACEMENT

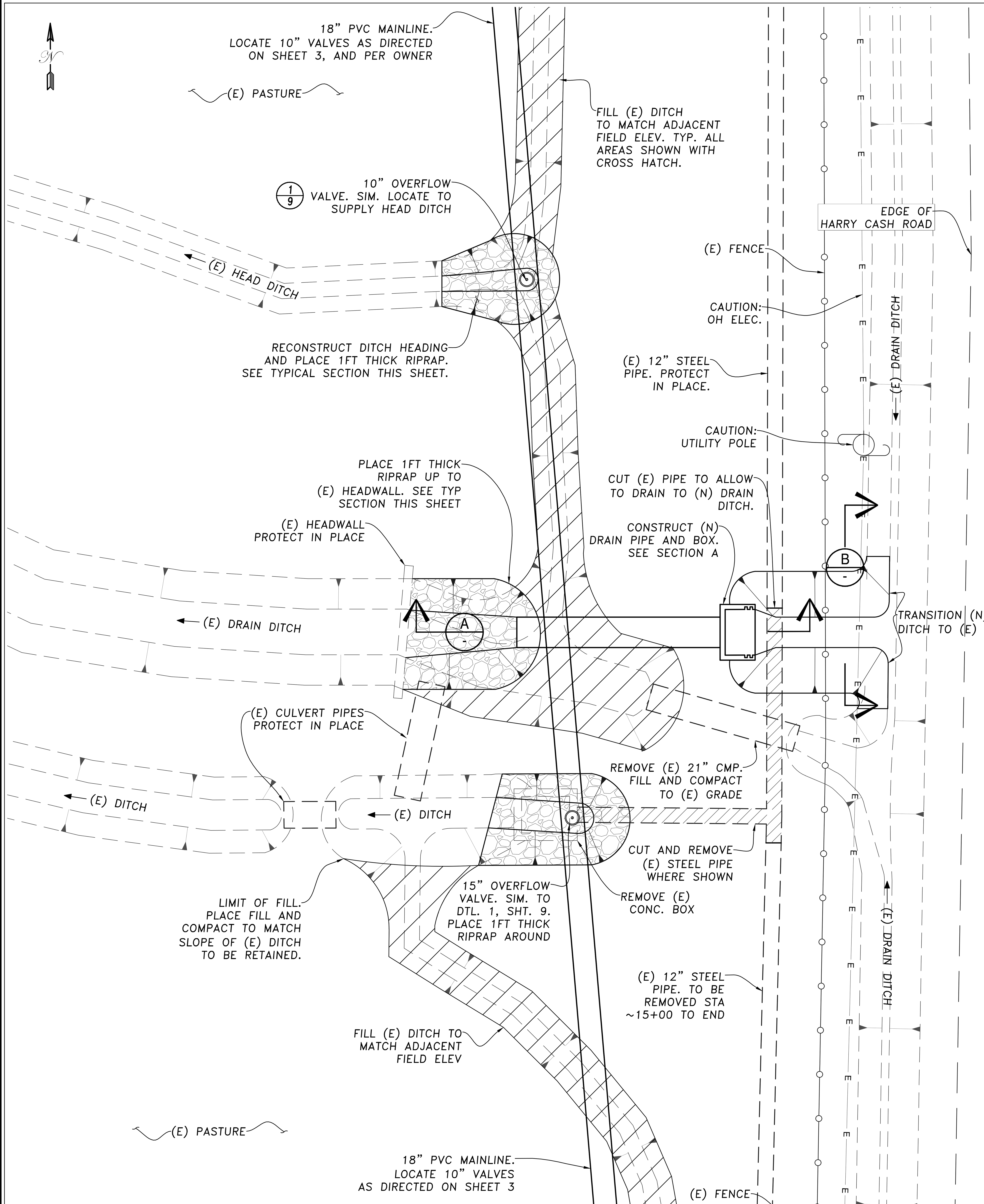
Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

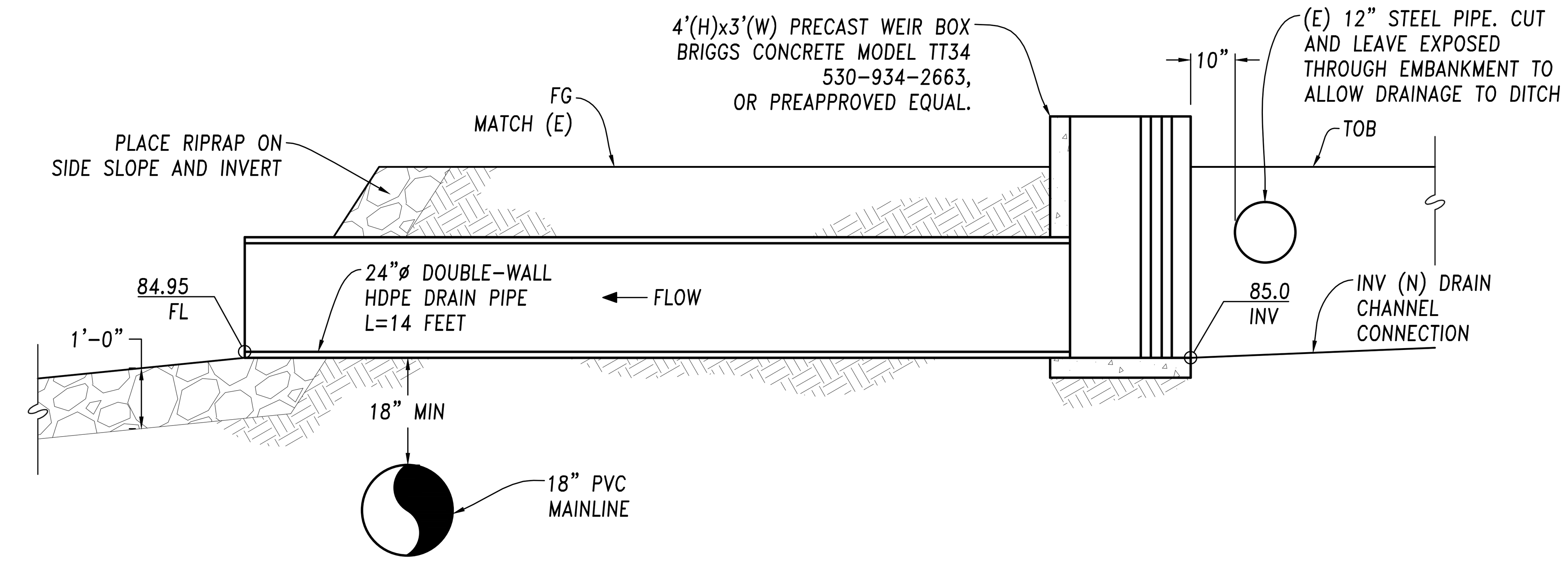
MONTAGUE DITCH CROSSING

7

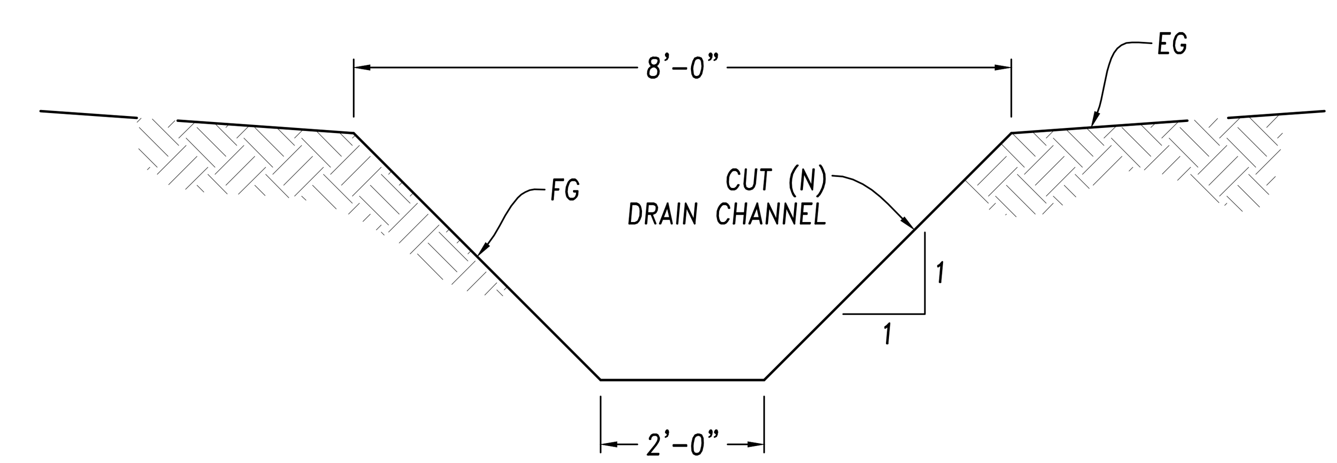
Sheet:	7 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



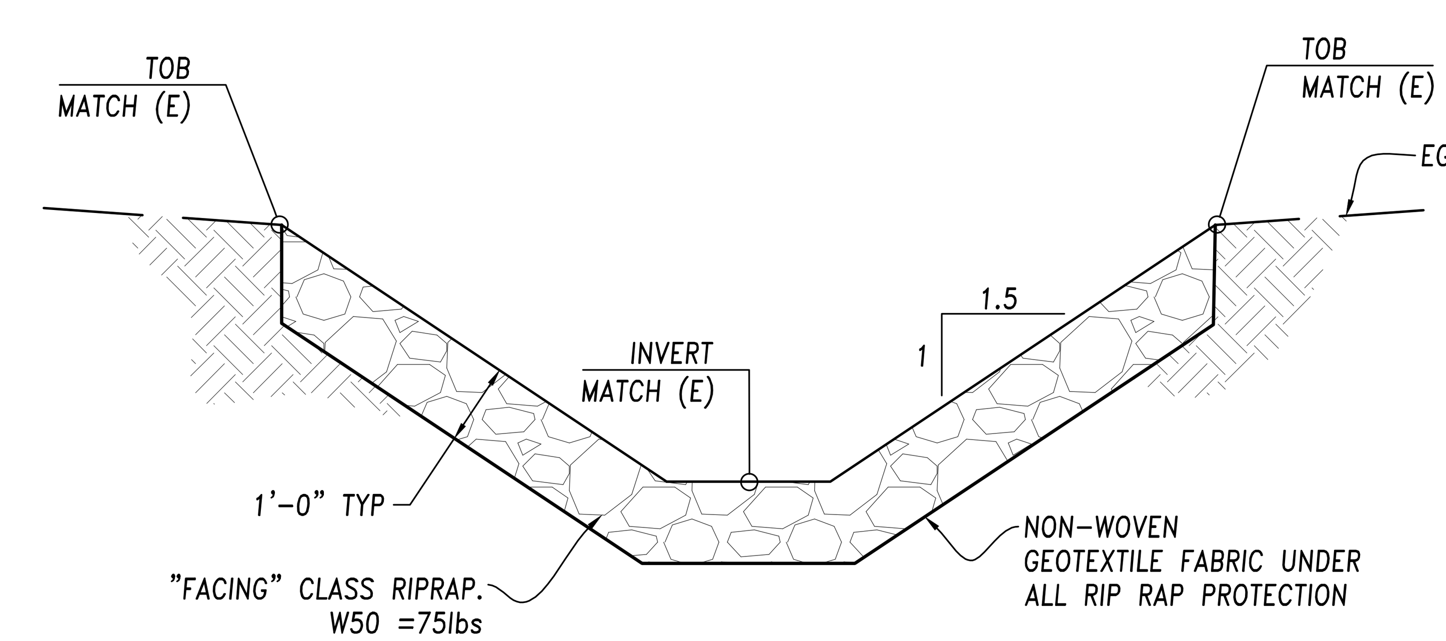
PLAN



SECTION A–A



SECTION B–B



TYPICAL RIPRAP SECTION

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

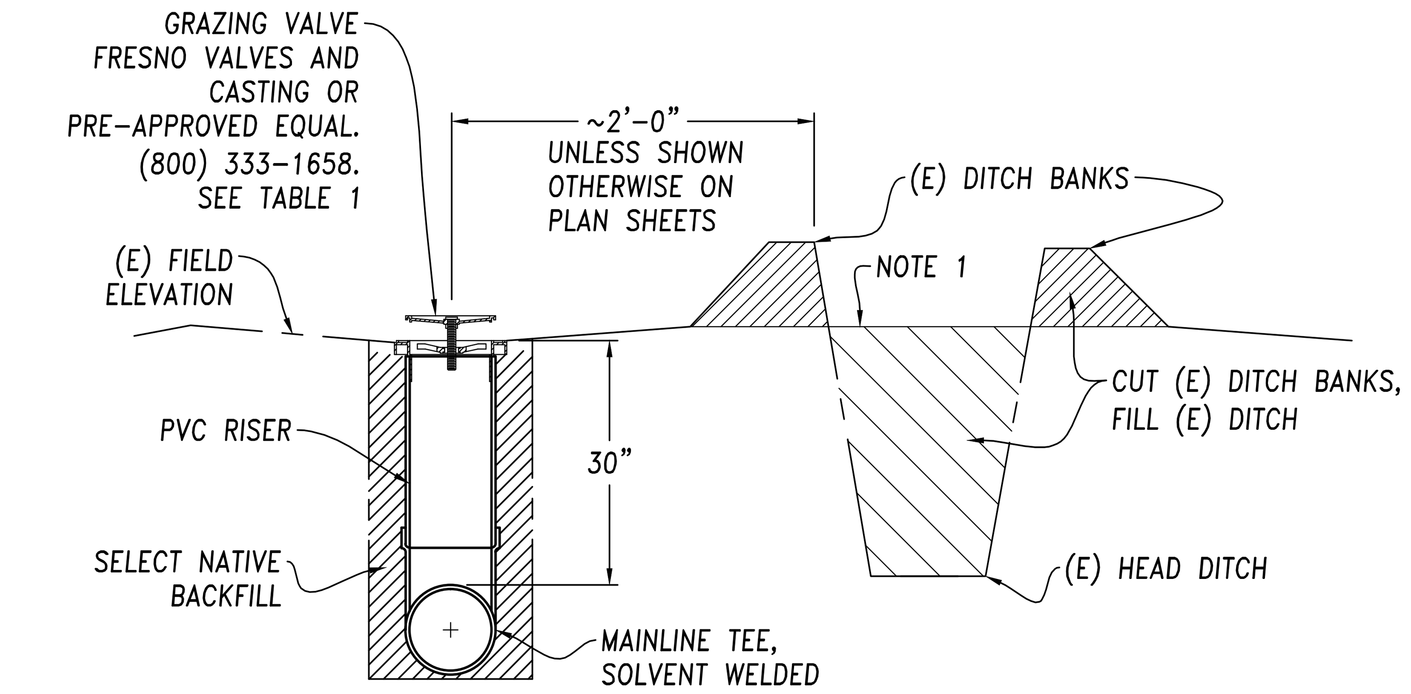
MAINLINE PIPE REPLACEMENT

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

IRRIGATION DIVISON SITE PLAN

8

Sheet:	8 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



NOTE 1: Cut and fill (e) ditch banks so finish grade matches or is slightly higher than adjacent field grade.

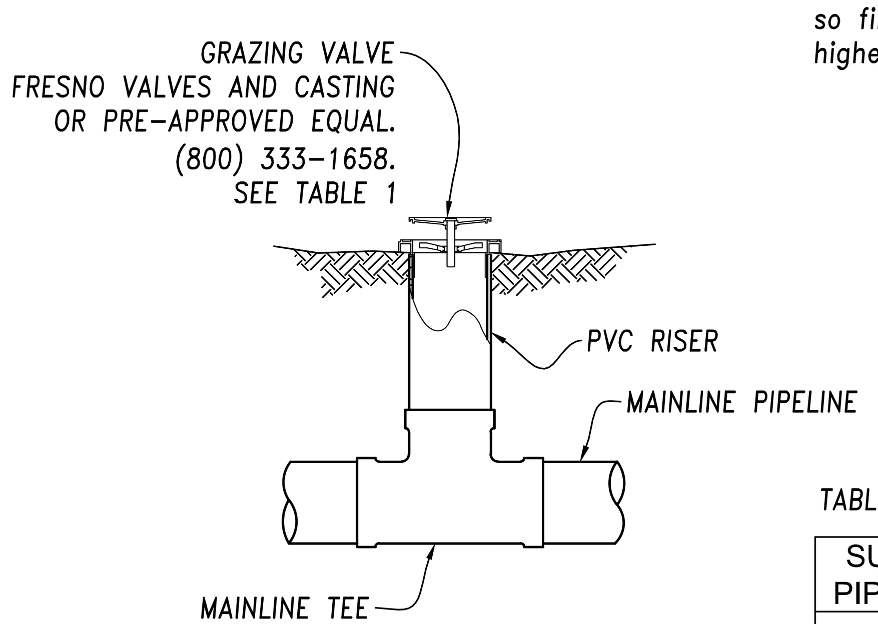
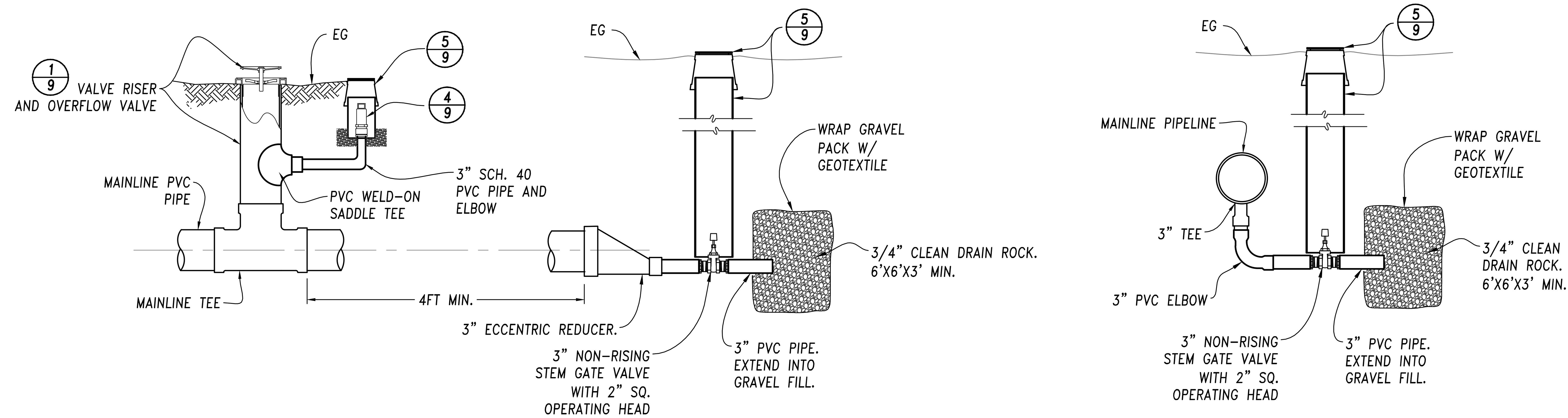


TABLE 1.

SUPPLY PIPE SIZE	RISER DIA.	VALVE DIA.
8"	6"	6"
12"**	10"	10"
18"	10"	10"

** Install 6" valves on Lateral 1 as shown on plan sheet

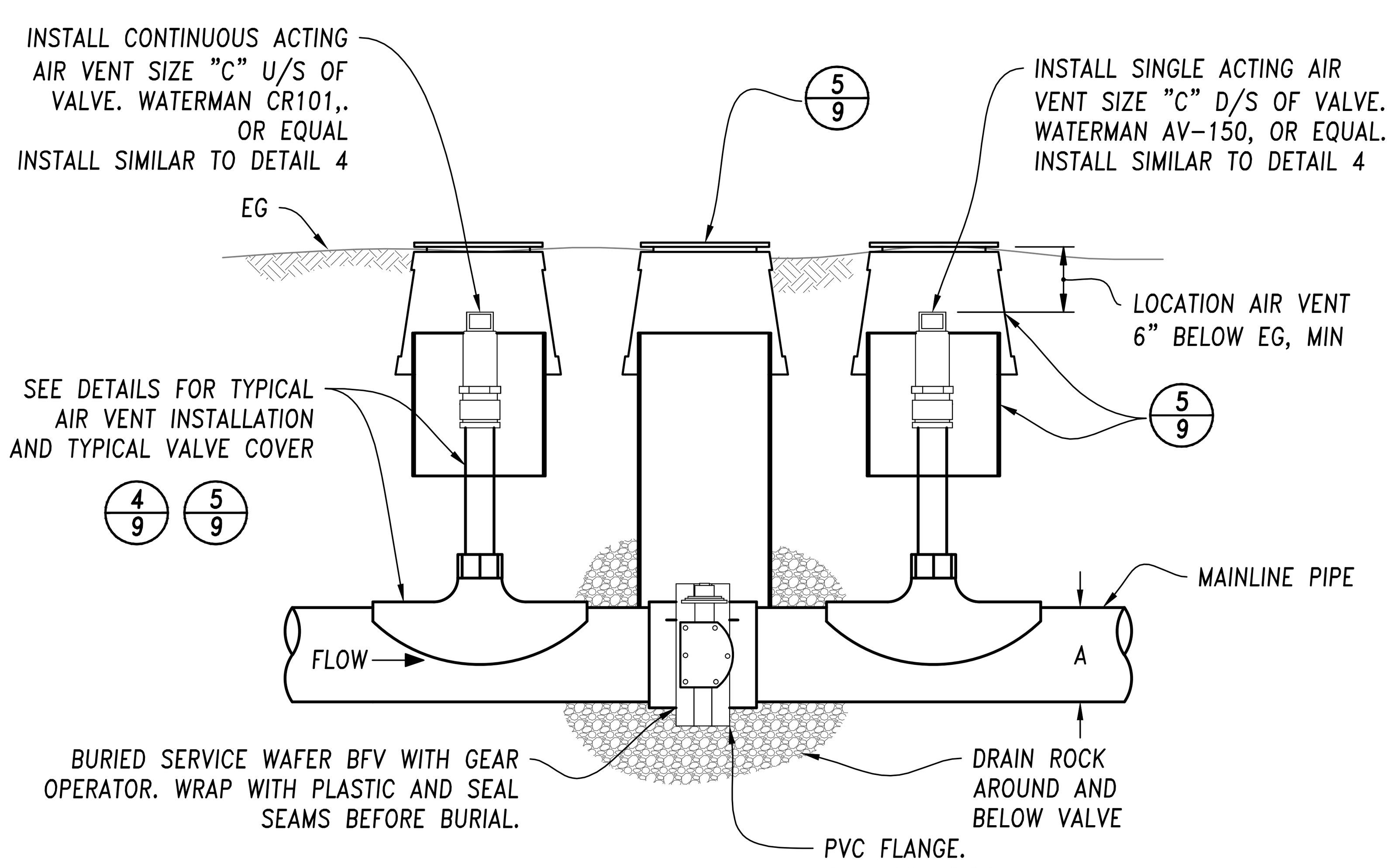
1 OVERFLOW VALVE INSTALLATION
Scale: Not to Scale



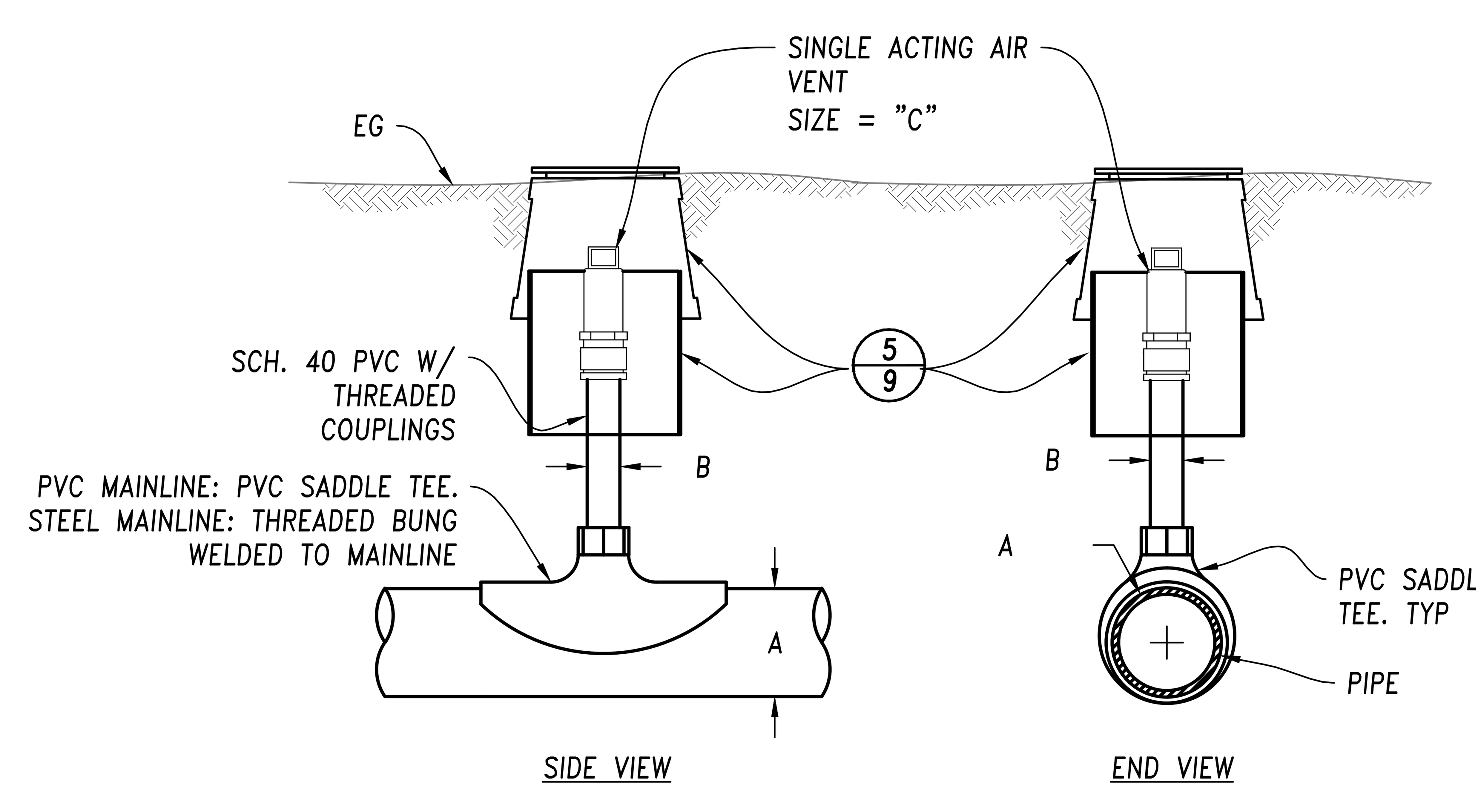
TYPICAL END RISER TEE AND END DRAIN VALVE ASSEMBLY

TYPICAL IN-LINE DRAIN VALVE ASSEMBLY - SECTION VIEW

2 PIPELINE DRAIN ASSEMBLIES
Scale: Not to Scale

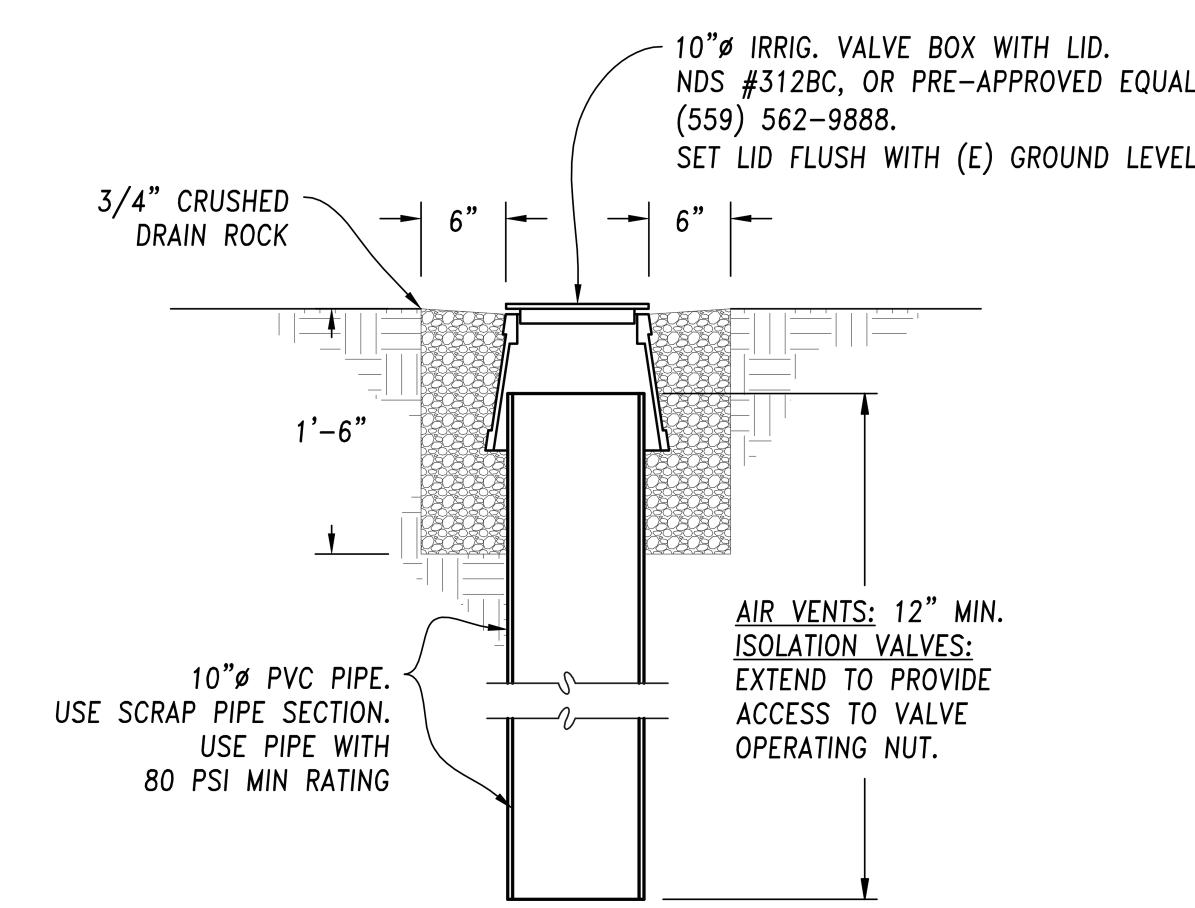


3 ISOLATION VALVE
Scale: Not to Scale



A	B	C
<=8 "	2"	2"
10-12 "	3"	3"
>12"	4"	4"

4 TYPICAL AIR VENT INSTALLATION
Scale: Not to Scale



5 TYPICAL VALVE ACCESS AND COVER
Scale: Not to Scale

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Rev No:	Date:	Issue/Revision Description:	App By:

Project Mgr: TJO
Project Eng: TJO
Designer: TJO
Checked:
Dsgn/Drawn: TJO

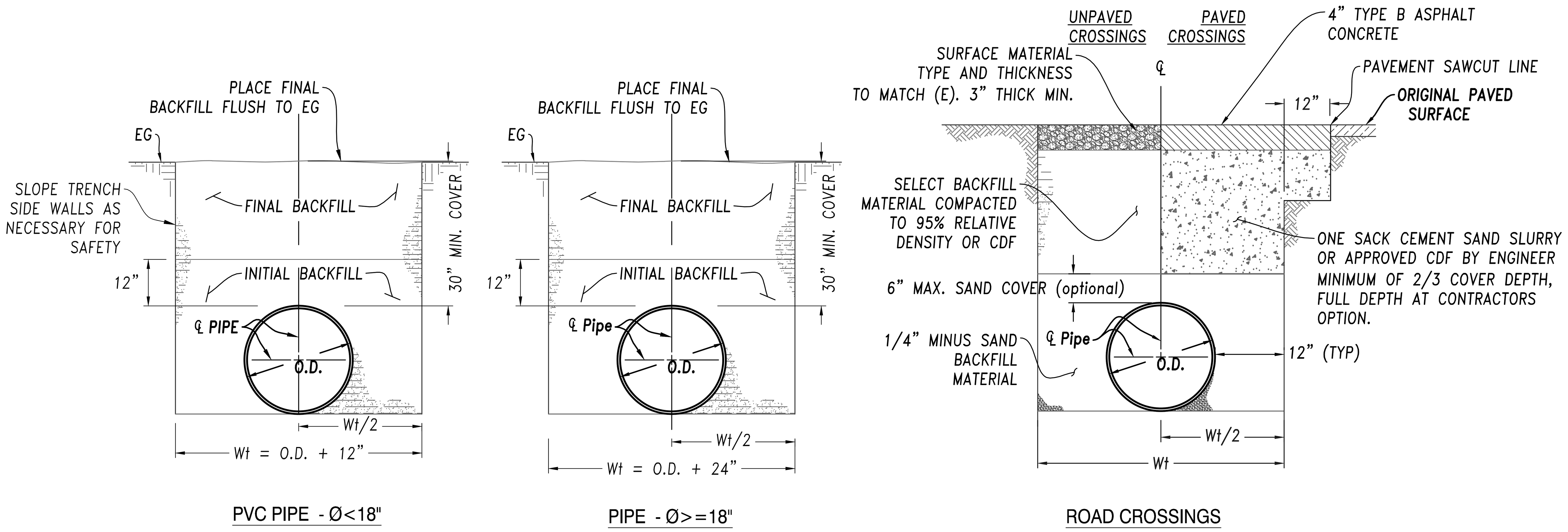
HART RANCH

MAINLINE PIPE REPLACEMENT

DETAILS 1

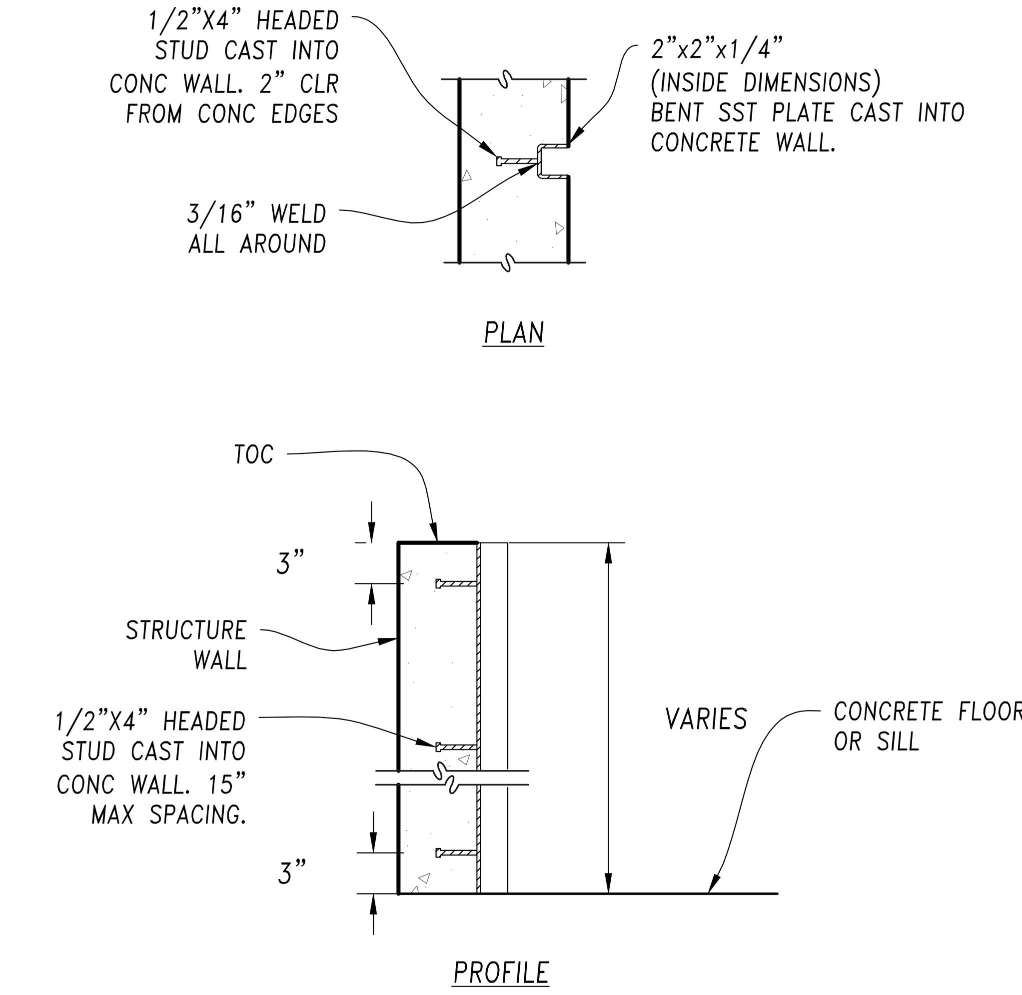
9

Sheet: 9 of 10
Proj #:
Scale: AS SHOWN
Date: Dec 31, 2016



HARRY CASH ROAD CROSSING AND CROSSING OF 'THE LANE' SHALL UTILIZE THE "ROAD CROSSING" TRENCH DETAIL FOR THE ENTIRE LENGTH OF THE COUNTY RIGHT-OF-WAY, OR 24 FEET, WHICH EVER IS LONGER.

6 TRENCH DETAILS
Scale: NOT TO SCALE



NOTES:
1. Board guides to be aligned properly to accept straight boards.

7 BOARD GUIDES
Scale: Not to Scale

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

HART RANCH

MAINLINE PIPE REPLACEMENT

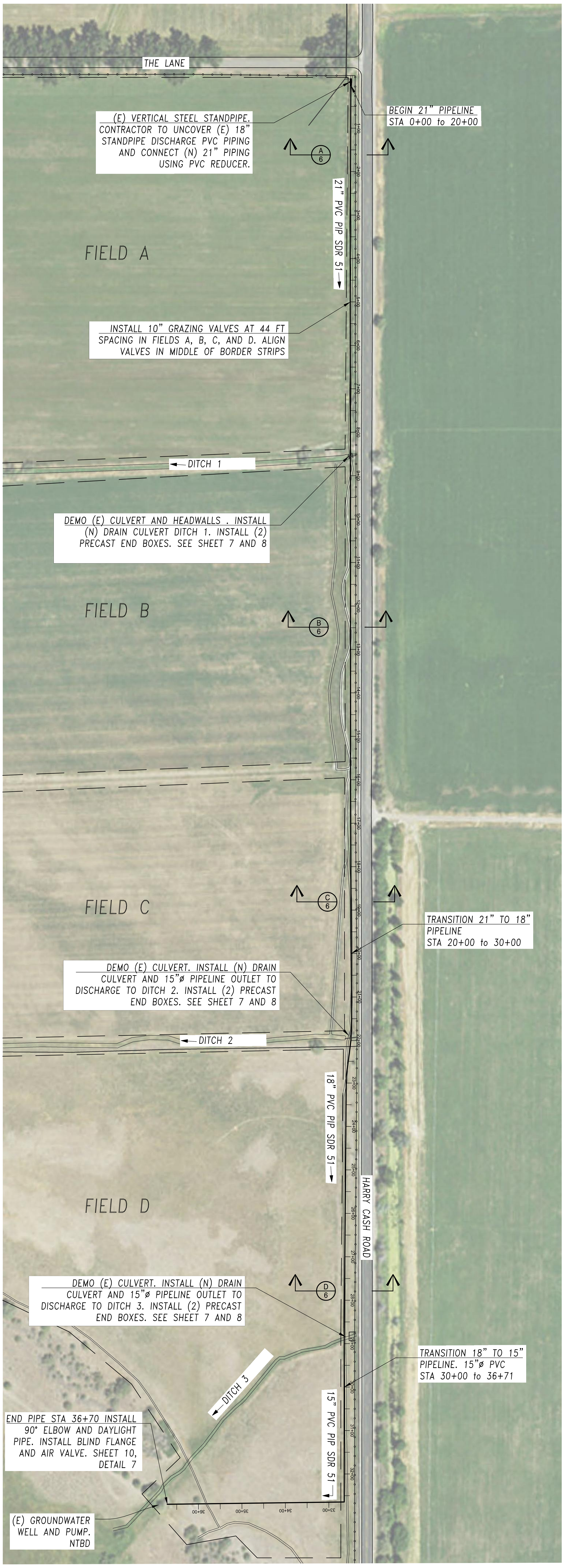
Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

Issue/Revision Description: | Date: | Rev No: | App By:

DETAILS 2

10

Sheet:	10 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



RELEASED FOR BIDDING ONLY
12/31/16

811 Know what's below. Call before you dig.

Sheet Index:

Notes

1. All construction shall be in accordance with these drawings and the specifications bearing the project name "Hart Ranch Mainline Pipe Replacement Project".
2. Landowner shall be responsible for obtaining any needed permits, easements, and/or right-of-ways.
3. Contractor will be responsible for locating and protecting all utilities. Special safety precautions to be taken when working in the vicinity of gas, oil, and electrical lines (buried and overhead).
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 shall be staked by the contractor and verified by the Engineer prior to construction.
6. Contact the Owner and the Engineer at least 7 days prior to construction.

Owner:
Hart Ranch
Contact: Blair Hart
Cell: 530-598-1051
Engineer:
Davids Engineering
Contact: Tommy Ostrowski, PE
Office: 530-757-6107 ext. 108
Cell: 805-305-5335
Email: tommy@davidsengineering.com

Legend

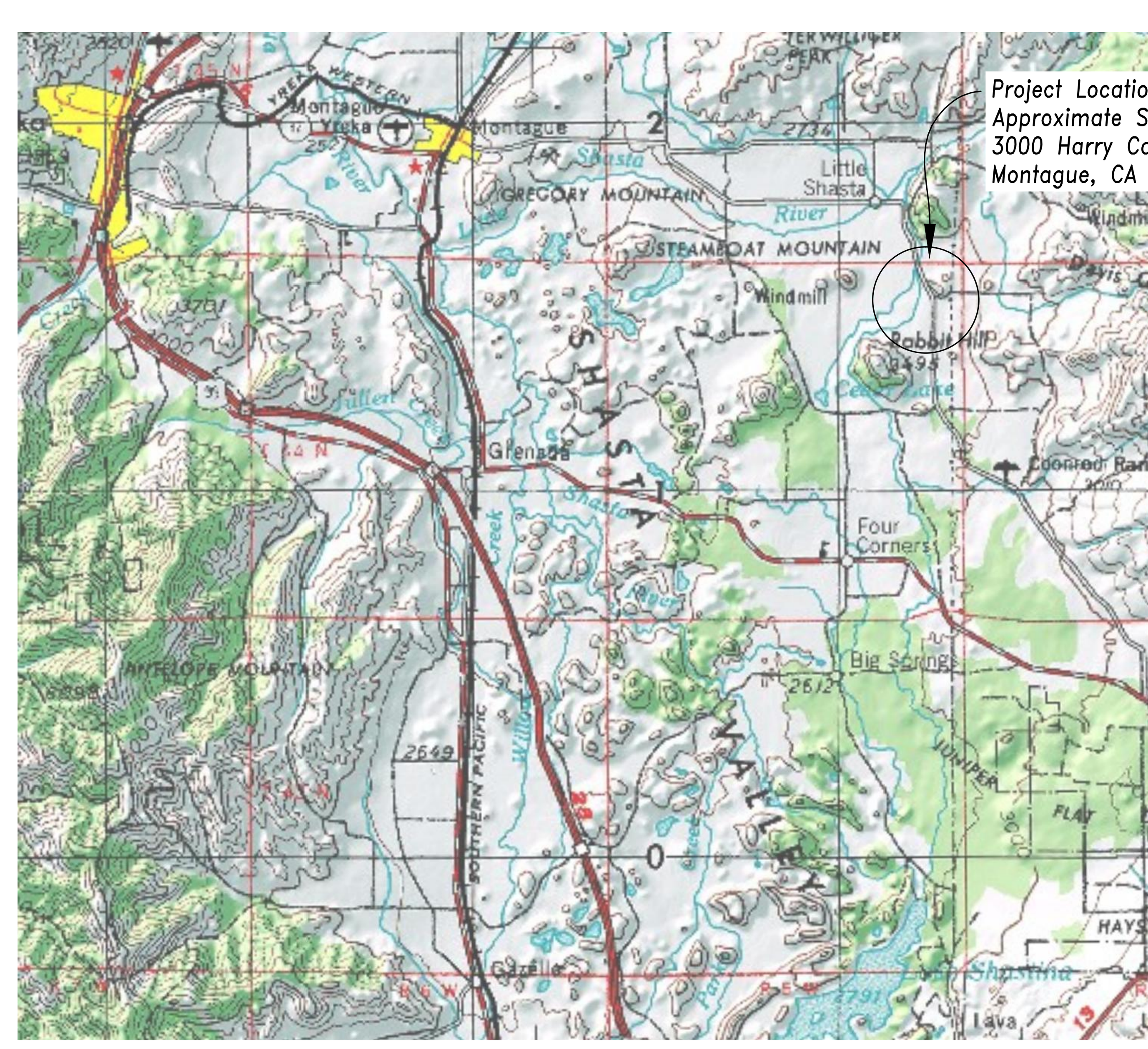
BREAK LINE
CENTERLINE
SECTION ARROW
DETAIL/SECTION NUMBER FOUND ON SHEET
CONCRETE
EARTH
RIPRAP/AB
SAND

PIPELINE SUMMARY

DIAMETER	TYPE	LENGTH,FT
15"	PVC PIP SDR 51	671
18"	PVC PIP SDR 51	1000
21"	PVC PIP SDR 51	2000

Abbreviations

2.5 : 1	HORIZONTAL : VERTICAL SLOPE	INV	INVERT
AC	ACRE	L=	LENGTH =
AF	ACRE-FEET	MAX	MAXIMUM
APPROX	APPROXIMATELY	MIN	MINIMUM
BFV	BUTTERFLY VALVE	(N)	NEW
BM	BENCH MARK	NTBD	NOT TO BE DISTURBED
CFS	CUBIC FEET PER SECOND	O.C.	ON CENTER
CL	CLASS	O.D.	OUTSIDE DIAMETER
CLEAR.	CLEARANCE	PIP	PLASTIC IRRIGATION PIPE
CONC	CONCRETE	PSI	POUNDS PER SQUARE INCH
CTR	CENTER	PVC	POLYVINYL CHLORIDE
CTD	CENTERED	REV	REVISION
DEG	DEGREE	S=	SLOPE =
DIA	DIAMETER	SCH	SCHEDULE
DTL	DETAIL	SHT	SHEET
(E)	EXISTING	SDR	STANDARD DIMENSION RATIO
EA	EACH	SIM	SIMILAR
EF	EACH FACE	STA	STATION
EG	EXISTING GROUND	SST	STAINLESS STEEL
ELEV	ELEVATION	t	THICKNESS
EW	EACH WAY	TBR	TO BE REMOVED
FG	FINISHED GRADE	TOB	TOP OF BANK
FL	FLOWLINE	TOC	TOP OF CONCRETE STRUCTURE
FT	FEET	TOW	TOP OF WEIR WALL
GALV	GALVANIZED	TYP	TYPICAL
HWM	HIGH WATER MARK	UNO	UNLESS NOTED OTHERWISE
HWL	HIGH WATER LEVEL	VERT	VERTICAL
		WSE	WATER SURFACE ELEVATION



Project Location
Approximate Street Address:
3000 Harry Cash Road
Montague, CA 96064

Project Mgr:	TJO	HART RANCH						
Project Eng:	TJO	MAINLINE PIPE REPLACEMENT SOUTH OF LANE						
Designer:	TJO							
Checked:								
Dsgn/Drawn:	TJO							
App By:	Rev No:	Date:	Issue/Revision Description:	App By:	Rev No:	Date:	Issue/Revision Description:	

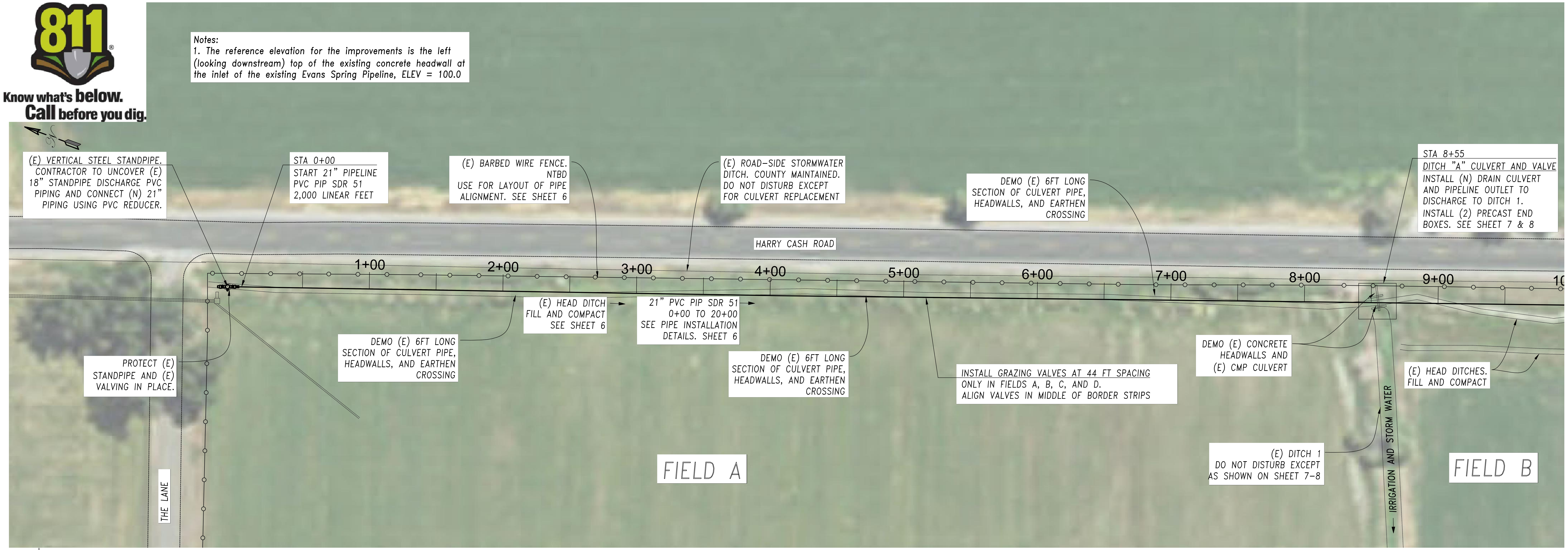
REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA
For Bidding Purposes Only

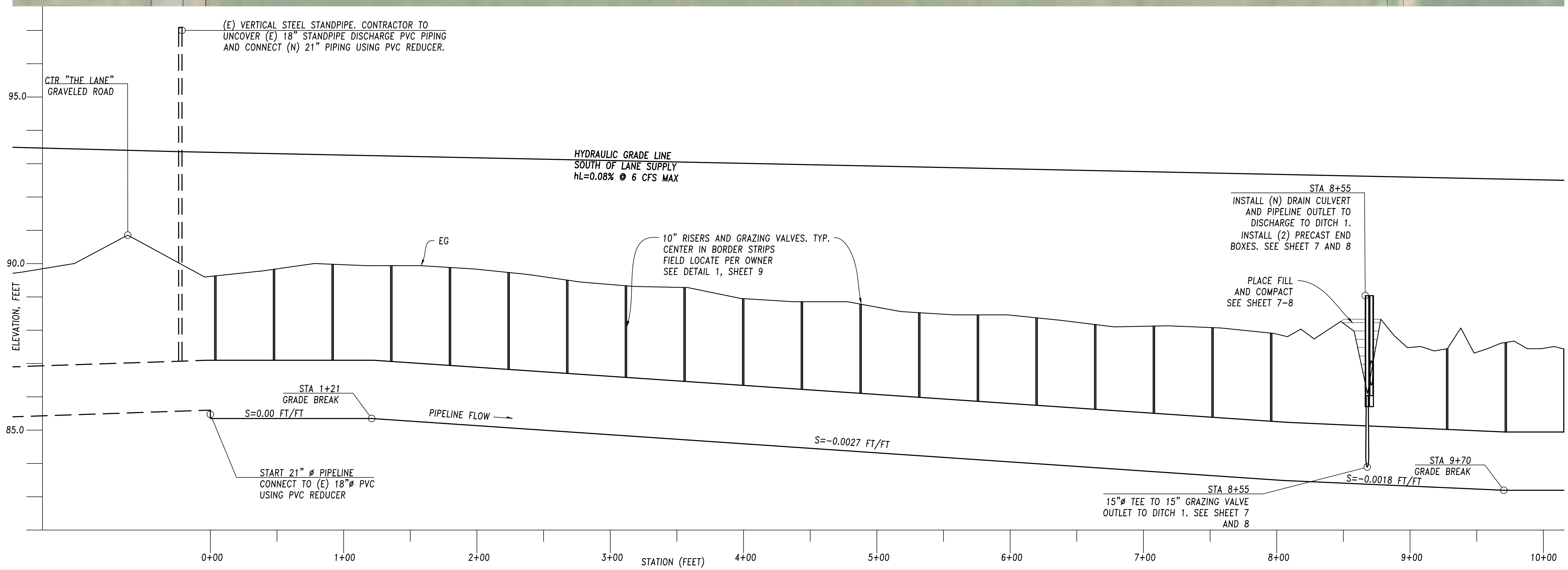
DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107
Fax: (530) 757-6118

1

Project Overview

Sheet: 1 of 10
Proj #:
Scale: As Shown
Date: DEC 31, 2016





DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

MAINLINE PIPE REPLACEMENT SOUTH OF LANE

Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr:	Project Eng:	Designer:	Checked:	Dsgn/Drawn:
TJO	TJO	TJO		TJO

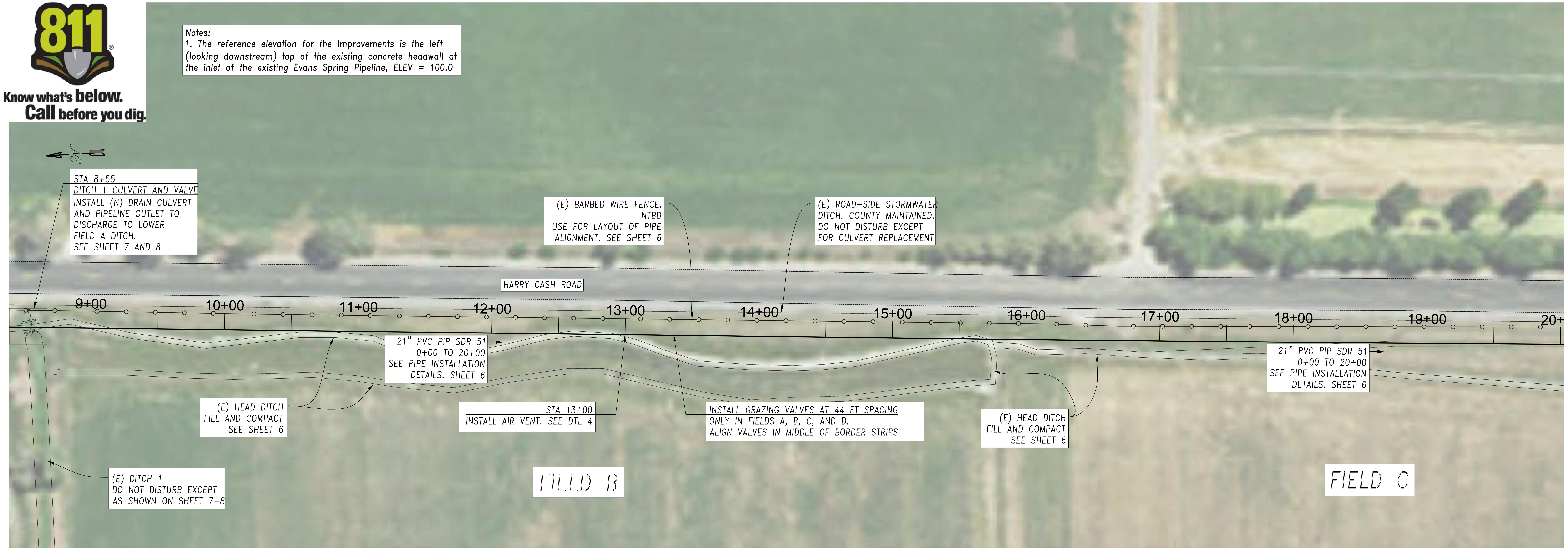
PLAN AND PROFILE - SOUTH 1

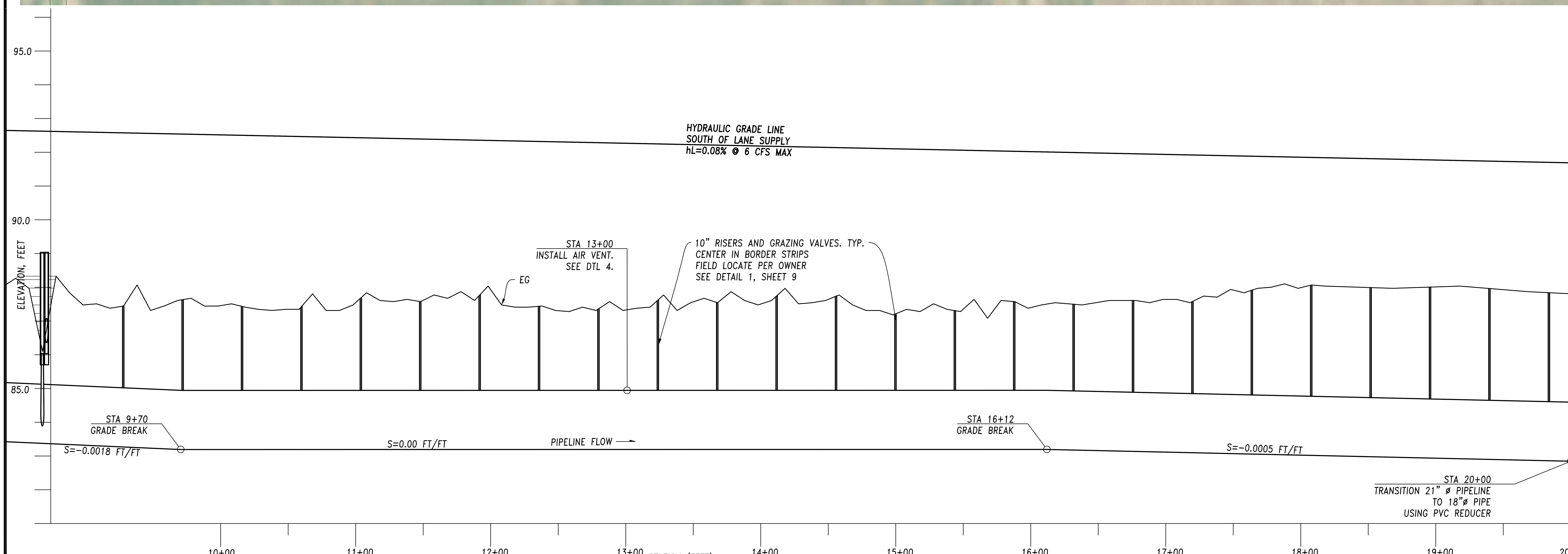
2

Sheet:	2 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016

Know what's below. Call before you dig.

Notes:
1. The reference elevation for the improvements is the left (looking downstream) top of the existing concrete headwall at the inlet of the existing Evans Spring Pipeline, ELEV = 100.0





DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

HART RANCH

MAINLINE PIPE REPLACEMENT
SOUTH OF LANE

Issue/Revision Description:	Date:	Rev No:	App By:

Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

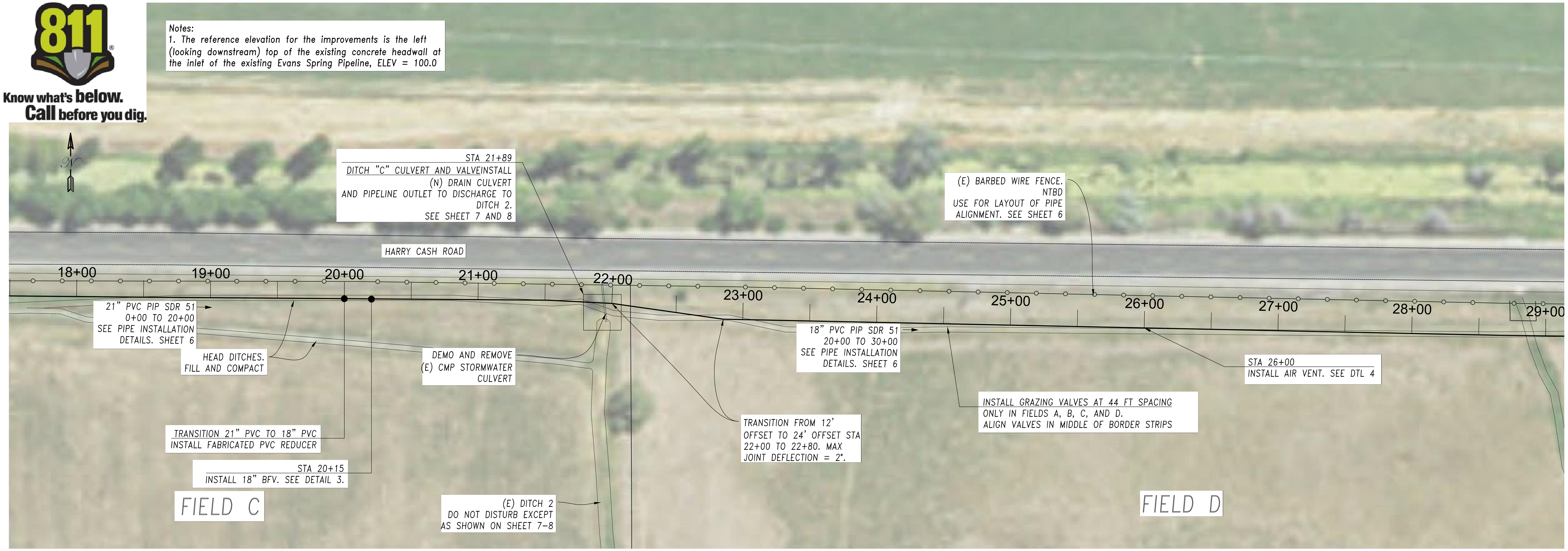
PLAN AND PROFILE - SOUTH 2

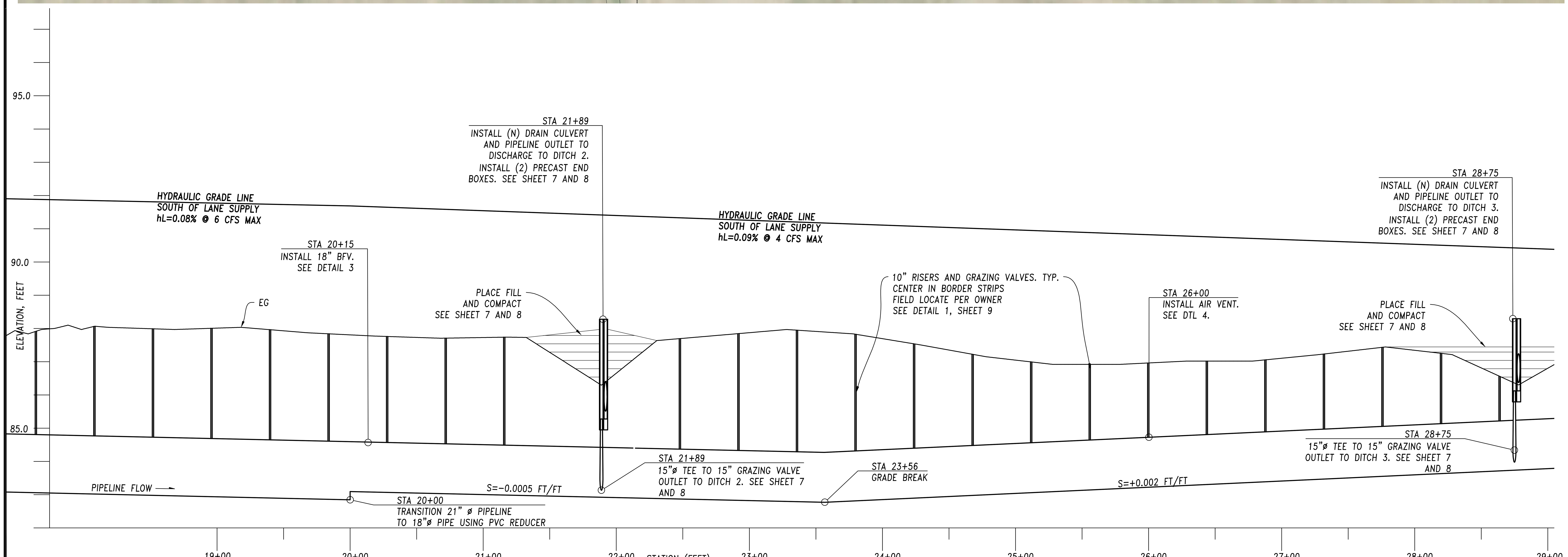
3

Sheet:	3 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016

811 Know what's below. Call before you dig.

Notes:
1. The reference elevation for the improvements is the left (looking downstream) top of the existing concrete headwall at the inlet of the existing Evans Spring Pipeline, ELEV = 100.0





DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

MAINLINE PIPE REPLACEMENT SOUTH OF LANE

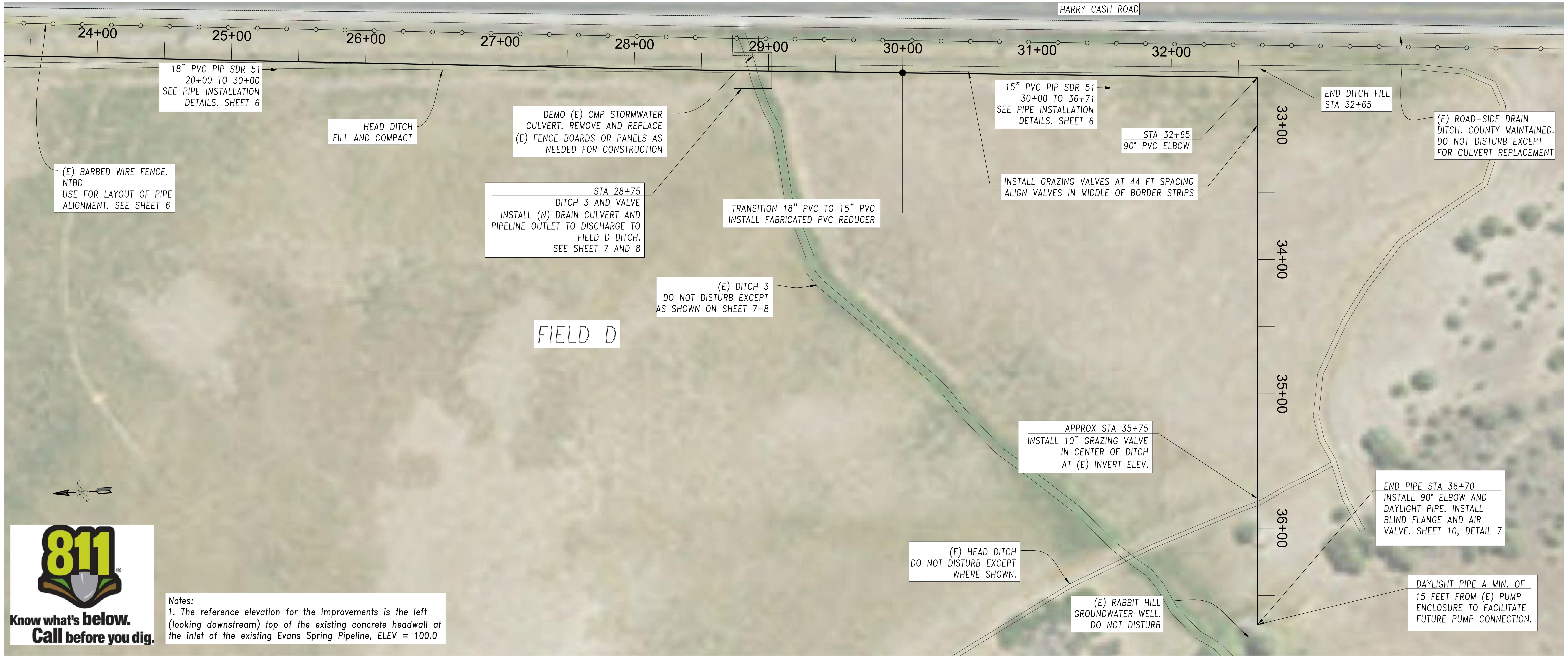
Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

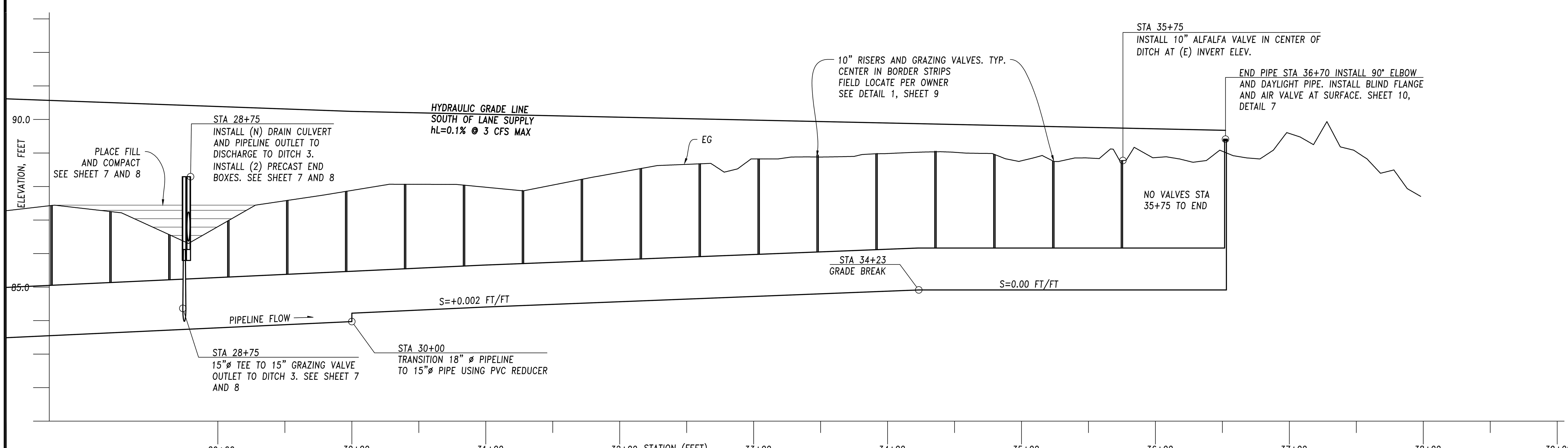
PLAN AND PROFILE - SOUTH 3

4

Sheet:	4 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



Notes:
1. The reference elevation for the improvements is the left (looking downstream) top of the existing concrete headwall at the inlet of the existing Evans Spring Pipeline, ELEV = 100.0



DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

MAINLINE PIPE REPLACEMENT SOUTH OF LANE

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

PLAN AND PROFILE - SOUTH 4

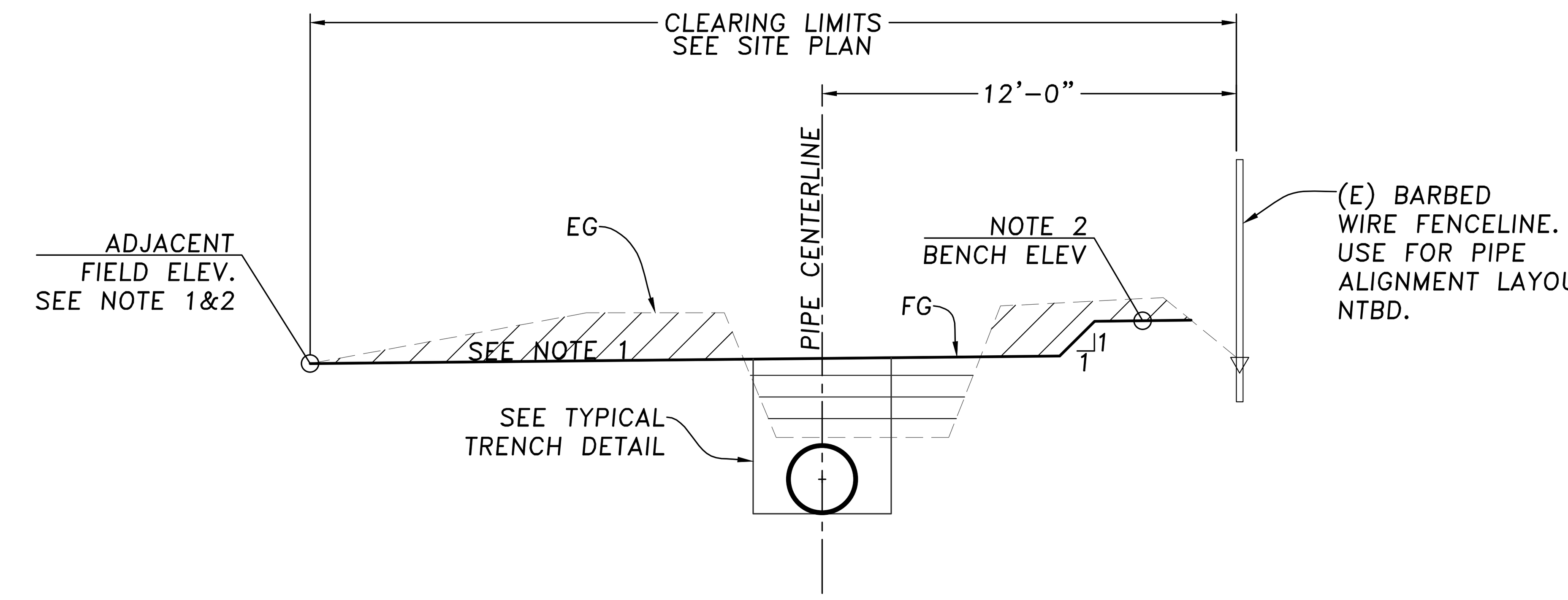
5

Sheet:	5 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016

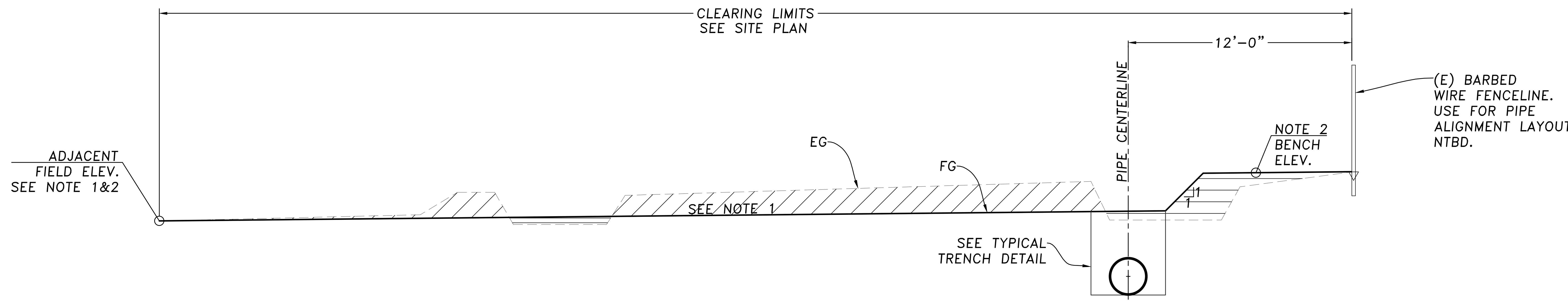
NOTES:
1. The existing ditch and embankment features shall be cut and filled, then the finish grade shall transition at a constant slope that matches the slope of the adjacent field, from the adjacent field elevation to a minimum of 3 feet past the centerline of the pipeline,
2. The finish grade termed the "Bench Elevation" shall be a minimum of 1 foot above the adjacent field elevation to provide a barrier to water leaving the field. The elevation may vary from the minimum as means to waste excess cut material, but shall transition to existing grade at the fence line.
3. Contractor shall extend all existing border strip berms to meet newly formed bench. Length of extension will vary by Field, see cross sections.

CUT

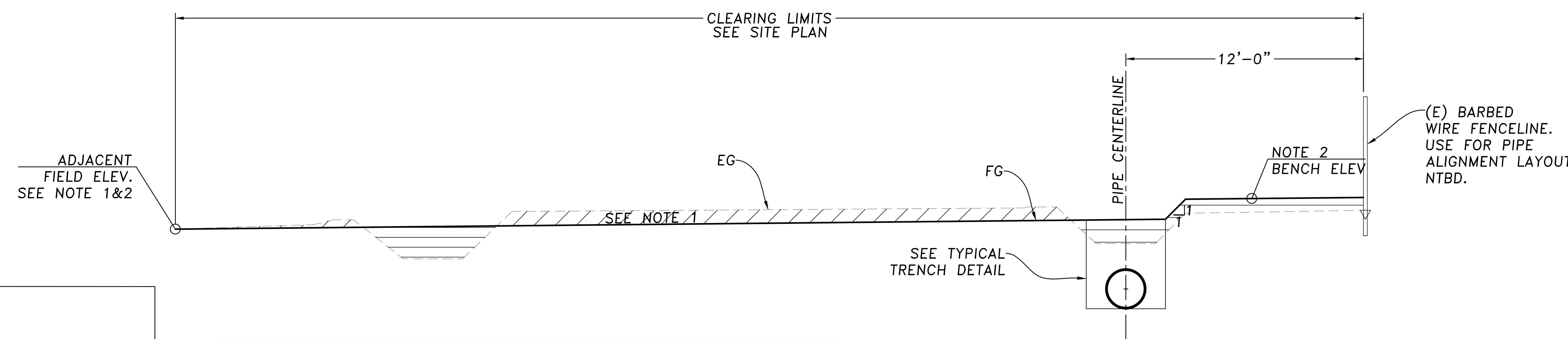
FILL



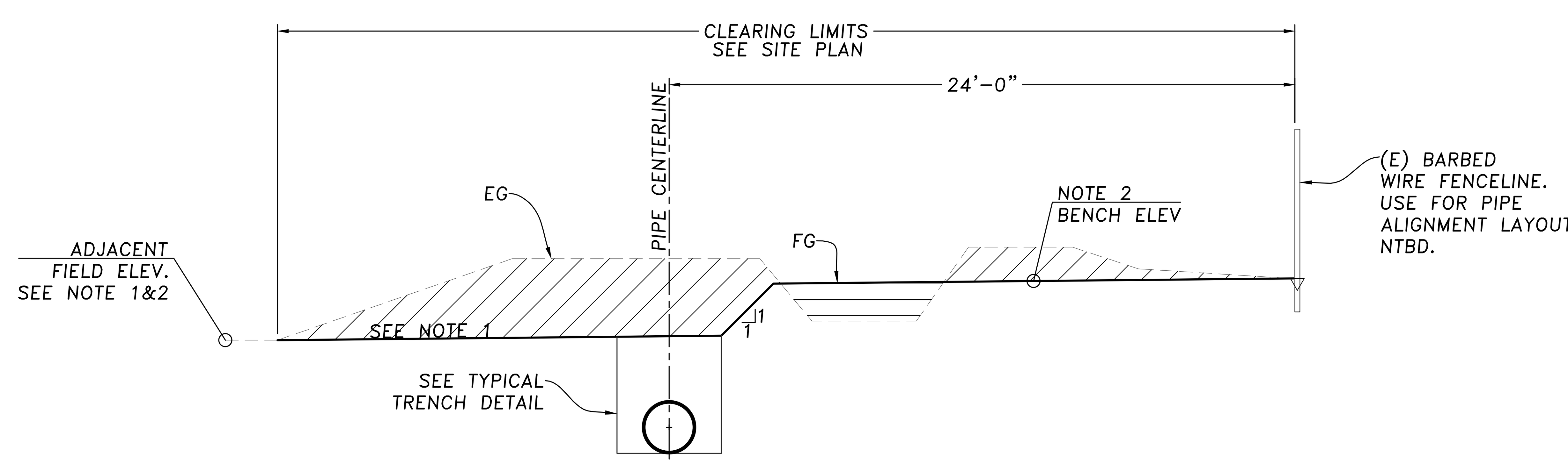
Section A, FIELD A – STA 0+00 to 8+55



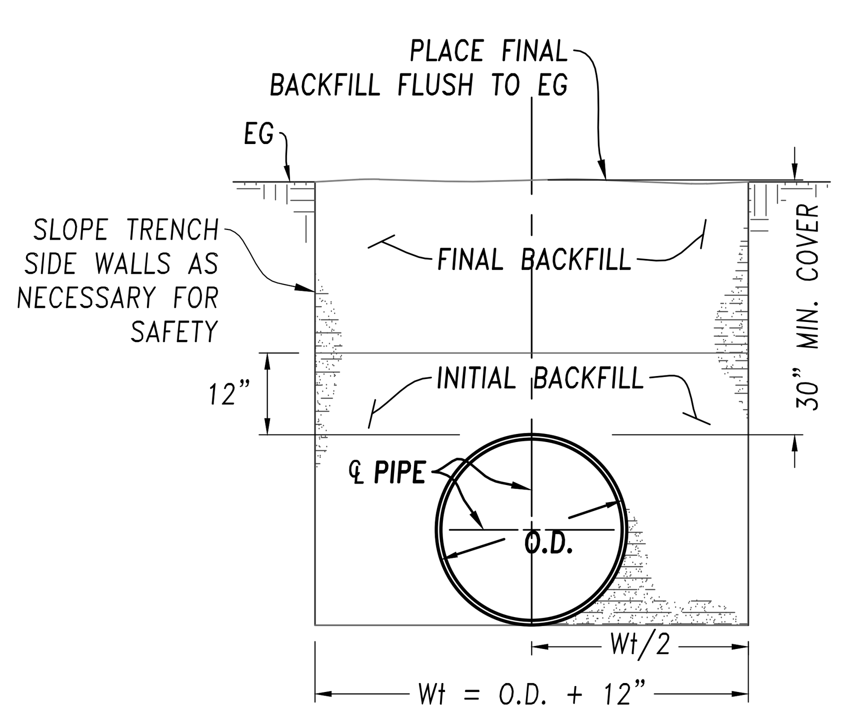
Section B, FIELD B – STA 8+56 to 15+75



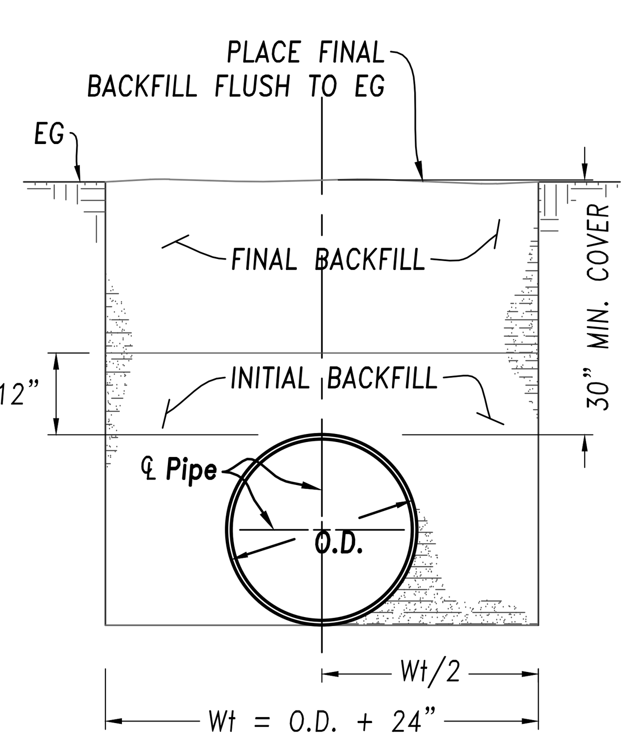
Section C, FIELD C – STA 15+76 to 22+00



Section D, FIELD D – STA 22+01 to 32+65



PVC PIPE - Ø<18"

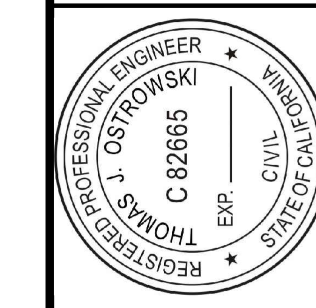


PIPE - Ø>=18"

TYPICAL TRENCH DETAIL

DAVIDS ENGINEERING, INC
www.davidsengineering.com

http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118



For Bidding Purposes Only

Issue/Revision Description:	Date:	Rev No:	App By:

HART RANCH

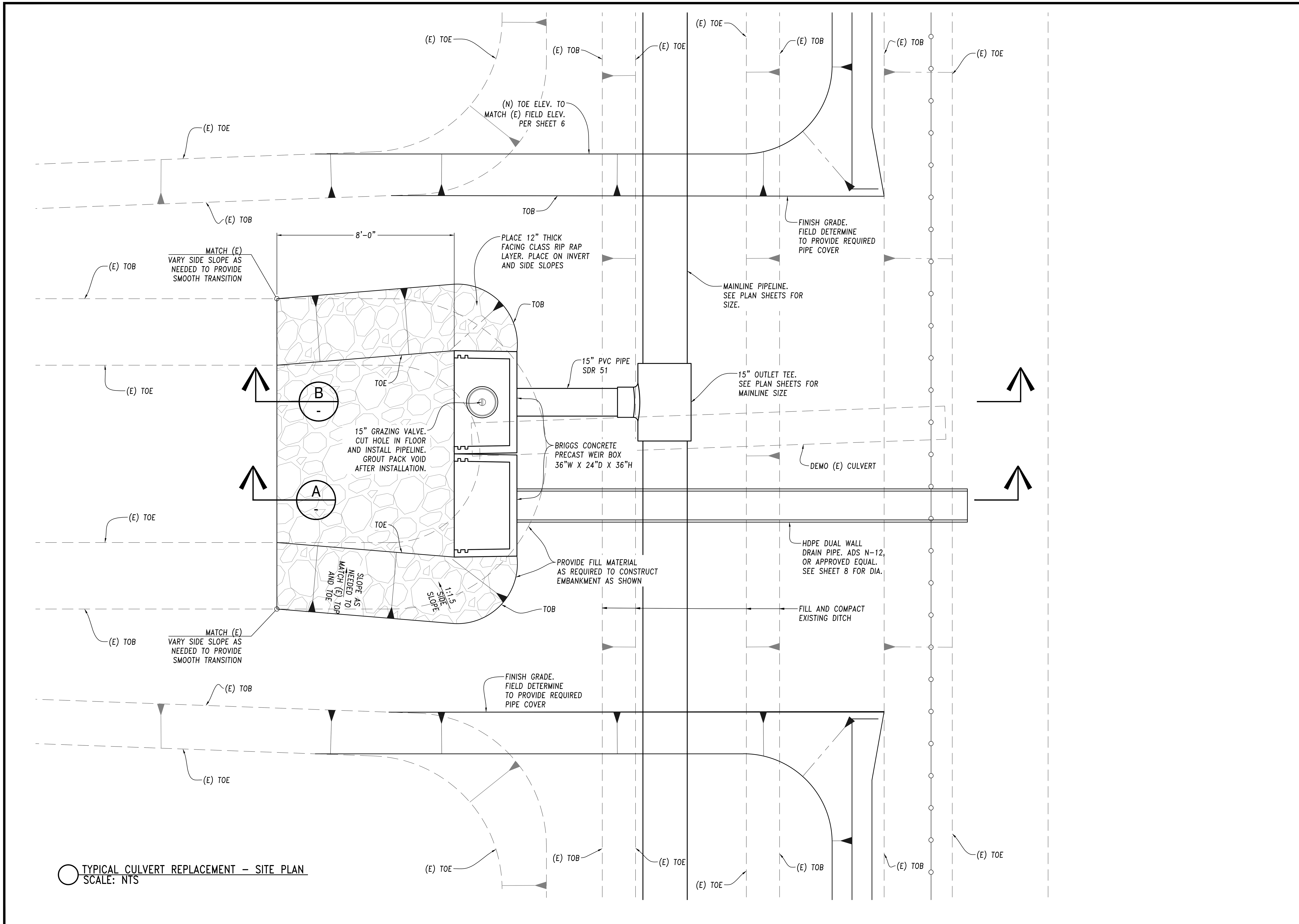
MAINLINE PIPE REPLACEMENT
SOUTH OF LANE

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

Typical Pipe Installation Sections

6

Sheet:	6 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER
THOMAS J. OSTROWSKI
C 82665
EXP.
CIVIL
STATE OF CALIFORNIA

For Bidding Purposes Only

HART RANCH

MAINLINE PIPE REPLACEMENT SOUTH OF LANE

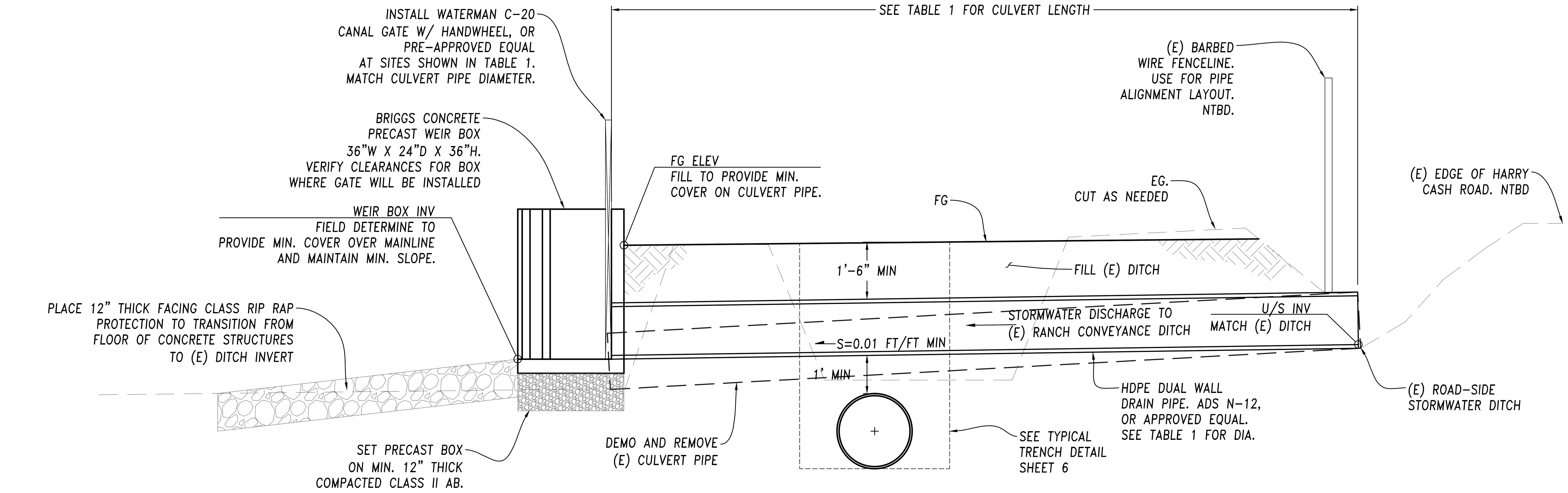
Issue/Revision Description:	App By:	Rev No:	Date:

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn/Drawn:	TJO

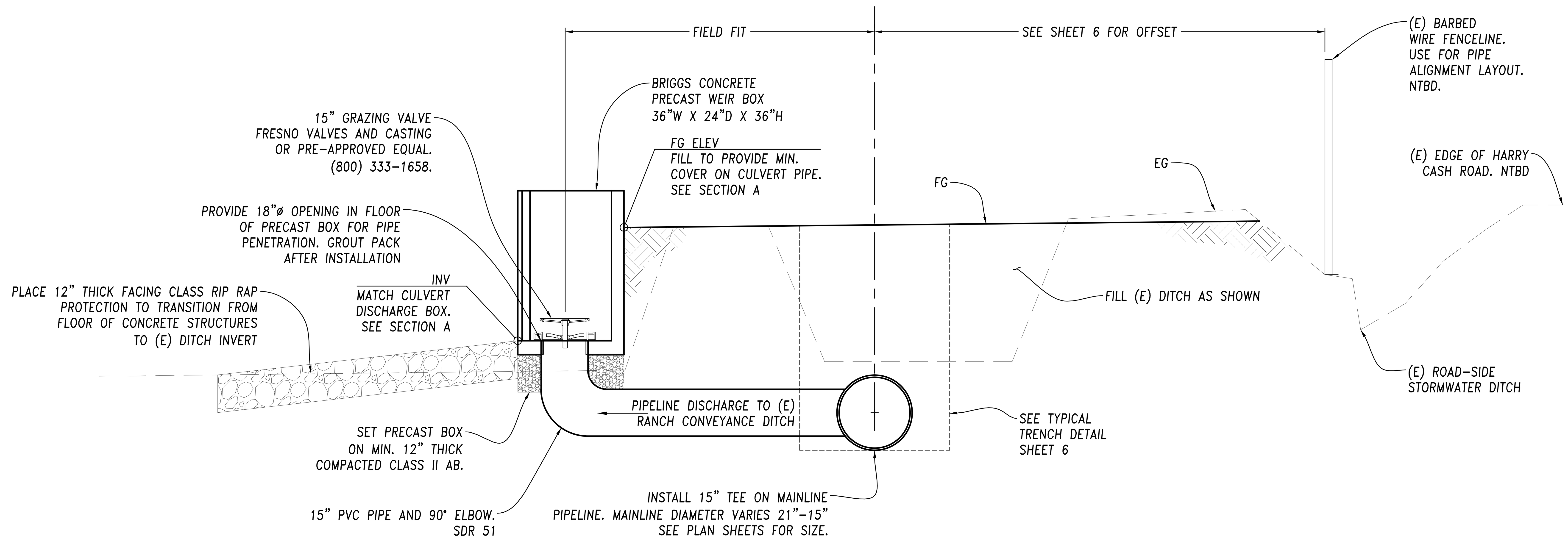
Typical Culvert Installation and Pipe Outlet - Plan

7

Sheet:	7 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



A TYPICAL CULVERT REPLACEMENT SECTION
SCALE: NTS



B TYPICAL PIPELINE OUTLET TO DITCH SECTION
SCALE: NTS

TABLE 1: Typical Culvert Installation Specifications

Location	Canal Gate	Culvert Type	Culvert Diameter	Culvert Length
Drain and Valve - DITCH 1	No	HDPE Double Wall Drain Pipe, NDS N-12 or preapproved equal	18"	25'-0"
Drain and Valve - DITCH 2	No	HDPE Double Wall Drain Pipe, NDS N-12 or preapproved equal	18"	25'-0"
Drain and Valve - DITCH 3	Yes, see Sect. A	HDPE Double Wall Drain Pipe, NDS N-12 or preapproved equal	24"	30'-0"

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA

For Bidding Purposes Only

HART RANCH
MAINLINE PIPE REPLACEMENT
SOUTH OF LANE

Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr: TJO
Project Eng: TJO
Designer: TJO
Checked:
Dsgn/Drawn: TJO

Typical Culvert Installation and Pipe Outlet - Sections

8

Sheet: 8 of 10
Proj #:
Scale: AS SHOWN
Date: Dec 31, 2016

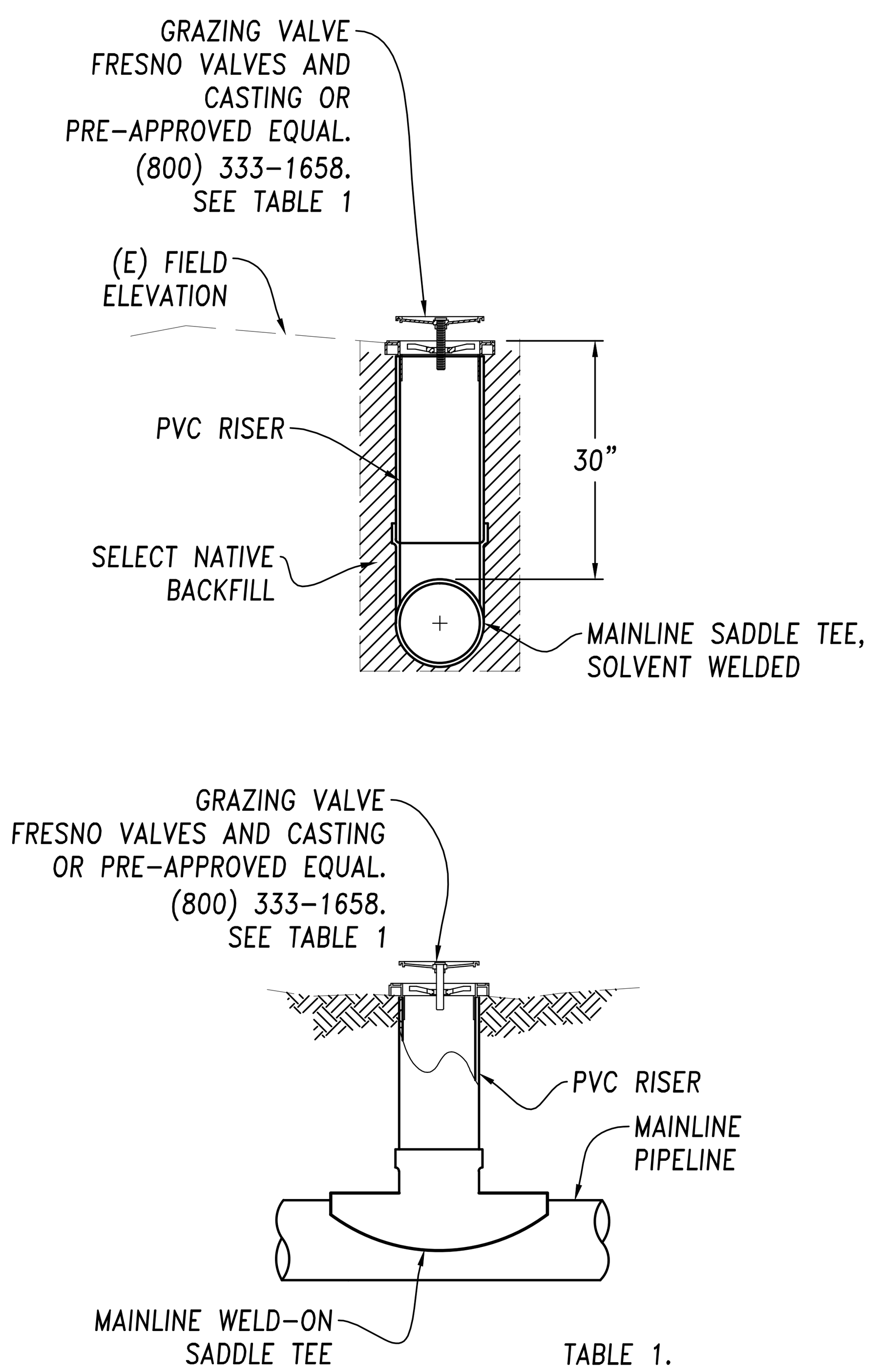
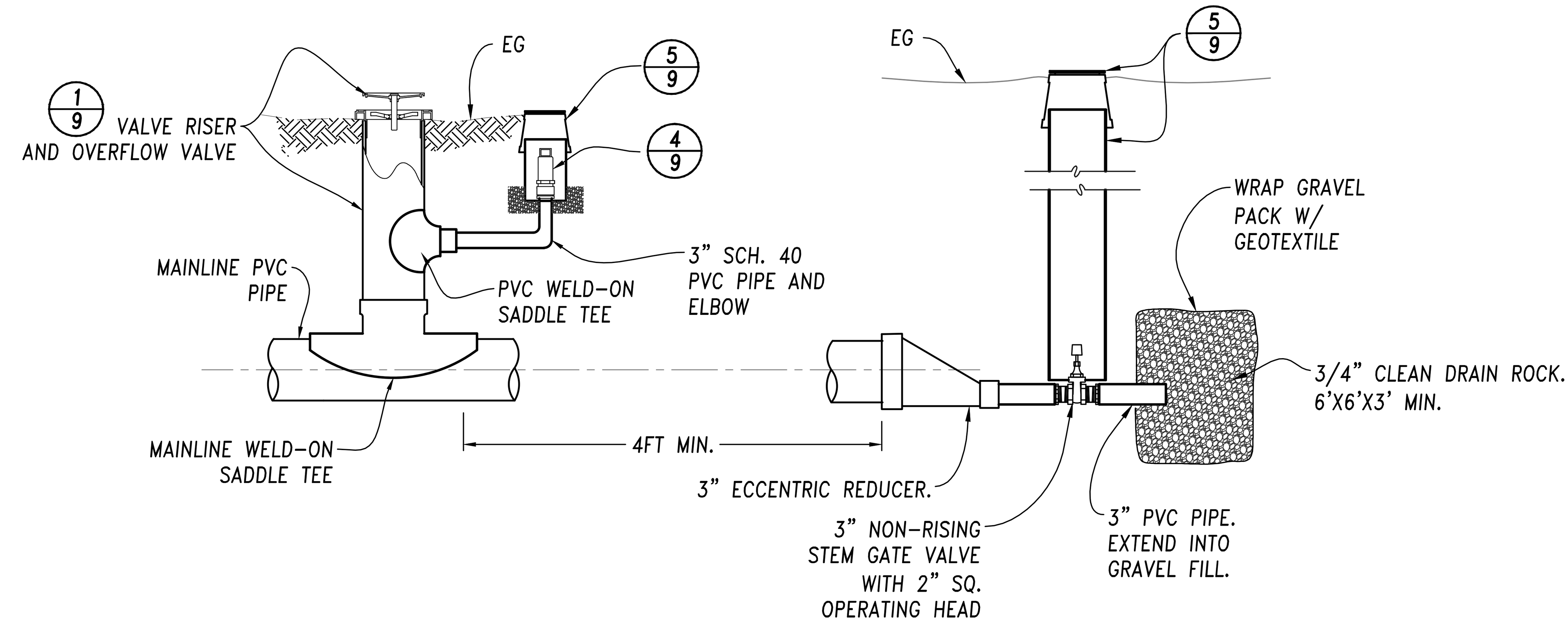


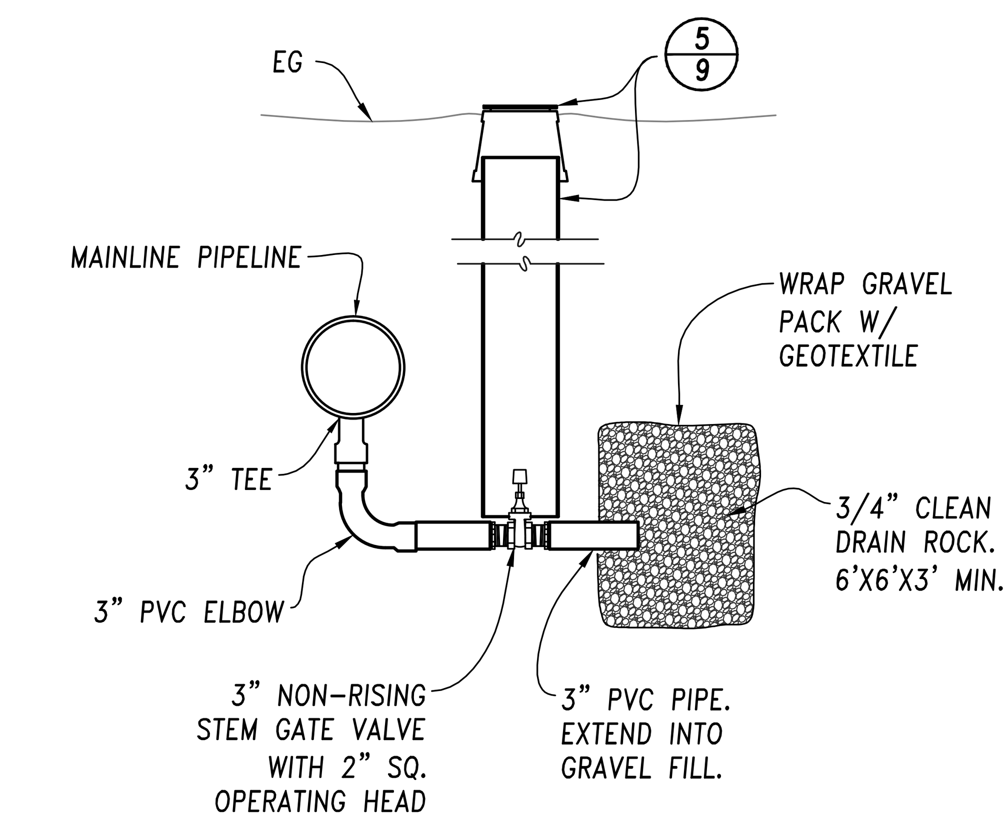
TABLE 1.

SUPPLY PIPE SIZE	RISER DIA.	VALVE DIA.
15"	10"	10"
18"	10"	10"
21"	10"	10"

1 OVERFLOW VALVE INSTALLATION
Scale: Not to Scale

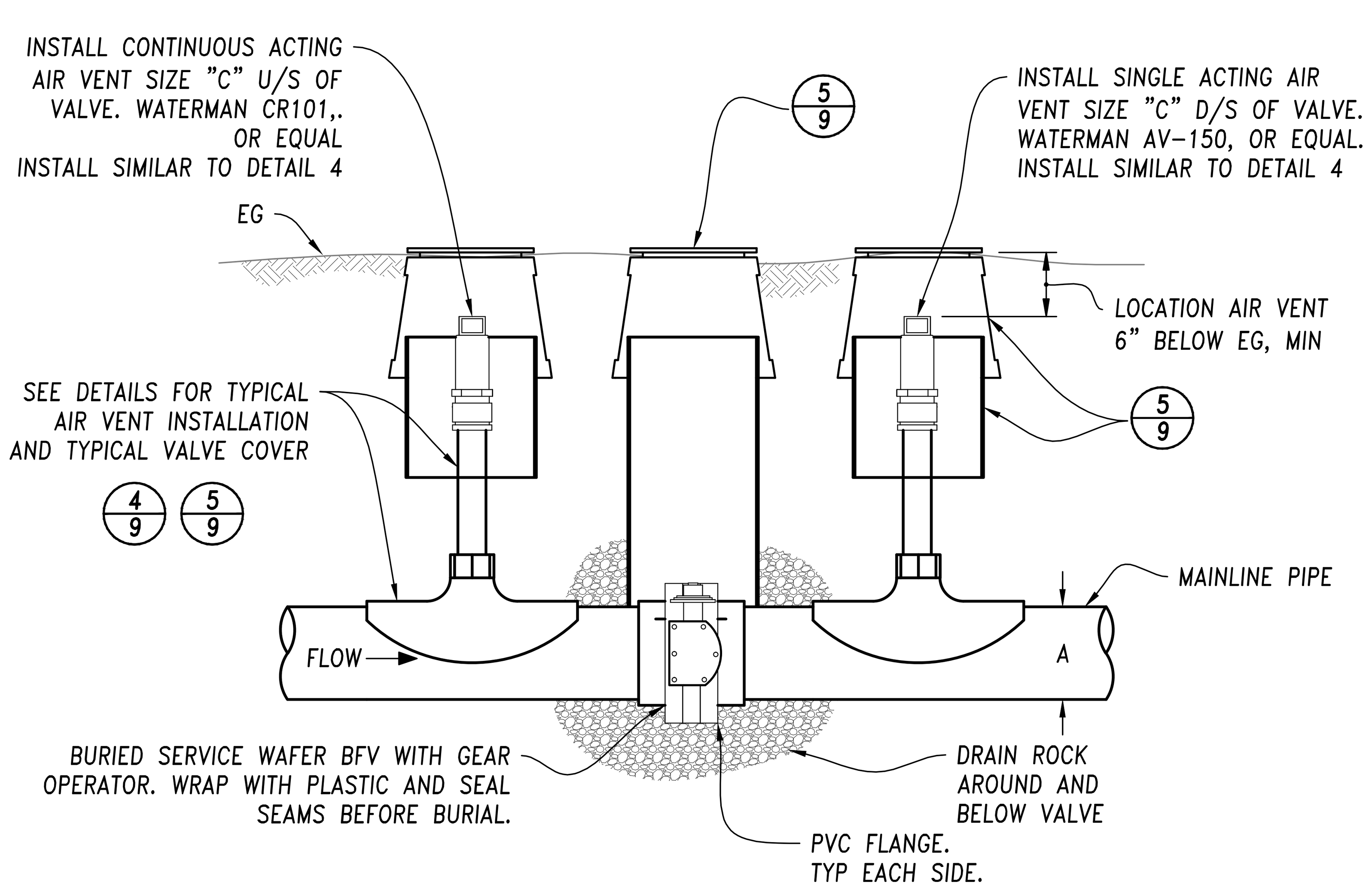


TYPICAL END RISER TEE AND END DRAIN VALVE ASSEMBLY

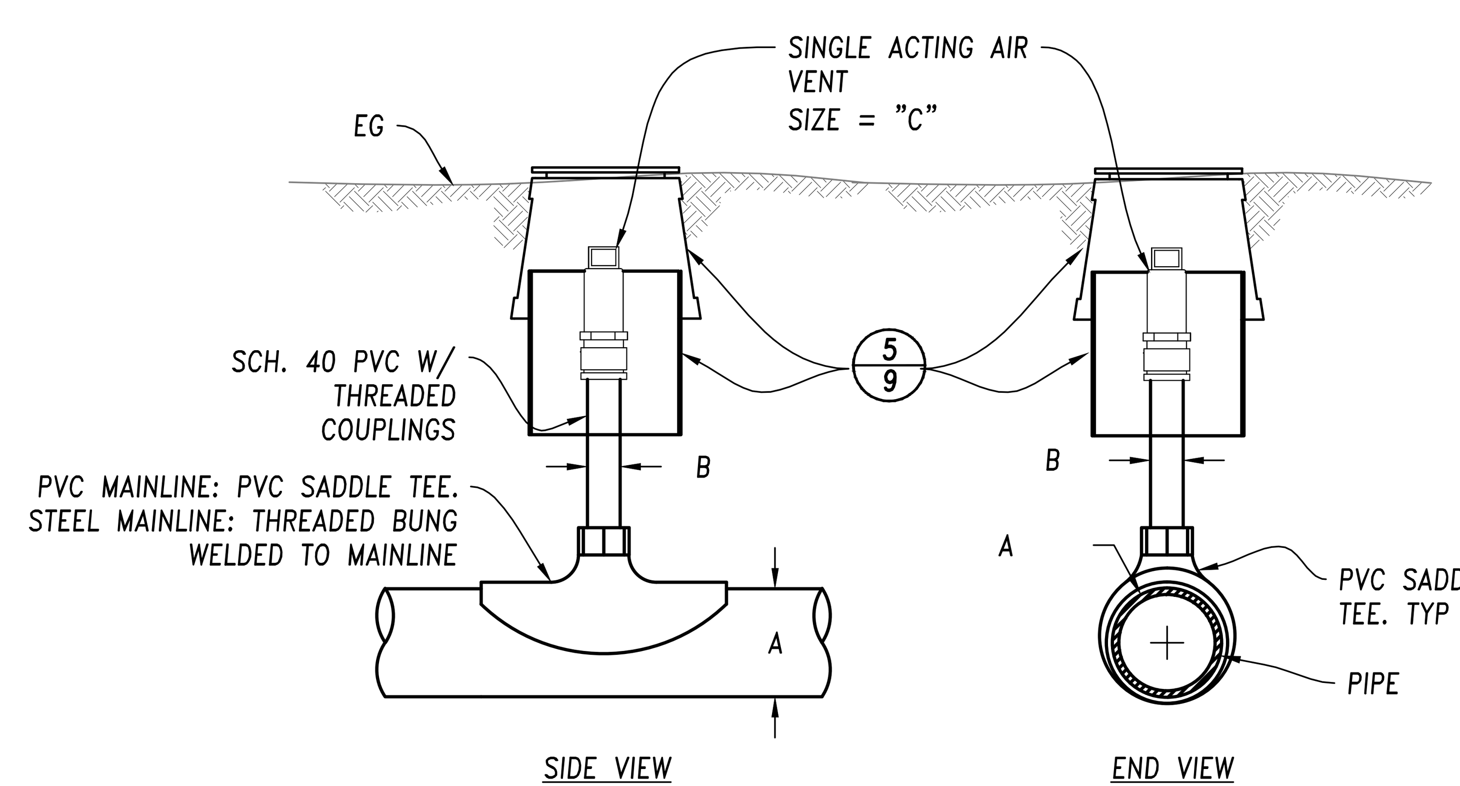


TYPICAL IN-LINE DRAIN VALVE ASSEMBLY - SECTION VIEW

2 PIPELINE DRAIN ASSEMBLIES
Scale: Not to Scale

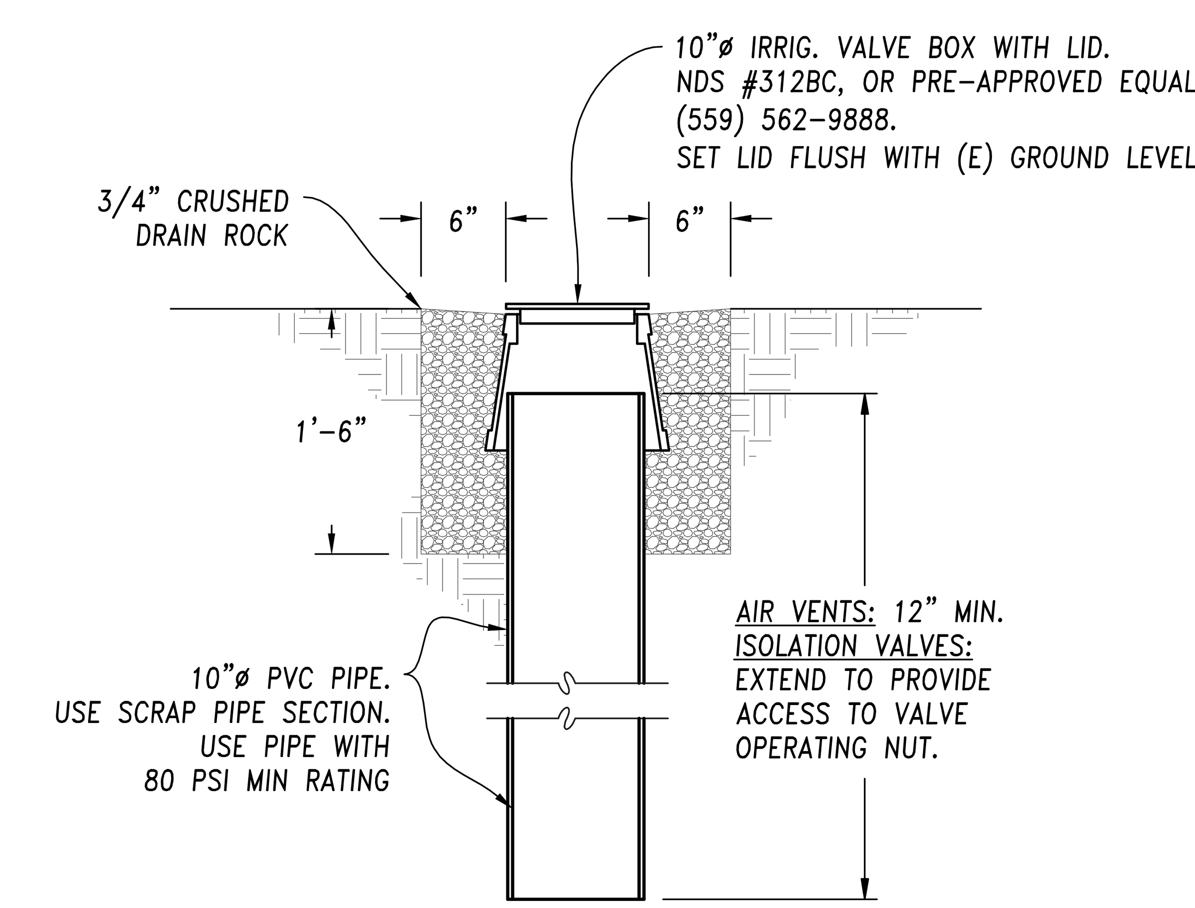


3 ISOLATION VALVE
Scale: Not to Scale



A	B	C
<=8 "	2"	2"
10-12 "	3"	3"
>12"	4"	4"

4 TYPICAL AIR VENT INSTALLATION
Scale: Not to Scale



5 TYPICAL VALVE ACCESS AND COVER
Scale: Not to Scale

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER THOMAS J. OSTROWSKI C 82665 EXP. CIVIL STATE OF CALIFORNIA
For Bidding Purposes Only

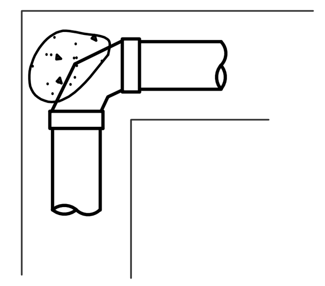
HART RANCH
MAINLINE PIPE REPLACEMENT SOUTH OF LANE

Project Mgr:	TJO	Rev No:	Date:	Issue/Revision Description:
Project Eng:	TJO	App By:		
Designer:	TJO	Rev No:	Date:	Issue/Revision Description:
Checked:		App By:		
Dsgn/Drawn:	TJO			
App By:				

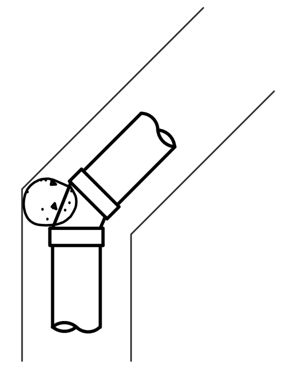
DETAILS 1

9

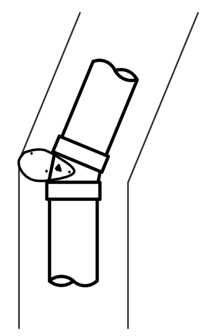
Sheet:	9 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016



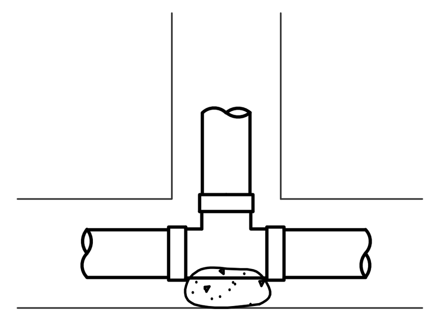
90° ELBOW



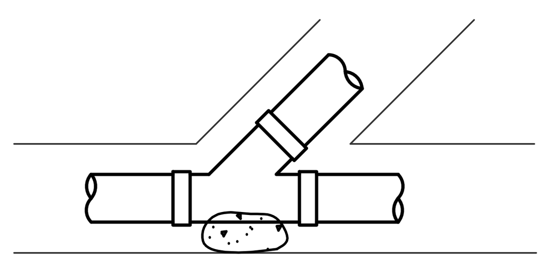
45° ELBOW



22.5° ELBOW



TEE

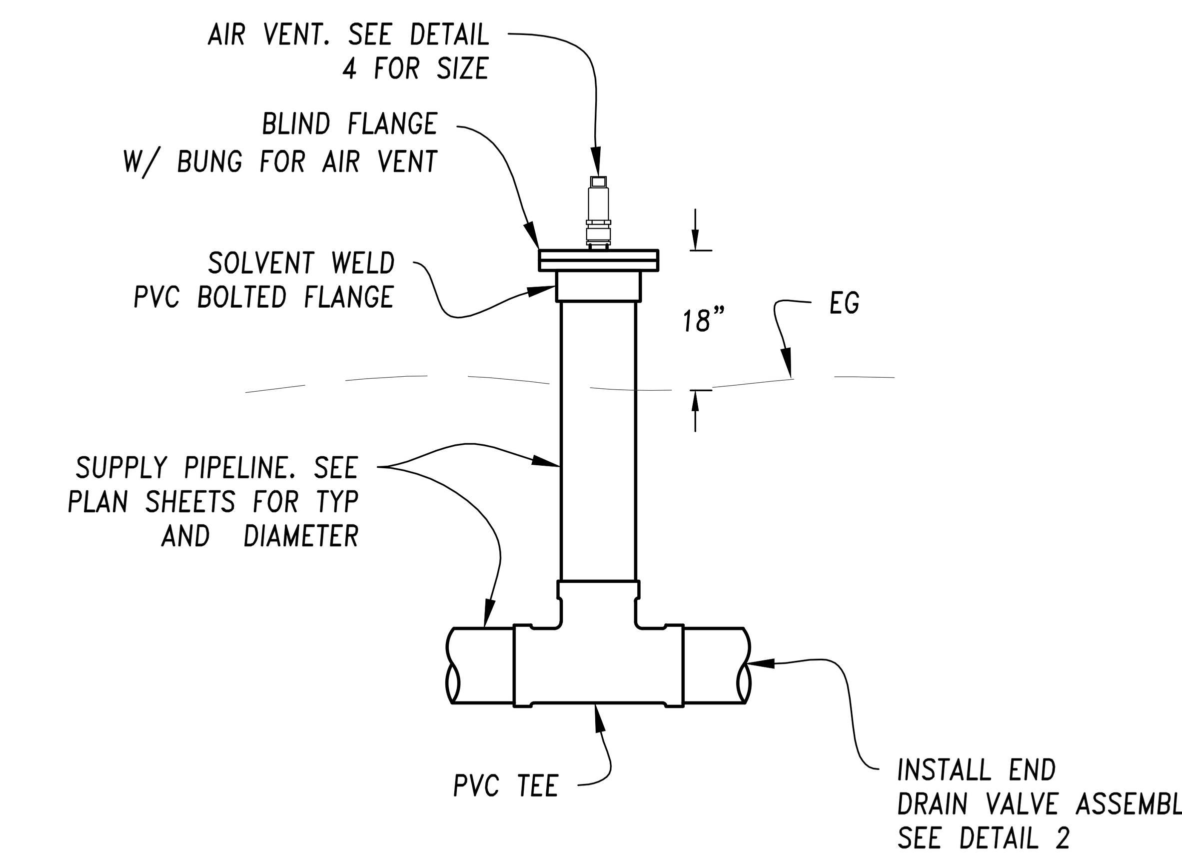


WYE

NOTES:
1. CONCRETE SHALL NOT EXTEND PAST FITTINGS

Thrust Block Size Requirements for Horizontal Bends at 15 psi								
Pipe Diameter (inches)	Tee and Wye Area (ft2)	Tee and Wye Volume (CY)	90º Area (ft²)	90º Volume (CY)	45º Area (ft²)	45º Volume (CY)	22.5º Area (ft²)	22.5º Volume (CY)
10	1.77	0.5	2.50	0.7	1.35	0.4	0.69	0.2
12	2.54	0.7	3.60	1.0	1.95	0.5	0.99	0.3
15	3.98	1.1	5.62	1.5	3.04	0.8	1.55	0.4
18	5.73	1.5	8.10	2.1	4.38	1.2	2.23	0.6
21	7.79	2.1	11.02	2.9	5.96	1.6	3.04	0.8
24	10.18	2.7	14.39	3.8	7.79	2.1	3.97	1.1
30	15.90	4.2	22.49	6.0	12.17	3.2	6.21	1.6
36	22.90	6.1	32.39	8.6	17.53	4.6	8.94	2.4

6 **THRUST BLOCKS**
Scale: NOT TO SCALE



7 **STA 36+50 - END DETAIL**
Scale: Not to Scale

DAVIDS ENGINEERING, INC
www.davidsengineering.com
http://www.davidsengineering.com
1772 Picasso Avenue, Suite A
Davis, CA 95616
Phone: (530) 757-6107 Fax: (530) 757-6118

REGISTERED PROFESSIONAL ENGINEER
THOMAS J. OSTROWSKI
C 82665
EXP.
CIVIL
STATE OF CALIFORNIA

For Bidding Purposes Only

HART RANCH

MAINLINE PIPE REPLACEMENT SOUTH OF LANE

Issue/Revision Description:	Date:	Rev No:	App By:

Issue/Revision Description:	Date:	Rev No:	App By:

Project Mgr:	TJO
Project Eng:	TJO
Designer:	TJO
Checked:	
Dsgn\Drawn:	TJO

DETAILS 2

10

Sheet:	10 of 10
Proj #:	
Scale:	AS SHOWN
Date:	Dec 31, 2016

APPENDIX D

Construction Plans for Little Shasta River Hart Water Diversion
Eco Logic and NHC
February 2011

FISH PASSAGE IMPROVEMENT PROJECT

California Department of Fish and Game

CONSTRUCTION PLANS FOR

Little Shasta River Hart Water Diversion

FEBRUARY 2011

SHEET INDEX

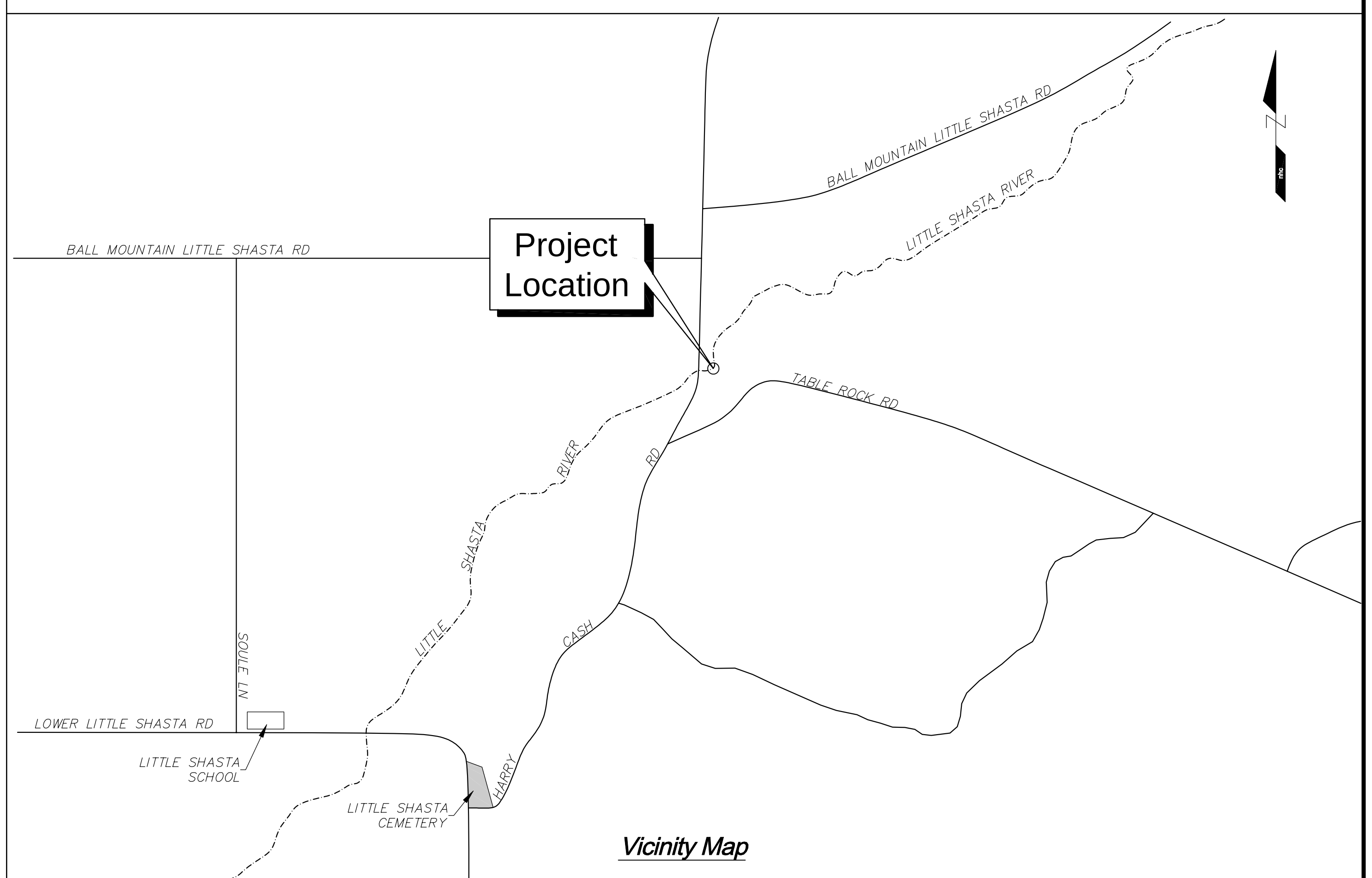
LEGEND

- NHC SURVEY CONTOUR LINES
- EXISTING TREES
- EXISTING RAILROAD TRACK
- EXISTING PAVED ROAD
- EXISTING DRIVEWAY
- EXISTING FENCE
- EXISTING BUILDINGS & STRUCTURES
- PROPOSED EARTHWORK
- CONSTRUCTION BASELINE
- WILLOW TRANSPLANT
- LIDAR SURVEY CONTOUR LINES
- 2–3' DIA BOUNDER
- 1 GALLON CONTAINER COTTONWOOD
- 1 GALLON CONTAINER PONDEROSA PINE
- ENGINEERED STREAMBED MATERIAL
- ROCK BANK PROTECTION
- BRUSH MATTRESS
- FILTER LAYER

APPROVED BY:

LAND OWNER (date)

HART WATER DIVERSION REPRESENTATIVE (date)



Vicinity Map

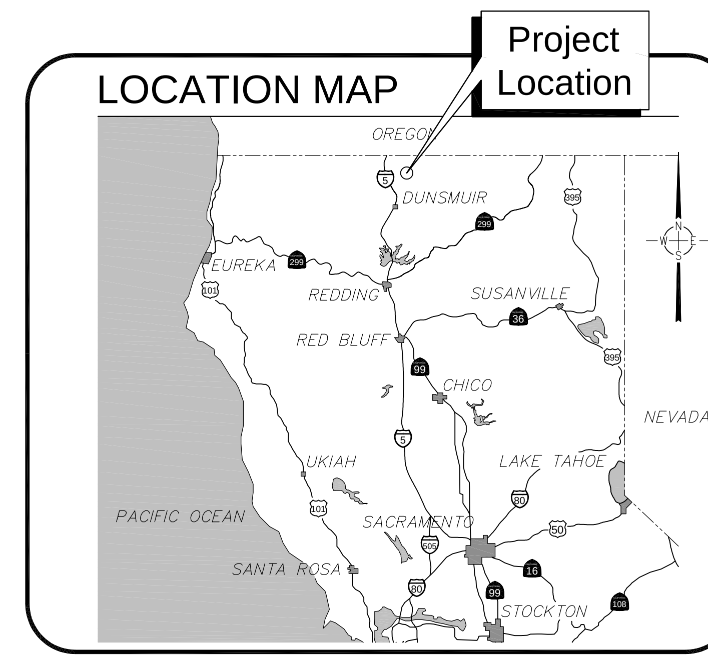
Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827–2311
Fax: (775) 827–2316
www.ecologic–eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691–6508
phone: (916) 371–7400 fax: (916) 371–7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER LEONARD J. HOWARD No. 53319 Exp. 06/30/11 CIVIL STATE OF CALIFORNIA

LEONARD J. HOWARD 02/15/2011
CALIFORNIA REGISTERED
PROFESSIONAL ENGINEER NO. # 53319
northwest hydraulic consultants



Project Location Map

Not to Scale

Issue		
No.	Date	Description

Date	Job Number	Supervisor	Designer	Drafter
February 14, 2011	50555	ljh	ljh/jp	tvs/jp

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND AVOIDING DAMAGE TO UNDERGROUND UTILITIES. THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES AT LEAST 48 HOURS PRIOR TO EXCAVATION. ANY RELOCATIONS OR TEMPORARY OUTAGES SHALL BE COORDINATED WITH THE PROJECT MANAGER. IF UTILITY CONFLICTS ARE IDENTIFIED, THE CONTRACTOR SHALL HALT ALL WORK IN THE AREA AFFECTED BY THE UTILITY CONFLICT AND SHALL IMMEDIATELY NOTIFY THE PROJECT MANAGER.
2. THIS PROJECT IS SUBJECT TO REQUIREMENTS OF PERMITS ISSUED BY VARIOUS REGULATORY AGENCIES. THE CONTRACTOR IS RESPONSIBLE TO UNDERSTAND AND PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMITS. COPIES OF THE PERMITS HAVE BEEN PROVIDED TO THE CONTRACTOR ALONG WITH THESE PLANS AND SPECIAL PROVISIONS. PRIOR TO COMMENCING WORK THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT MANAGER TO VERIFY THE MOST RECENT COPY OF ALL APPLICABLE PERMITS ARE INCLUDED IN THE SPECIAL PROVISIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AN EROSION CONTROL AND POLLUTION PREVENTION PLAN AND STORM WATER POLLUTION PREVENTION PLAN (SWPP) FOR CONSTRUCTION ACTIVITIES. THIS PLAN MUST BE APPROVED BY THE PROJECT MANAGER PRIOR TO CONSTRUCTION ACTIVITIES COMMENCING FOR THIS PROJECT. THE PLAN SHALL PREVENT SEDIMENT DISCHARGE DOWNSTREAM DURING CONSTRUCTION AND SHALL INCLUDE PROVISIONS FOR MINIMIZING SOURCES OF FINE SEDIMENT TO THE CREEK WHEN REWATERING THE SITE. SEDIMENT BARRIER SHOWN ILLUSTRATES ISOLATION OF SITE FROM DOWNSTREAM, BUT OTHER METHODS MAY BE PROPOSED BY CONTRACTOR.
4. WHEN CONDITIONS IN THE FIELD DO NOT CONFORM WITH INFORMATION IN THESE PLANS AND/OR WHEN UNUSUAL CIRCUMSTANCES ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE PROJECT MANAGER.
5. IN THE EVENT THAT ANY ARCHEOLOGICAL ARTIFACTS ARE UNCOVERED DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL STOP ALL WORK IMMEDIATELY IN THE AREA AND CONTACT THE PROJECT MANAGER. WORK IN THE AREA SHALL NOT RESUME UNTIL APPROVED BY THE PROJECT MANAGER.
6. DURING CONSTRUCTION THE PROJECT MANAGER OR DESIGNATED REPRESENTATIVE MAY MAKE ADJUSTMENTS TO THE DESIGN TO ACCOMMODATE CONDITIONS ENCOUNTERED AT THE SITE.
7. TEMPORARY STREAM DIVERSION WILL BE REQUIRED. SANDBAG/PLASTIC SHEETING DAM AND PIPING SHOWN ILLUSTRATE ONE POTENTIAL METHOD. OTHER METHODS MAY BE PROPOSED FOR APPROVAL BY THE PROJECT MANAGER. CONTRACTOR SHALL SUBMIT A PLAN FOR DEWATERING, INCLUDING MAINTENANCE AND RELOCATION DURING CONSTRUCTION TO ACCOMMODATE GRADING ACTIVITIES. AT THE COMPLETION OF CONSTRUCTION, ALL MATERIALS USED FOR THE DIVERSION SHALL BE COMPLETELY REMOVED.
8. PRIOR TO DEWATERING CONTRACTOR WILL COORDINATE WITH PROJECT MANAGER FOR REMOVAL OF SENSITIVE FISH AND AMPHIBIAN SPECIES BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME.
9. ACCESS TO THE SITE WILL BE FROM HARRY CASH ROAD. CONTRACTOR WILL PROVIDE ANY REQUIRED TRAFFIC CONTROL TO FACILITATE SAFE DELIVERY OF CONSTRUCTION MATERIALS TO THE SITE. DELIVERY OF ROCK MAY BE FROM HARRY CASH ROAD. CONTRACTOR WILL COORDINATE WITH PROJECT MANAGER TO IDENTIFY DUMPING AND STORAGE AREAS. MOVEMENT OF ROCK FROM STORAGE AREAS TO THE CHANNEL WILL BE DONE IN A MANNER TO PROTECT EXISTING BANKS THAT ARE NOT PART OF THE WORK.
10. ADDITIONAL STAGING AND STORAGE AREAS MAY BE COORDINATED WITH THE PROPERTY OWNER AND PROJECT MANAGER.
11. EXISTING PRIVATE PROPERTY SHALL BE PROTECTED IN PLACE OR REPAIRED/REPLACED IN KIND TO A CONDITION EQUAL TO OR BETTER THAN PRE-PROJECT CONDITIONS.
12. EXISTING VEGETATION OUTSIDE THE WORK AREA LIMIT IS TO BE PROTECTED. PRIOR TO CONSTRUCTION, PROJECT MANAGER WILL DESIGNATE ADDITIONAL BANK VEGETATION, OUTSIDE THE LIMITS OF EXCAVATION AND GRADING WORK, TO BE PROTECTED WITHIN THE WORK AREA. PRIOR TO GRADING WORK, CONTRACTOR SHALL SALVAGE AND STORE EXISTING VEGETATION CUTTINGS AND WILLOW TRANSPLANTS TO BE REPLANTED. AT THE DIRECTION OF THE PROJECT MANAGER, EXISTING SHRUB ROOTBALLS TO BE REPLANTED.
13. EXISTING TOPOGRAPHY IS BASED ON A SURVEY CONDUCTED IN APRIL AND MAY, 2009 BY NORTHSTATE LAND SURVEYORS AND NORTHWEST HYDRAULIC CONSULTANTS. HORIZONTAL COORDINATES AND ELEVATIONS ARE BASED ON NAVD 1988 VERTICAL DATUM AND NAD 1983. CONTROL POINTS SET IN THE FIELD ARE LISTED BELOW:

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
50	2511075.07	6460814.90	2795.34	NAIL ON GROUND
55	2511080.84	6460917.15	2800.07	NAIL ON GROUND
57	2511107.95	6460770.25	2797.28	NAIL ON GROUND
59	2510948.57	6460736.87	2794.35	NAIL ON GROUND

14. THE CONTRACTOR WILL BE RESPONSIBLE FOR FIELD SURVEYING NECESSARY TO LAYOUT THE PROPOSED WORK. THE PROJECT MANAGER WILL PROVIDE CHECKING OF THE WORK AT VARIOUS STAGES. CONTRACTOR SHALL PROTECT CONTROL POINTS IN PLACE OR TRANSFER THE CONTROL TO ADDITIONAL POINTS FOR USE IN CONSTRUCTION.
15. ROCK FOR CONSTRUCTION OF ROUGHENED CHANNEL, ROCK BANK PROTECTION, AND ROCK BUTTRESSES WILL BE IMPORTED, SUPPLEMENTED BY EXISTING ROCK SALVAGED ON SITE. ALL IMPORTED ROCK WILL BE UNIFORMLY SOUND, DURABLE, AND FREE OF CRACKS AND INCLUSIONS. ROCK SHALL BE ANGULAR OR SUB-ANGULAR IN SHAPE, WITH MAXIMUM AXIS DIMENSION NO MORE THAN 3 TIMES THE MINIMUM AXIS DIMENSION. MINIMUM SPECIFIC GRAVITY SHALL BE 2.5. ROCK SOURCES AND OR SAMPLES SHALL BE SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL PRIOR TO CONSTRUCTION.
16. ROCK PLACEMENT FOR REVETMENT AND ROCK BUTTRESSES SHALL BE PERFORMED BY PLACING INDIVIDUAL ROCKS WITH AT LEAST 3 POINT BEARING ON UNDERLYING ROCKS. PLACEMENT SHALL BE MADE TO FORM A STABLE MASS WITH SMALLER ROCKS USED TO MINIMIZE VOID SPACE. BEARING OF LARGER ROCKS SOLELY ON SMALLER ROCKS AND PLACEMENT BY DUMPING WILL NOT BE PERMITTED.

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC
ENGINEERS · CONSULTANTS

10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER
LEONARD J. HOWARD
No. 53319
Exp: 06/30/11
CIVIL
STATE OF CALIFORNIA

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
ljh	jp	jp	

Date
February 14, 2011

Drawing Name

Sheet Title
General Notes, Demolition and Dewatering Plan

Reference North

Job Number
50555

Sheet Scale
1"=20'

Sheet Number
G2

Sheet 2 of 21

Project
Little Shasta River Fish Passage Improvement Project Hart Water Diversion

Client / Agency

ECO:LOGIC
ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER
LEONARD J. HOWARD
No. 53319
Exp: 06/30/11
CIVIL
STATE OF CALIFORNIA

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
ljh	jp	jp	

Date
February 14, 2011

Drawing Name

Sheet Title
Site Plan

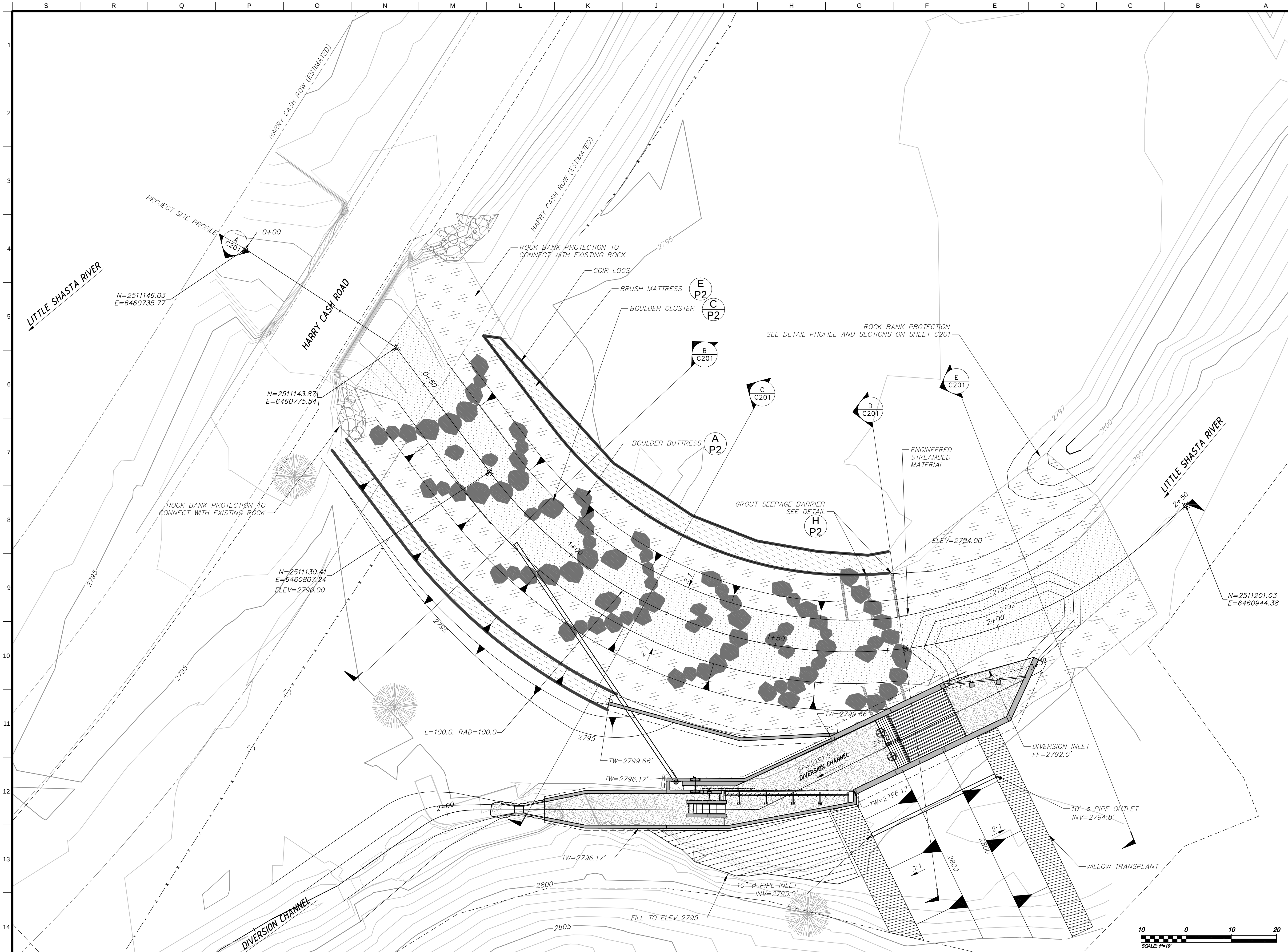
Reference North

Job Number
50555

Sheet Scale
1"=20'

Sheet Number
C100

Sheet 3 of 21



Project
Little Shasta River Fish Passage Improvement Project Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER LEONARD J. HOWARD No. 53319 Exp: 06/30/11 CIVIL STATE OF CALIFORNIA

Issue

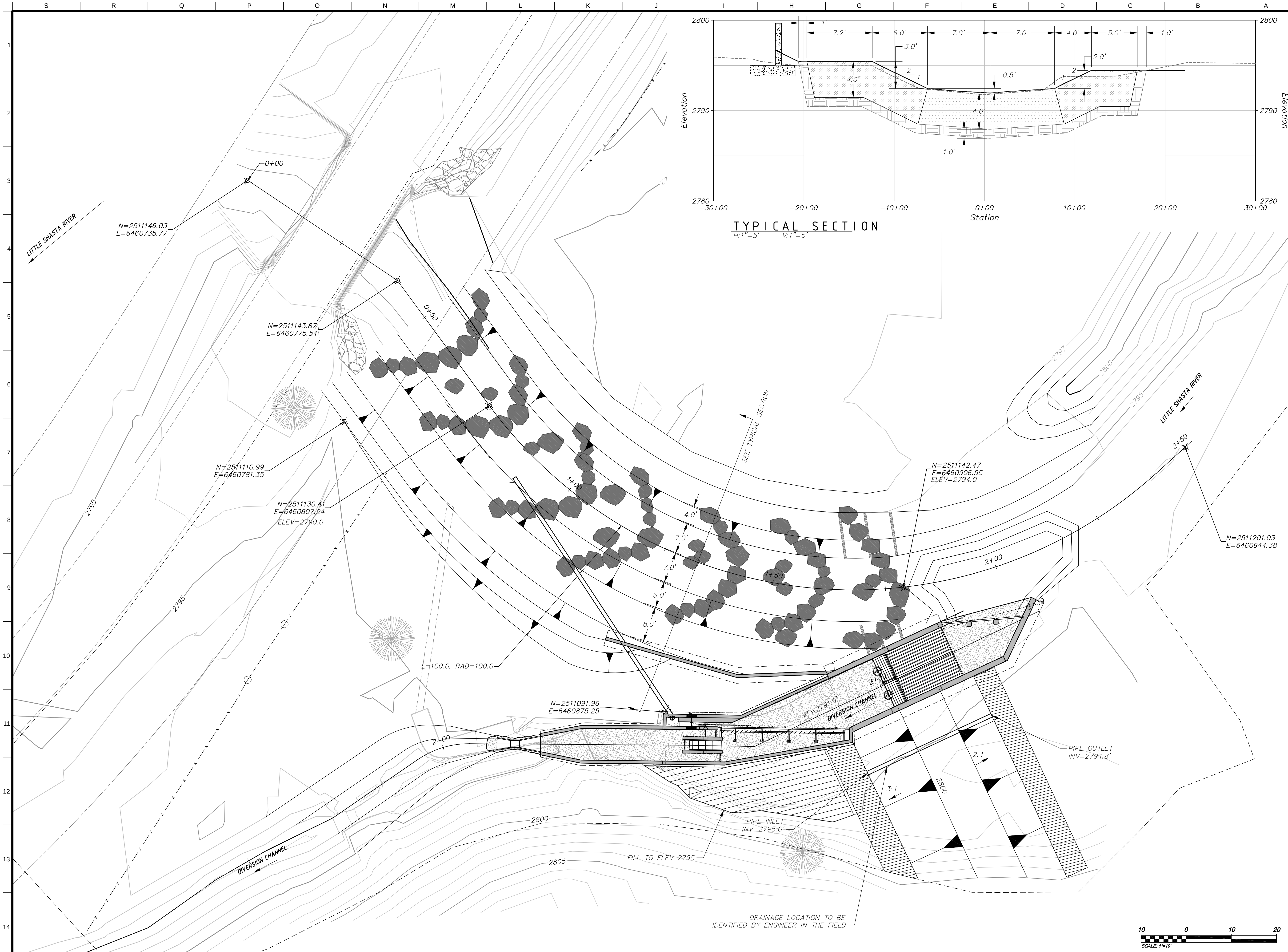
No.	Date	Description

Supervisor	Designer	Drafter	Checked
ljh	jp	jp	

Date: February 14, 2011
Drawing Name

Sheet Title
Channel Realignment Plan

Reference North
Job Number: 50555
Sheet Scale: 1"=10'
Sheet Number: C101
Sheet 4 of 21



Project
Little Shasta River Fish Passage Improvement Project Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER
LEONARD J. HOWARD
No. 53319
Exp: 06/30/11
CIVIL
STATE OF CALIFORNIA

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
ljh	jp	jp	

Date
February 14, 2011

Drawing Name

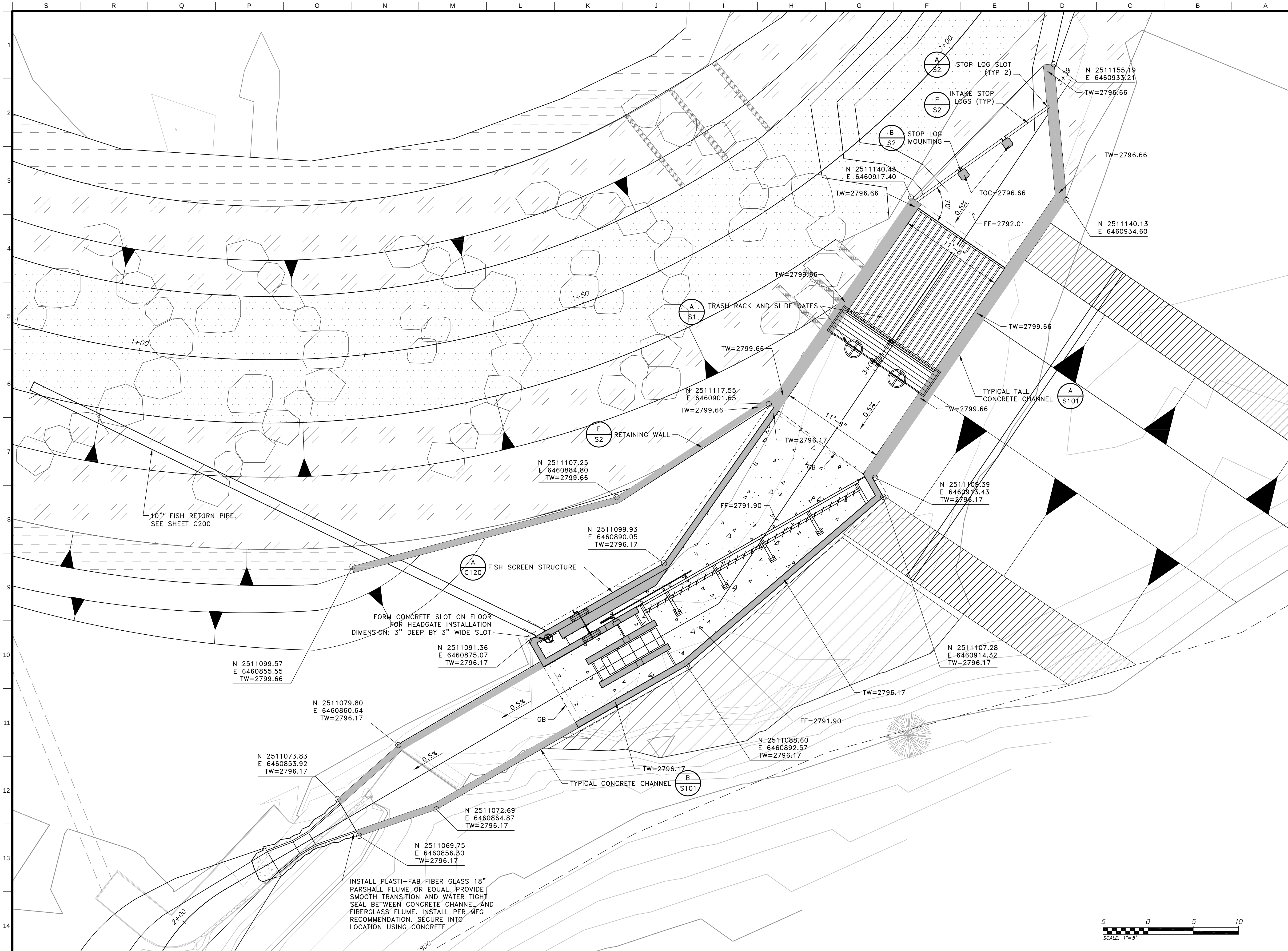
Sheet Title
Channel Realignment Grading Plan Control Points

Reference North

Job Number
50555

Sheet Scale
1"=10'

Sheet Number
C102



Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER MICHAEL S. WRIGHT No. 77310 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA
02.09.2011

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date
February 14, 2011

Drawing Name

Sheet Title
Diversion Channel Plan

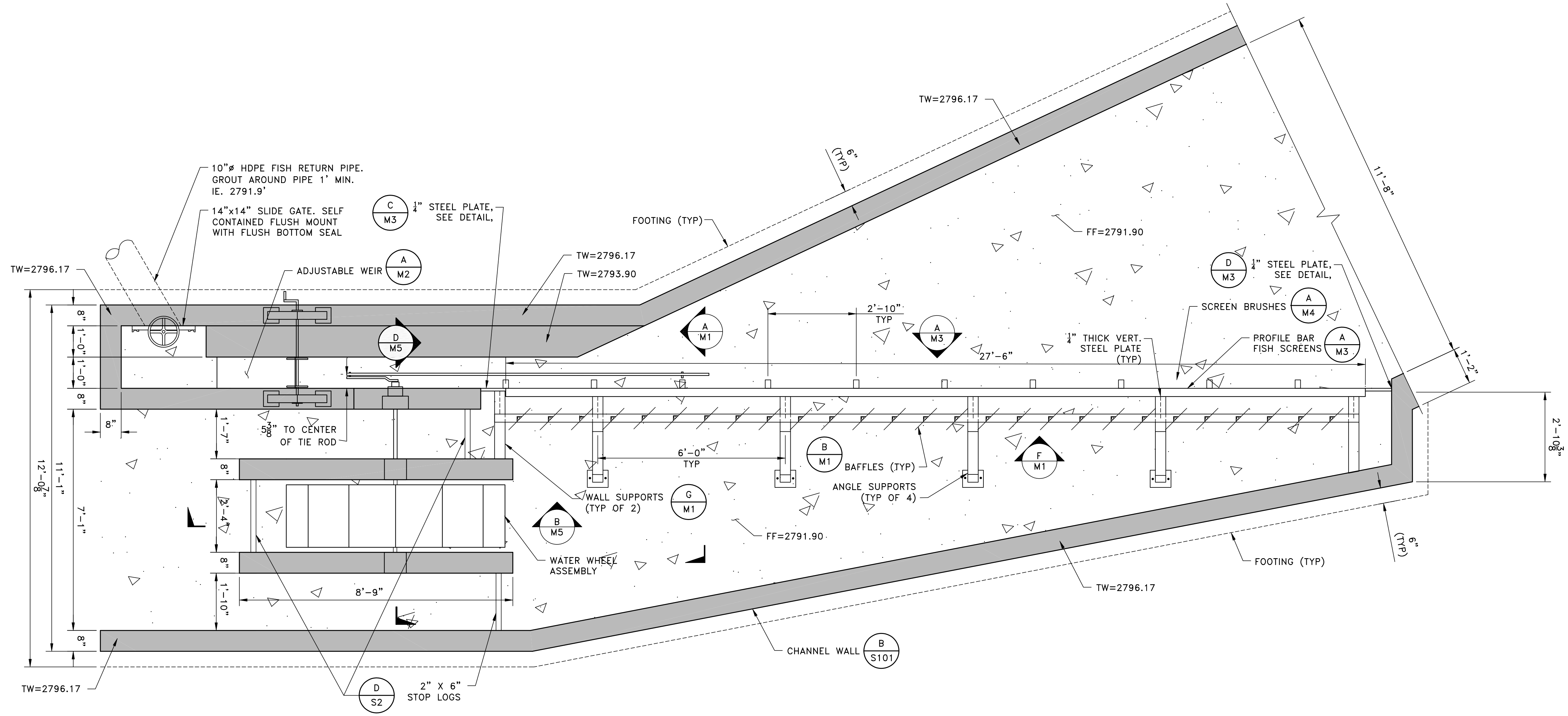
Reference North

Job Number
NHYC09-001

Sheet Scale
1"=5'

Sheet Number
C103

Sheet 6 of 21



NOTES:

1. HDPE PIPE SHALL BE PROVIDED WITH FLANGE ADAPTER THAT WILL BE CAST INTO CONCRETE WALL. NON-SHRINK GROUT SHALL BE USED TO PROVIDE SMOOTH TRANSITION FROM FLOOR TO PIPE.
2. SCREEN FACE SHALL BE FLAT WITHIN 1/8" TOLERANCE THROUGHOUT.

INTAKE/FISH SCREEN STRUCTURE PLAN

SCALE: 1" = 2'

A C120

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER MICHAEL S. WHEELER No. 77310 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA
02.09.2011

Issue

No.	Date	Description

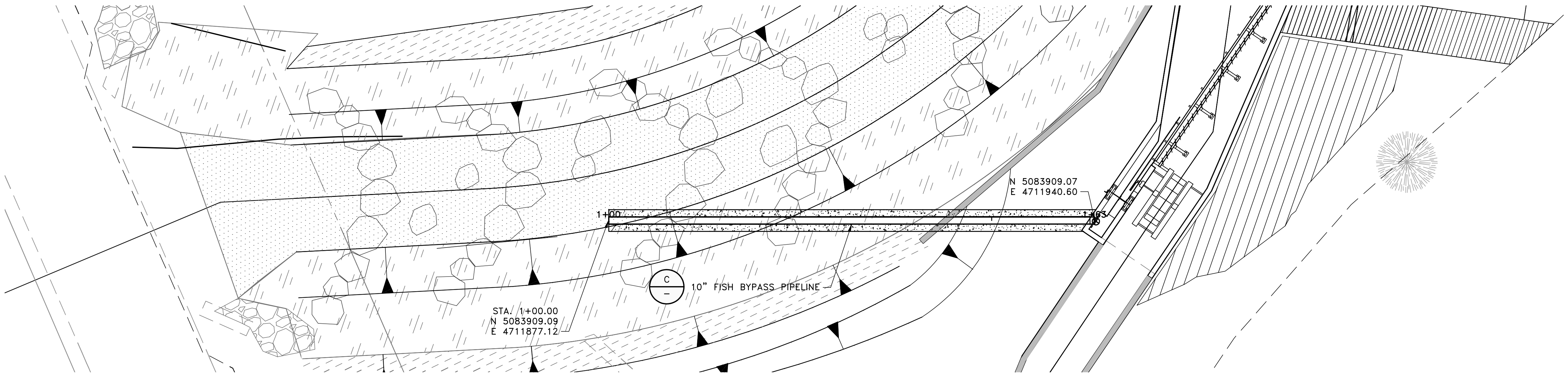
Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date: March 14, 2011
Drawing Name

Sheet Title
Intake/Fish Screen Structure Plan

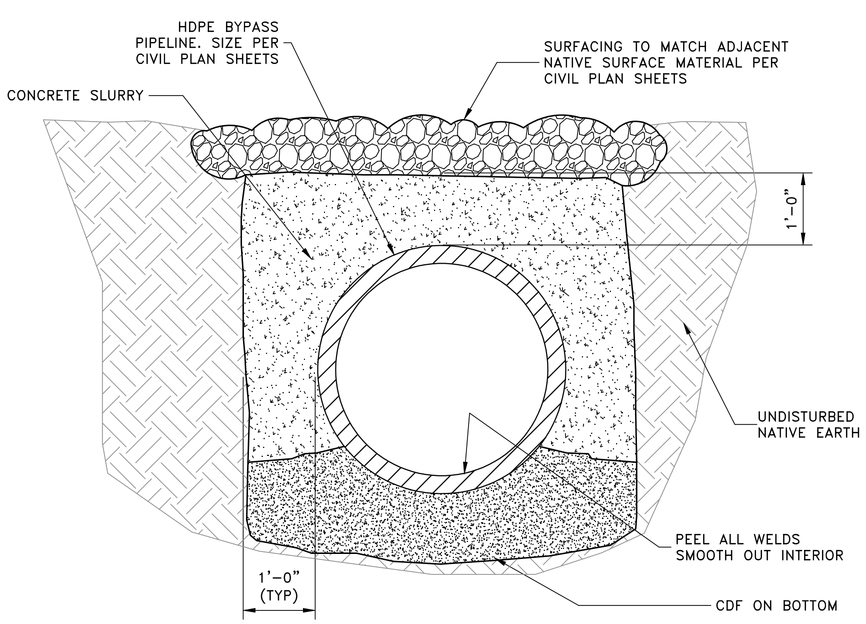
Reference North

Job Number: NHYC09-001
Sheet Scale: AS SHOWN
Sheet Number: C120
Sheet 7 of 21



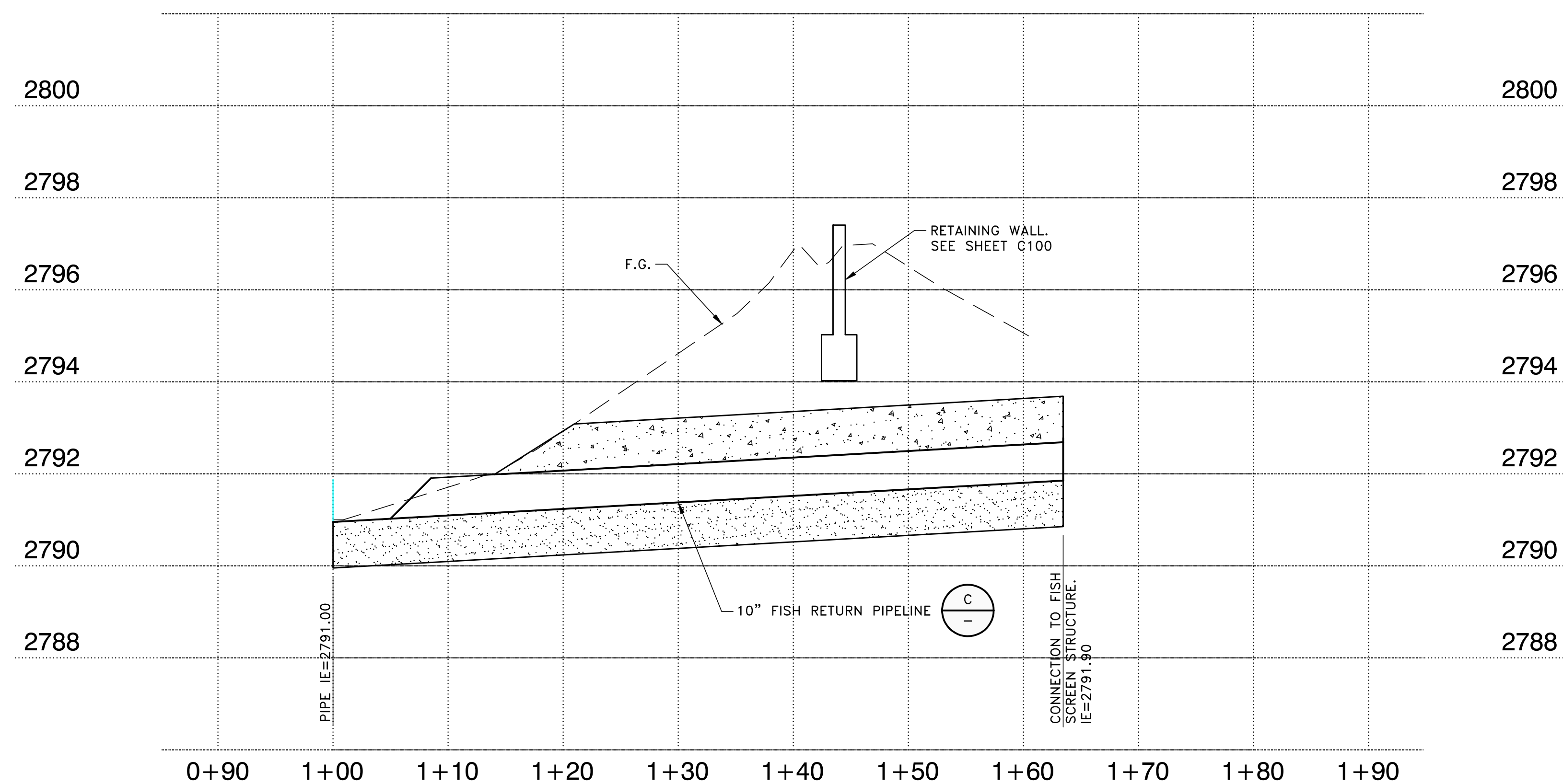
8' 4' 0 8'
HORIZONTAL SCALE
1" = 8'

2' 1' 0 2'
VERTICAL SCALE
1" = 2'



FISH BYPASS RETURN TRENCH SECTION (C)

SCALE: 1" = 1'



Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC
ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER · MICHAEL S. WHEELER · No. 77310 · Exp. 6/30/11 · CIVIL · STATE OF CALIFORNIA
02.09.2011

Issue

No.	Date	Description

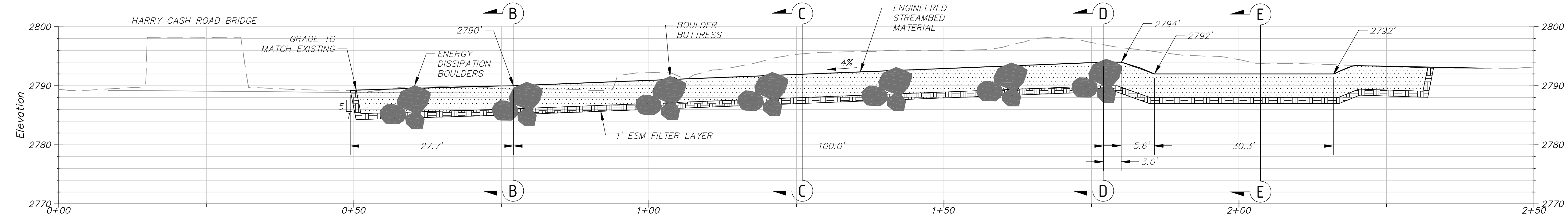
Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	

Date: February 14, 2011
Drawing Name

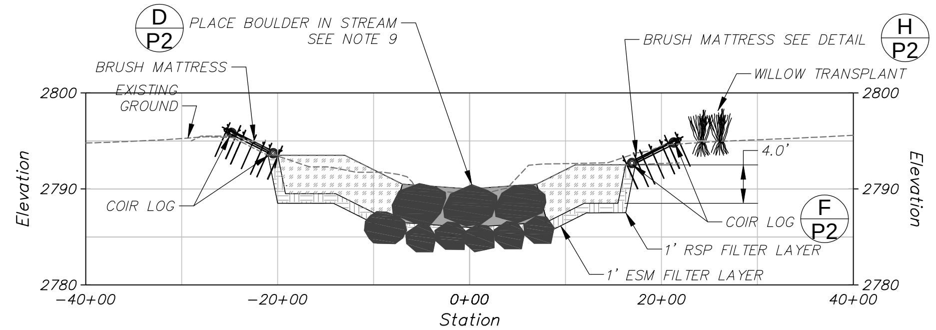
Sheet Title
Fish Bypass Pipeline Plan and Profile

Reference North

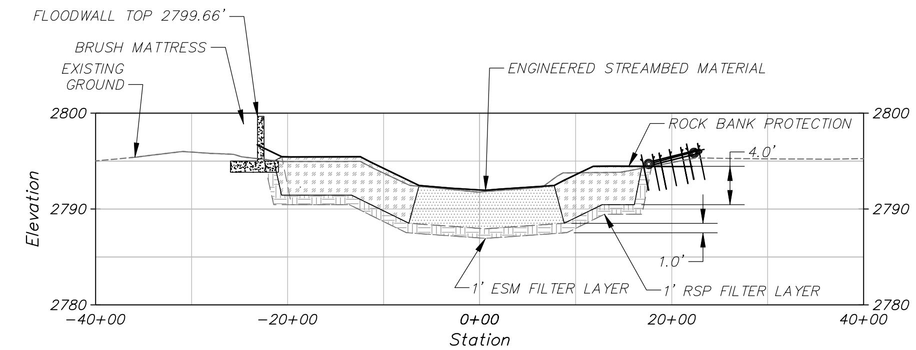
Job Number: NHYC09-001
Sheet Scale: 1"=5'
Sheet Number: **C200**
Sheet 8 of 21



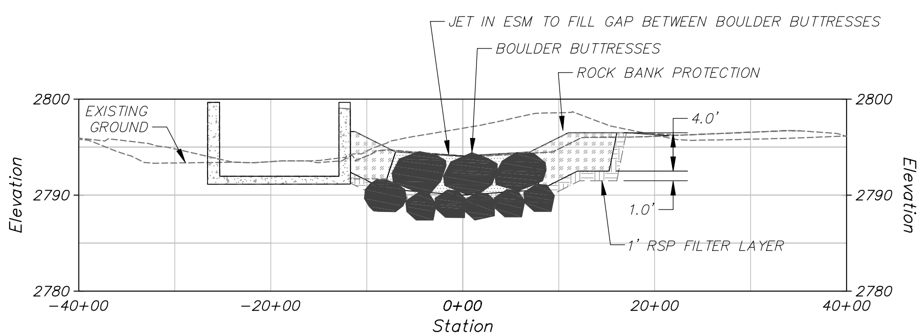
A PROFILE - LITTLE SHASTA RIVER
H:1"=10' V:1"=10'



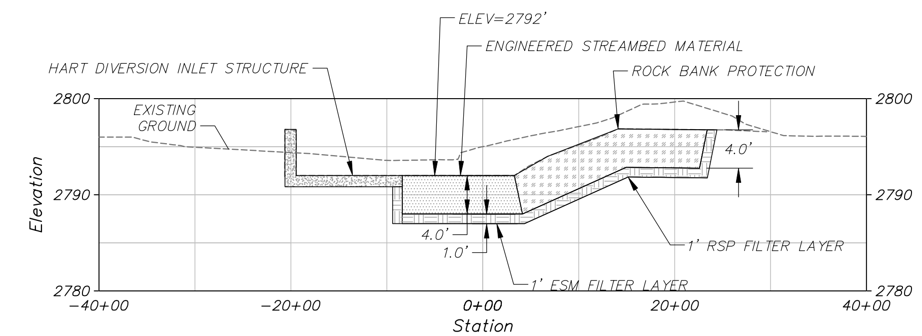
B Section
H:1"=10' V:1"=10'



C Section
H:1"=10' V:1"=10'



D Section
H:1"=10' V:1"=10'



E Section
H:1"=10' V:1"=10'

ROUGHENED CHANNEL NOTES:

1. THE ORDER OF WORK FOR CONSTRUCTING THE ROUGHENED CHANNEL SHALL BE:
   1) PLACE DOWNSTREAM BOULDER BUTTRESS FOOTER ROCKS,
   2) PLACE UPSTREAM BOULDER BUTTRESS FOOTER ROCKS,
   3) PLACE BOULDER BUTTRESS TOP ROCKS,
   4) PLACE BOULDER CLUSTERS,
   5) PLACE ENGINEERED STREAMBED MATERIAL
   6) SEAL ROUGHENED CHANNEL

2. THE ROUGHENED CHANNEL SHALL BE CONSTRUCTED BY FIRST PLACING THE DOWNSTREAM FOOTER ROCKS FOR THE BOULDER BUTTRESS. THE TOP OF THE DOWNSTREAM BOULDER BUTTRESS FOOTER ROCKS SHALL BE 18 TO 24 INCHES BELOW THE DESIGN ELEVATION OF THE BED. ALL BUTTRESS ROCKS SHALL BE PLACED WITH THE B-AXIS (SECOND LONGEST AXIS) OF THE ROCK IN THE STREAMWISE DIRECTION (PARALLEL TO THE FLOW). THE UPSTREAM BOULDER BUTTRESS FOOTER ROCKS SHALL BE PLACED AFTER PLACEMENT OF ALL THE DOWNSTREAM FOOTER ROCKS. THE UPSTREAM FOOTER ROCKS SHALL BE PLACED 2.5 TO 3 FEET BELOW THE DESIGN GRADE AND SHALL BE HAVE A MINIMUM OF TWO POINTS OF CONTACT WITH THE DOWNSTREAM FOOTER ROCKS. THE TOP BOULDER BUTTRESS ROCKS SHALL BE PLACED AFTER ALL THE UPSTREAM FOOTER ROCKS ARE PLACED. THE TOP BOULDER BUTTRESS ROCKS SHALL BE PLACED ON TOP OF THE UPSTREAM AND DOWNSTREAM FOOTER ROCKS IN A STABLE POSITION AND SHALL HAVE A MINIMUM OF FOUR CONTACT POINTS WITH THE FOOTER ROCKS. THE HIGHEST POINT OF THE TOP BOULDER BUTTRESS ROCK SHALL BE NO MORE THAN 6 INCHES ABOVE THE DESIGN GRADE AND THE LOWEST GAP BETWEEN THE TOP BOULDER BUTTRESS ROCKS SHALL BE NO DEEPER THAN 6 INCHES. THE AVERAGE ELEVATION OF THE TOP BOULDER BUTTRESS ROCKS SHALL BE WITHIN 1 INCHES PLUS OR MINUS OF THE DESIGN GRADE.

3. BOULDER CLUSTERS SHALL EXTEND 4 TO 12 INCHES ABOVE THE FINAL DESIGN GRADE. ROCK FOR THE BOULDER CLUSTERS SHALL BE PLACED WITH THE A-AXIS IN THE STREAMWISE DIRECTION.

4. ENGINEERED STREAMBED MATERIAL (ESM) SHALL BE DELIVERED TO THE SITE AND STOCKPILED BY SIZE CLASS. ESM SHALL BE MIXED ONSITE PRIOR TO PLACEMENT. ESM SHALL BE MIXED IN A WETTED CONDITION. THE FINE FRACTION OF THE ESM SHALL HAVE A SOIL MOISTURE CONTENT BETWEEN 10 AND 25 PERCENT DURING MIXING AND PLACEMENT PROCESS. ESM SHALL BE PLACED IN LIFTS OF 12 TO 18 INCHES. IT MAY BE NECESSARY TO WASH ADDITIONAL FINES (SILTS AND SANDS) INTO EACH LIFT IF ESM FINES ARE LOST DURING PLACEMENT.

5. THE ROUGHENED CHANNEL SURFACE SHALL BE SEALED BY JETTING IN SILTS, SANDS, AND FINE GRAVELS INTO THE ROUGHENED CHANNEL UNTIL THE CHANNEL MAINTAINS SHALLOW POOLS FOR A MINIMUM OF 15 MINUTES. FINAL SEALING OF THE CHANNEL SHALL BY TESTED BY CONVEYING 0.5 CFS THROUGH THE CHANNEL WITHOUT SUBSTANTIAL LOSS AT THE DOWNSTREAM END.

6. ROCK BANK PROTECTION SHALL BE SEALED BY JETTING SILTS, SANDS AND FINE GRAVELS TO FILL VOIDS BETWEEN LARGER PARTICLES. THE ROCK BANK PROTECTION SHALL BE CONSIDERED SEALED WHEN THE REQUIREMENTS OF NOTE 5 ARE MET.

7. ESM GRADATION TO BE CONFIRMED BY THE ENGINEER IN THE FIELD. GRADATION SHALL BE ESTIMATED USING PEBBLE COUNTS. FIELD MEASURED ESM GRADATIONS SHALL BE WITHIN 10% OF THE SPECIFIED GRADATIONS.

ESM FILTER LAYER NOTES:
1. FILTER LAYER CONSISTS OF AGGREGATE GRAVEL BASE WHERE NATIVE GRAVEL BASE IS NOT PRESENT
2. FILTER FABRIC SHALL NOT BE USED IN THE CONSTRUCTION OF THE ROUGHENED CHANNEL.

BOULDER CLUSTER NOTES:

1. BOULDER CLUSTERS SHALL BE PLACED AS DIRECTED BY THE ENGINEER IN THE FIELD. IF THE ENGINEER IS NOT PRESENT THE CLUSTERS SHALL BE CONSTRUCTED BY PLACING BOULDERS IN GROUPS OF THREE. THE UPSTREAM MOST BOULDER SHALL BE PLACED SO THEY ARE IN DIRECT CONTACT WITH THE OTHER TWO BOULDERS.

2. BOULDERS SHALL BE PLACED WITH THE A-AXIS IN THE STREAMWISE DIRECTION. BOULDERS SHALL BE 24 TO 48 INCHES IN DIAMETER AS MEASURED ALONG THE B-AXIS.

ROCK BANK PROTECTION FILTER LAYER

PERCENT FINER	PARTICLE DIAMETER
100%	8 IN
40%	3 IN
10%	0.75 IN

ENGINEERED STREAMBED MATERIAL (ESM)*

PERCENT FINER	PARTICLE DIAMETER
100%	48 IN
84%	32.4 IN
50%	12.9 IN
16%	0.7 IN
8%	0.1 IN

*ADDITIONAL SILTS, SANDS, AND GRAVELS REQUIRED TO SEAL ROUGHENED CHANNEL.

BOULDER BUTTRESS INSTREAM BOULDERS, BOULDER ROUGHNESS ELEMENTS

PERCENT FINER	PARTICLE DIAMETER
95%	48 IN
50%	33 IN
5%	24 IN

ROCK BANK PROTECTION*

PERCENT FINER	PARTICLE DIAMETER
100%	42 IN
50%	28 IN
15%	22 IN

Project
Little Shasta River
Fish Passage
Improvement Project
Hart Water Diversion

Client / Agency

ECO:LOGIC
ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER
LEONARD J. HOWARD
No. 53319
Exp: 06/30/11
CIVIL
STATE OF CALIFORNIA

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
ljh	ljh/jp	jp	

Date
February 14, 2011

Drawing Name

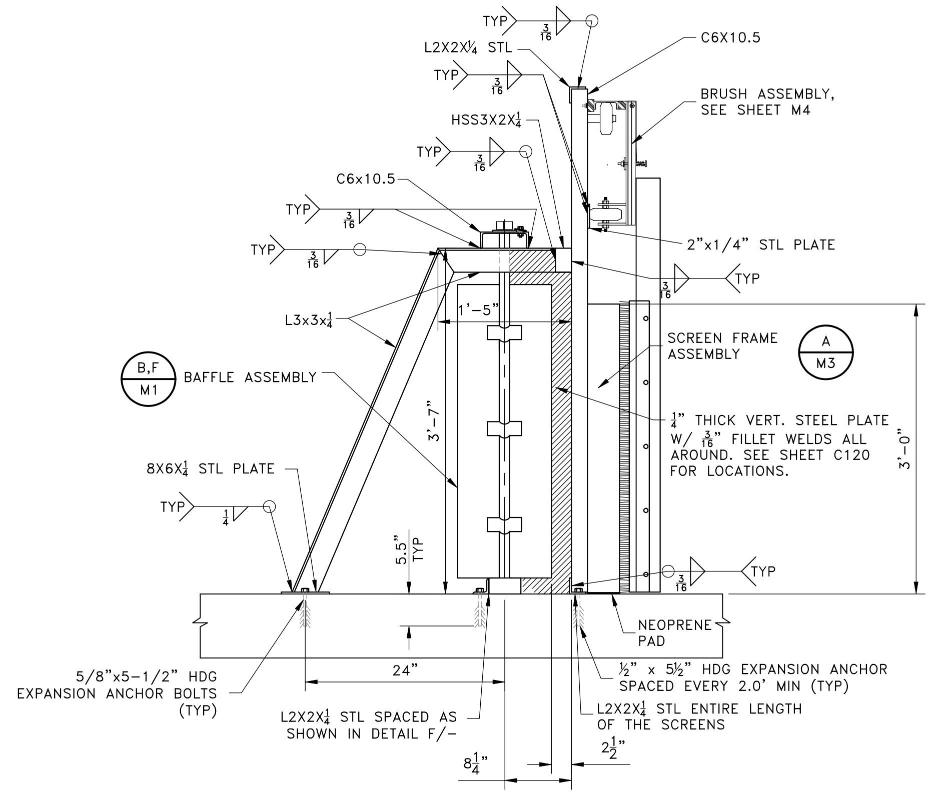
Sheet Title
River Realignment Profile
and Cross Sections

Reference North

Job Number
50555

Sheet Scale
1"=10'

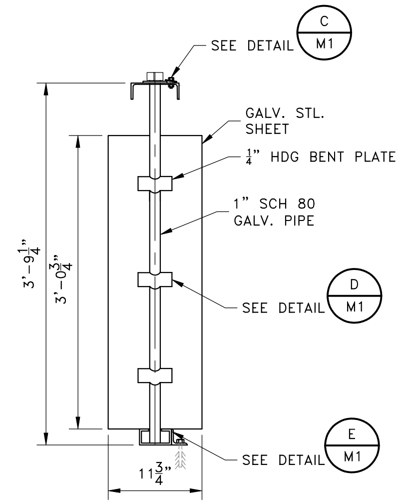
Sheet Number
C201



SCREEN STRUCTURE SECTION

SCALE: 1" = 1'

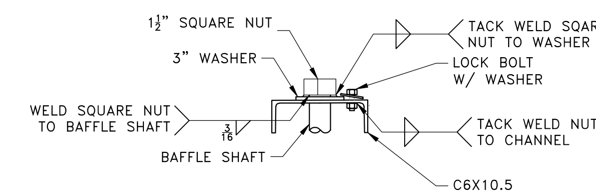
A / M1



BAFFLE DETAIL

SCALE: 1" = 1'

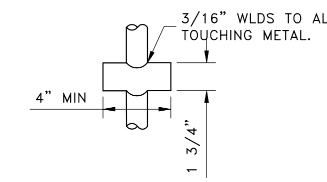
B / M1



BAFFLE DETAIL

SCALE: NONE

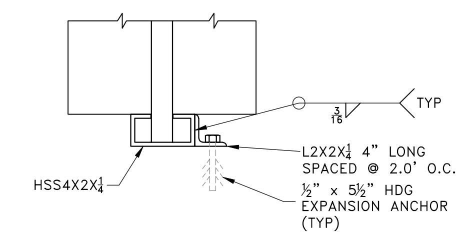
C / M1



BAFFLE DETAIL

SCALE: NONE

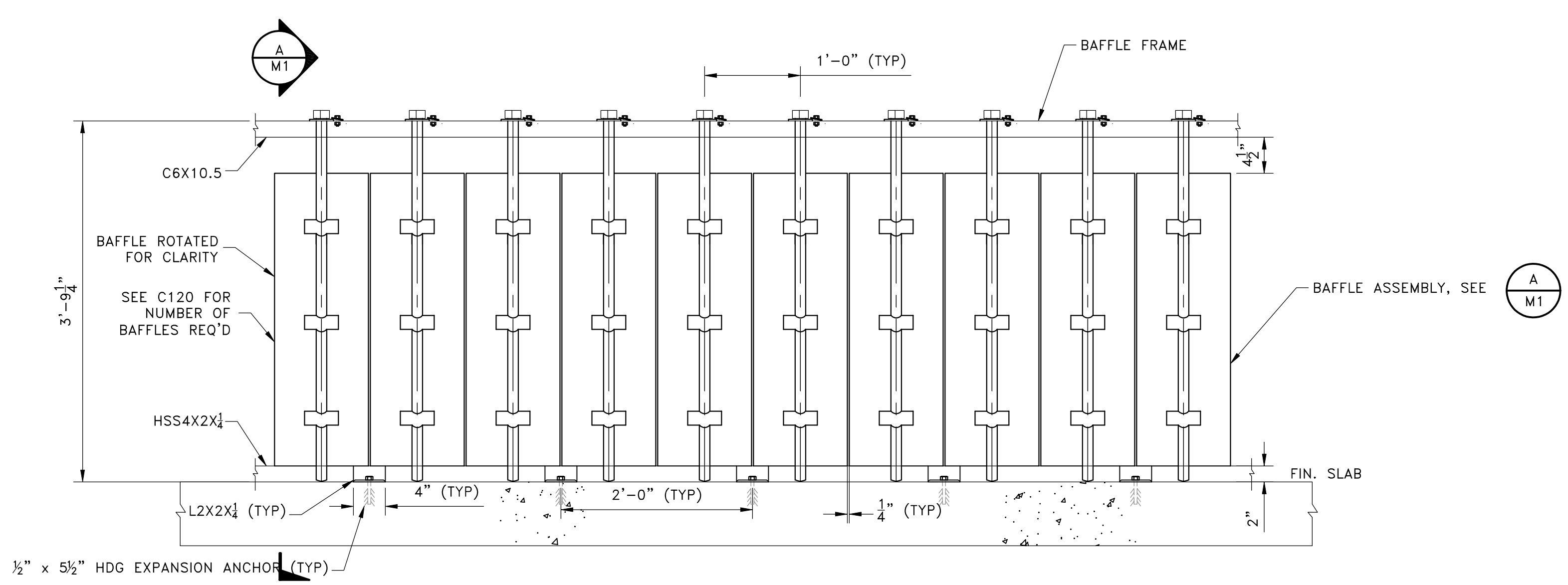
D / M1



BAFFLE DETAIL

SCALE: NONE

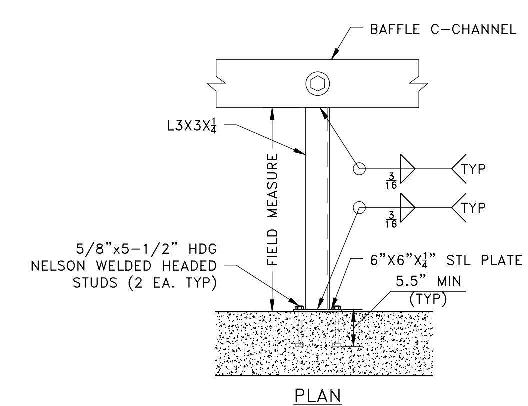
E / M1



BAFFLE ELEVATION

SCALE: 1" = 1'

F / M1



WALL SUPPORT DETAIL

SCALE: 1" = 1'

G / M1

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

02.09.2011

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date
December 13, 2010

Drawing Name

Sheet Title
Mechanical Details

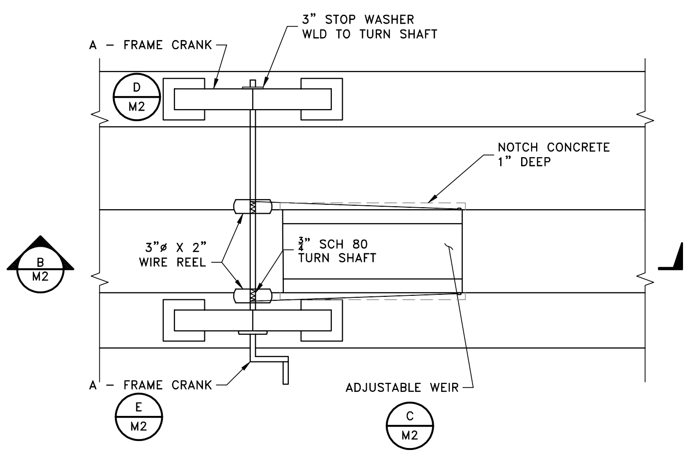
Reference North

Job Number
NHYC09-001

Sheet Scale
1"=1'

Sheet Number
M1

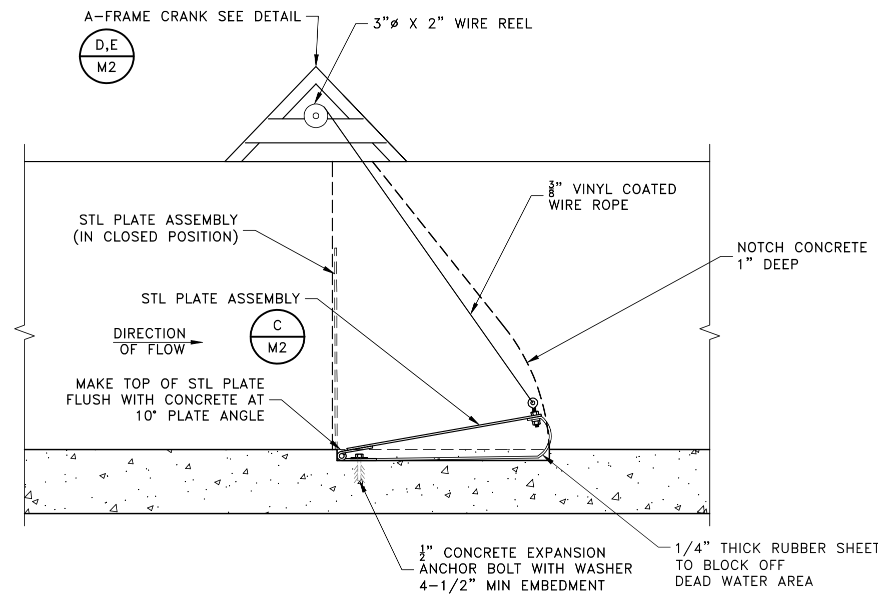
Sheet 10 of 21



ADJUSTABLE WEIR DETAIL

A M2

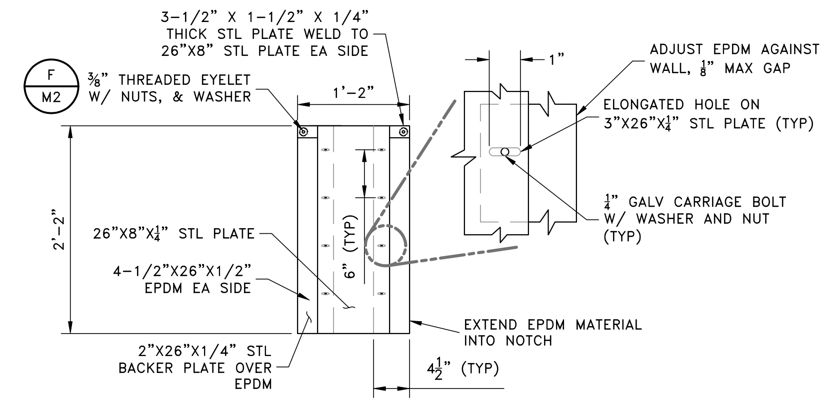
SCALE: 1" = 1'



ADJUSTABLE WEIR SECTION

B M2

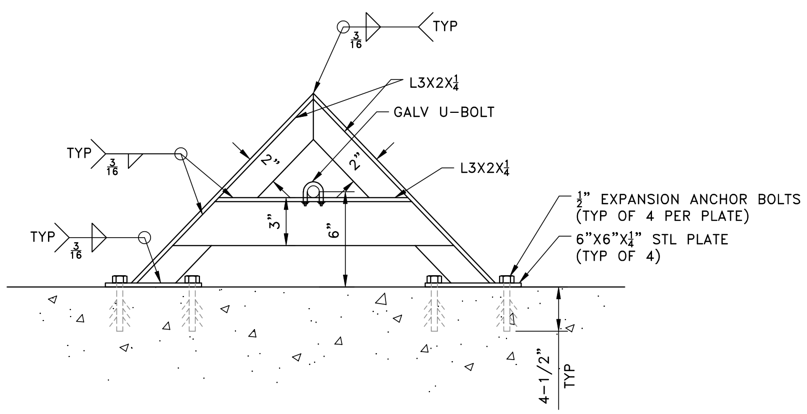
SCALE: 1" = 1'



ADJUSTABLE WEIR PLATE DETAIL

C M2

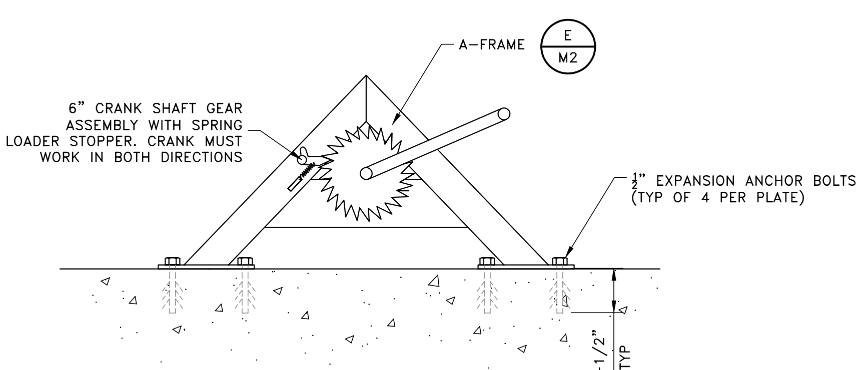
SCALE: 1" = 1'



CRANK MOUNT DETAIL

D M2

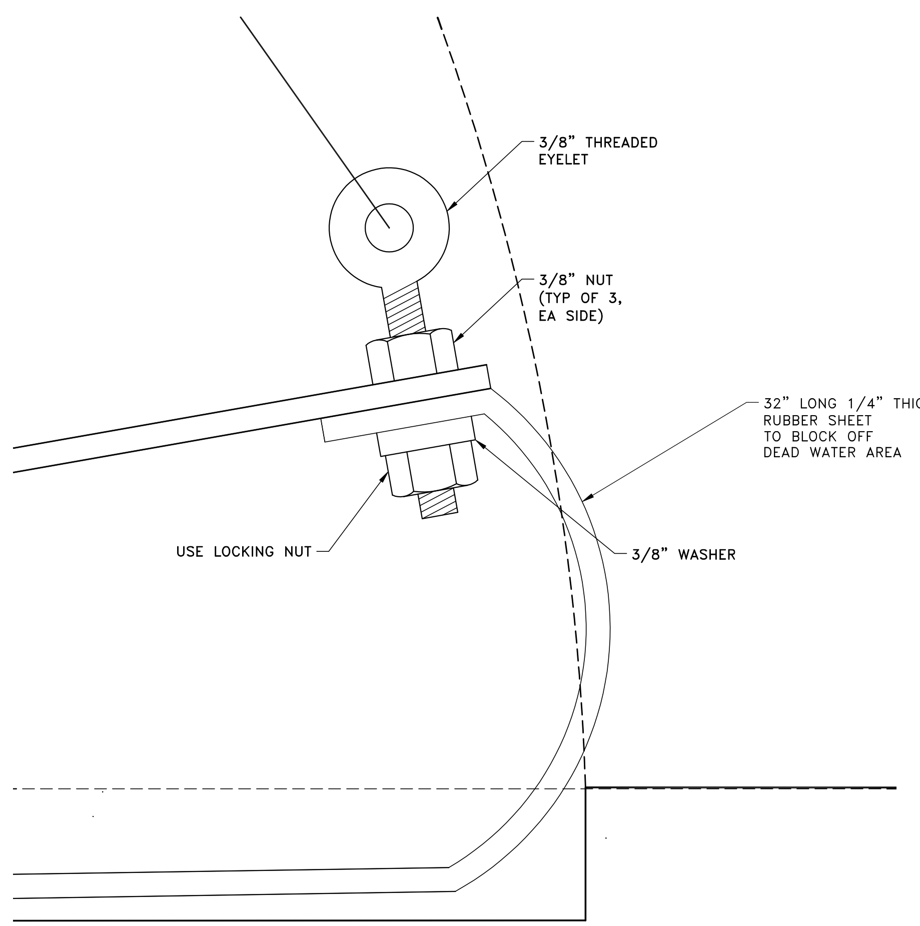
SCALE: 6" = 1'



CRANK MOUNT DETAIL

E M2

SCALE: 6" = 1'



EYE HOOK DETAIL

F M2

SCALE: 1"=1"

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER MICHAEL S. WHEELER No. 77318 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

02.09.2011

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date: December 13, 2010

Drawing Name

Sheet Title: Mechanical Details

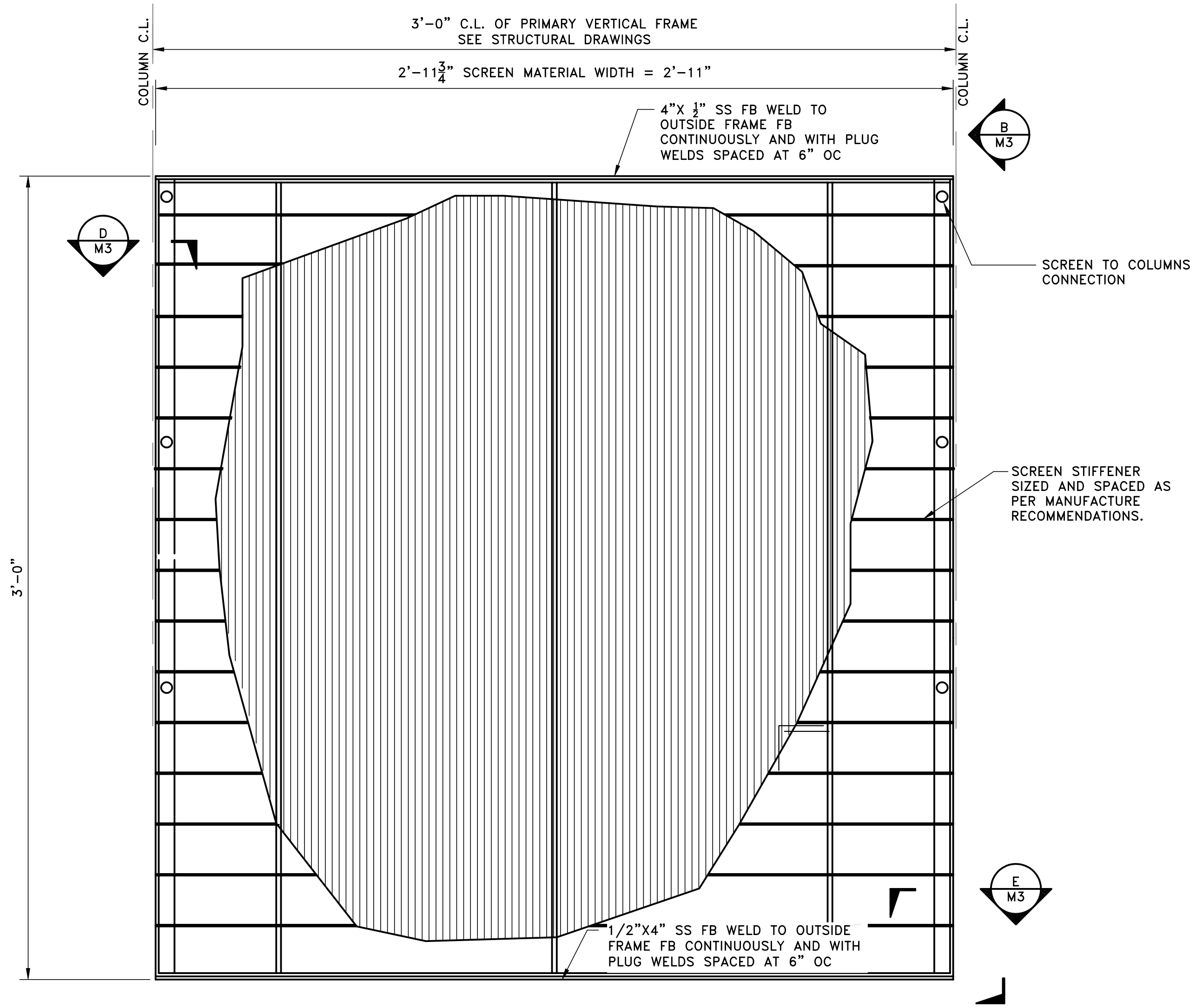
Reference North

Job Number: NHYC09-001

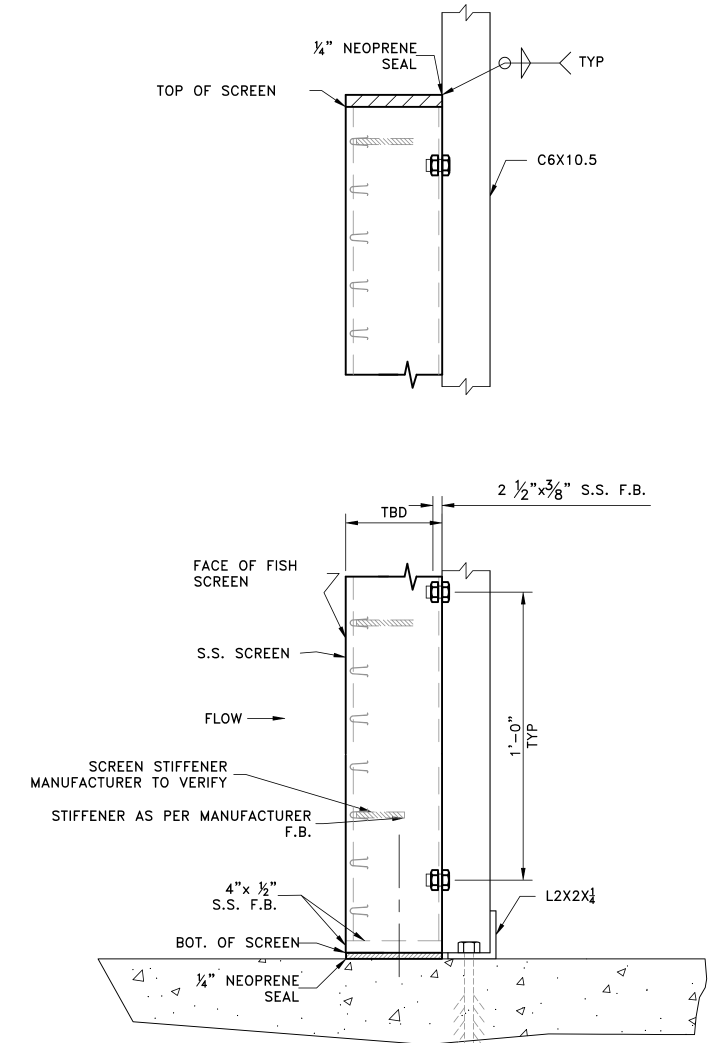
Sheet Scale: 1"=1'

Sheet Number: M2

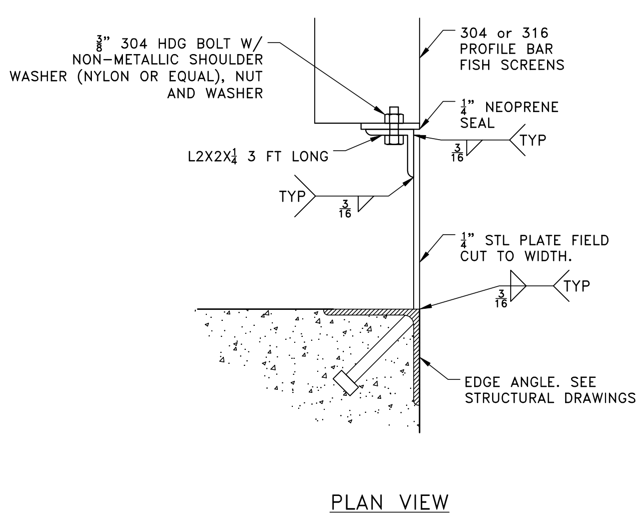
Sheet 11 of 21



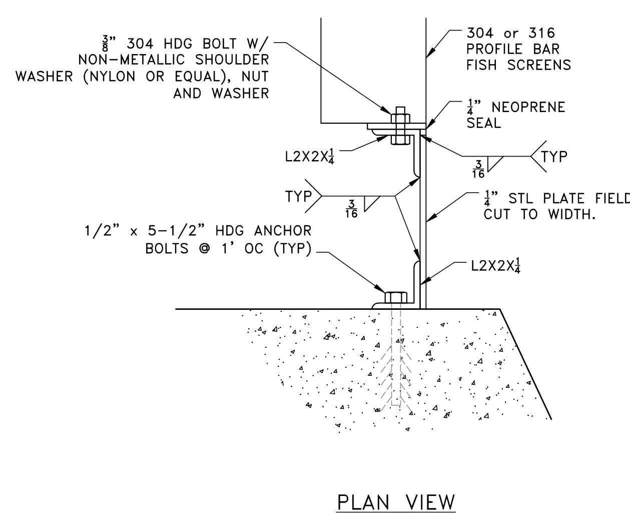
SCREEN PANEL ELEVATION
SCALE: 3" = 1'
A
M3



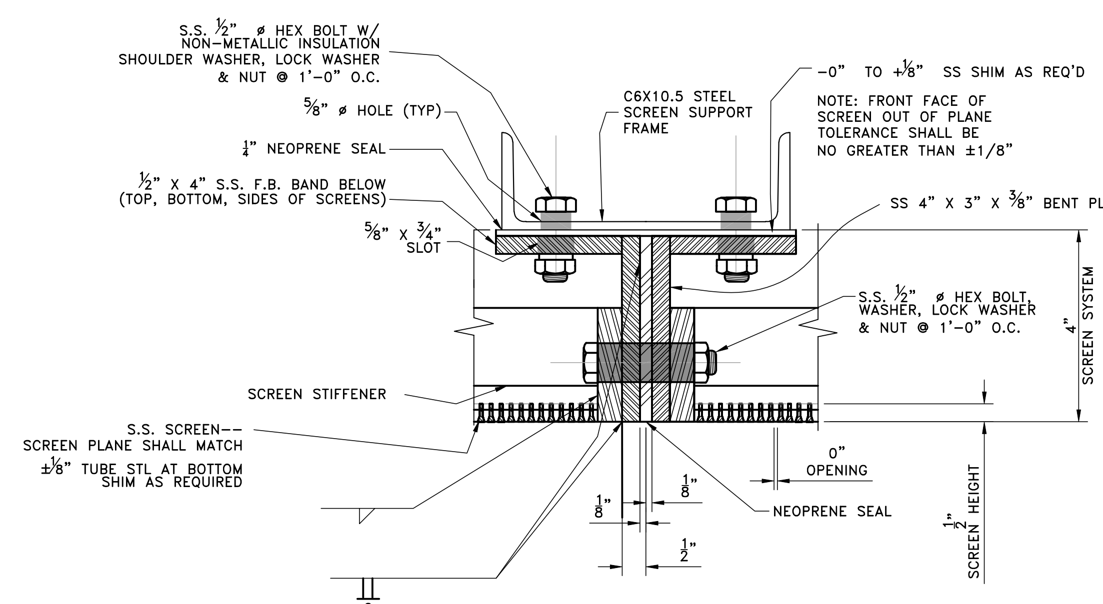
SCREEN PANEL SECTION
SCALE: 3" = 1'
B
M3



STL PLATE WALL DETAIL
SCALE: 3" = 1'
C
M3



STL PLATE WALL DETAIL
SCALE: 3" = 1'
D
M3



MOUNTING DETAIL
SCALE: 6" = 1'
E
M3

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC
ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER · MICHAEL S. WHEELER · No. 77319 · Exp. 6/30/11 · CIVIL · STATE OF CALIFORNIA
02.09.2011

Issue

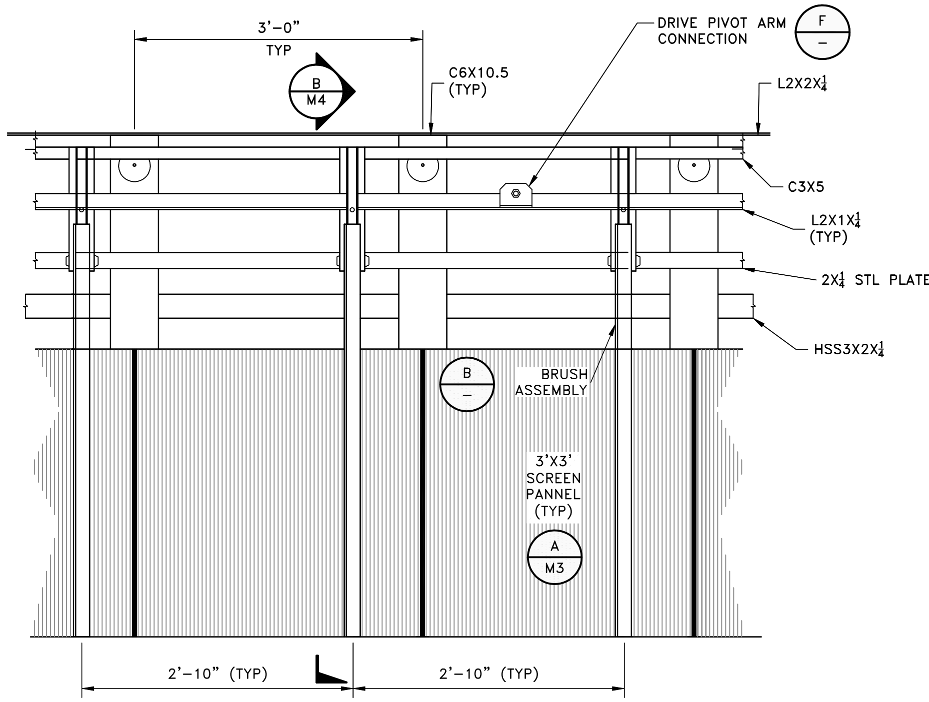
No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

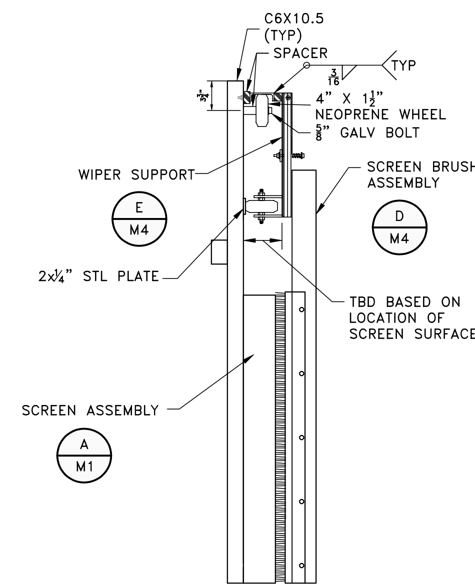
Date: December 13, 2010
Drawing Name

Sheet Title
Mechanical Details

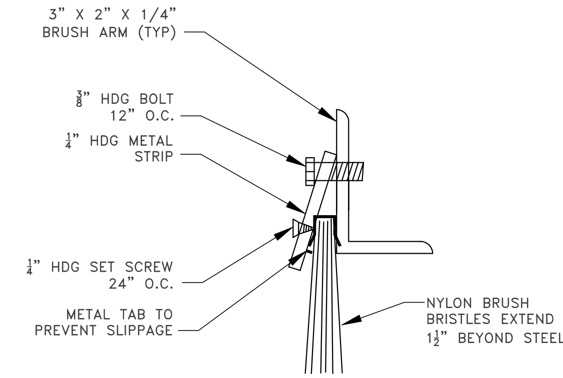
Reference North
Job Number: NHYC09-001
Sheet Scale: 1"=1'
Sheet Number: M3
Sheet 12 of 21



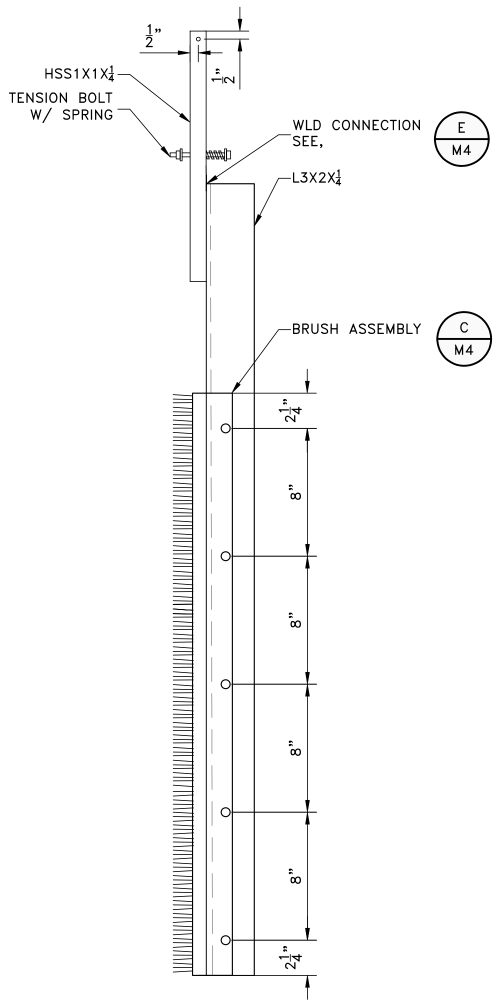
BRUSH ASSEMBLY ELEVATION
A / M4
SCALE: 1" = 1'



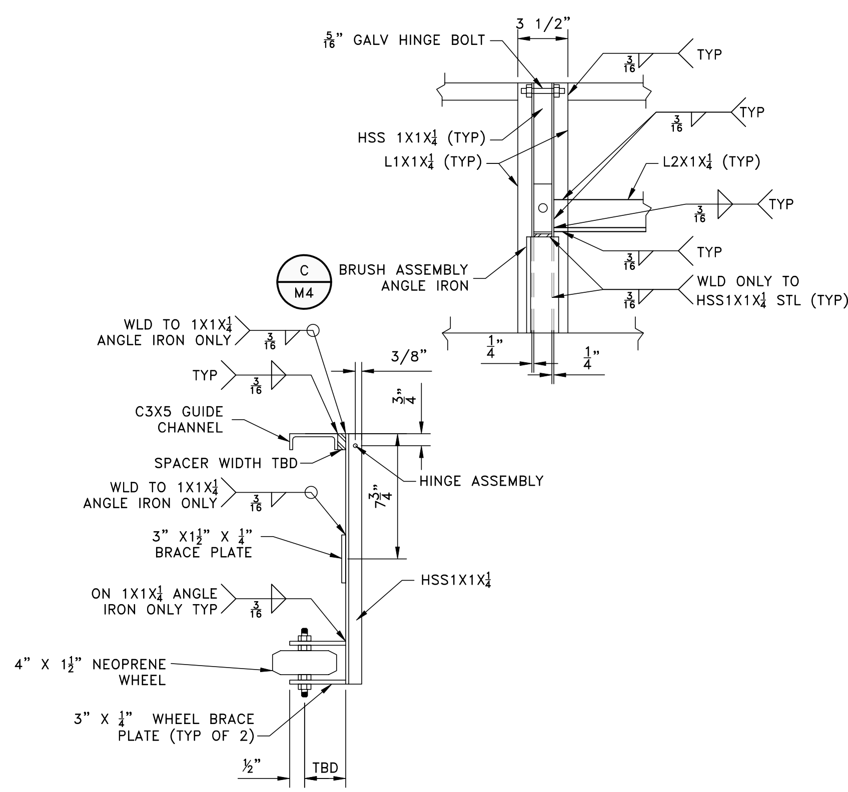
BRUSH ASSEMBLY SECTION
B / M4
SCALE: 1" = 1'



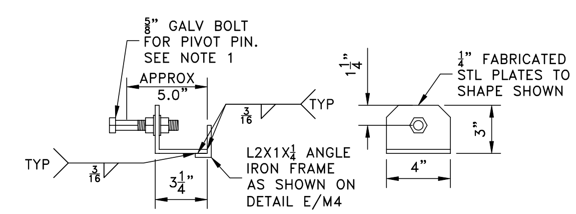
BRUSH ASSEMBLY DETAIL
C / M4
SCALE: 6" = 1'



SCREEN BRUSH DETAIL
D / M4
SCALE: 2" = 1'



WIPER SUPPORT DETAIL
E / M4
SCALE: 2" = 1'



NOTES:
1. HINGE BOLT SHOULD BE DOUBLE NUTTED AND REMAIN LOOSE ENOUGH TO ALLOW MOVEMENT OF BRUSH ARM. BOLT SHALL BE LONG ENOUGH TO REACH PIVOT ARM.

DRIVE PIVOT ARM
F / M4
SCALE: 2" = 1'

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER MICHAEL S. WHITE No. 77310 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA
02.09.2011

Issue

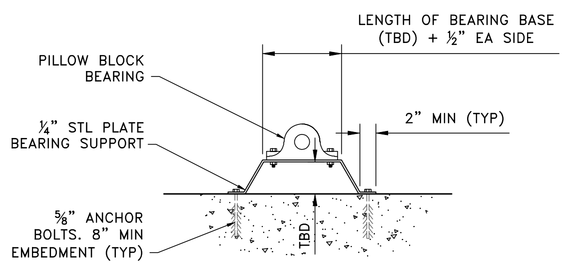
No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date: December 13, 2010
Drawing Name

Sheet Title
Mechanical Details

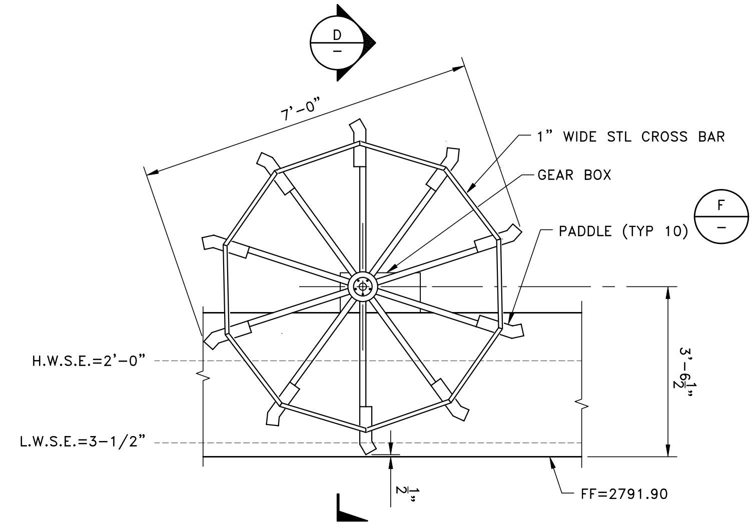
Reference North
Job Number: NHYC09-001
Sheet Scale: AS SHOWN
Sheet Number: M4
Sheet 13 of 21



BEARING SUPPORT DETAIL

SCALE: 1" =1'

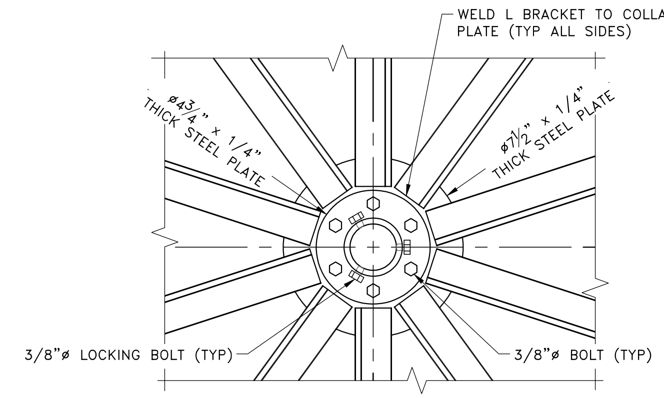
A M5



WATER WHEEL ELEVATIONS

SCALE: 1" = 2'

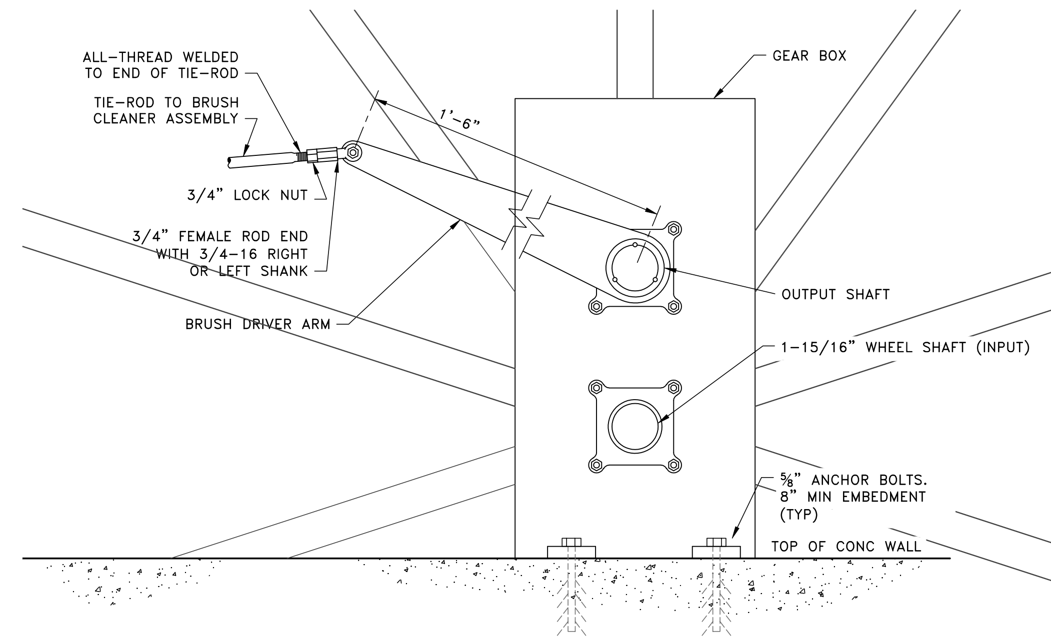
B M5



SHAFT COLLAR DETAIL

SCALE: 3" = 1'-0"

C M5



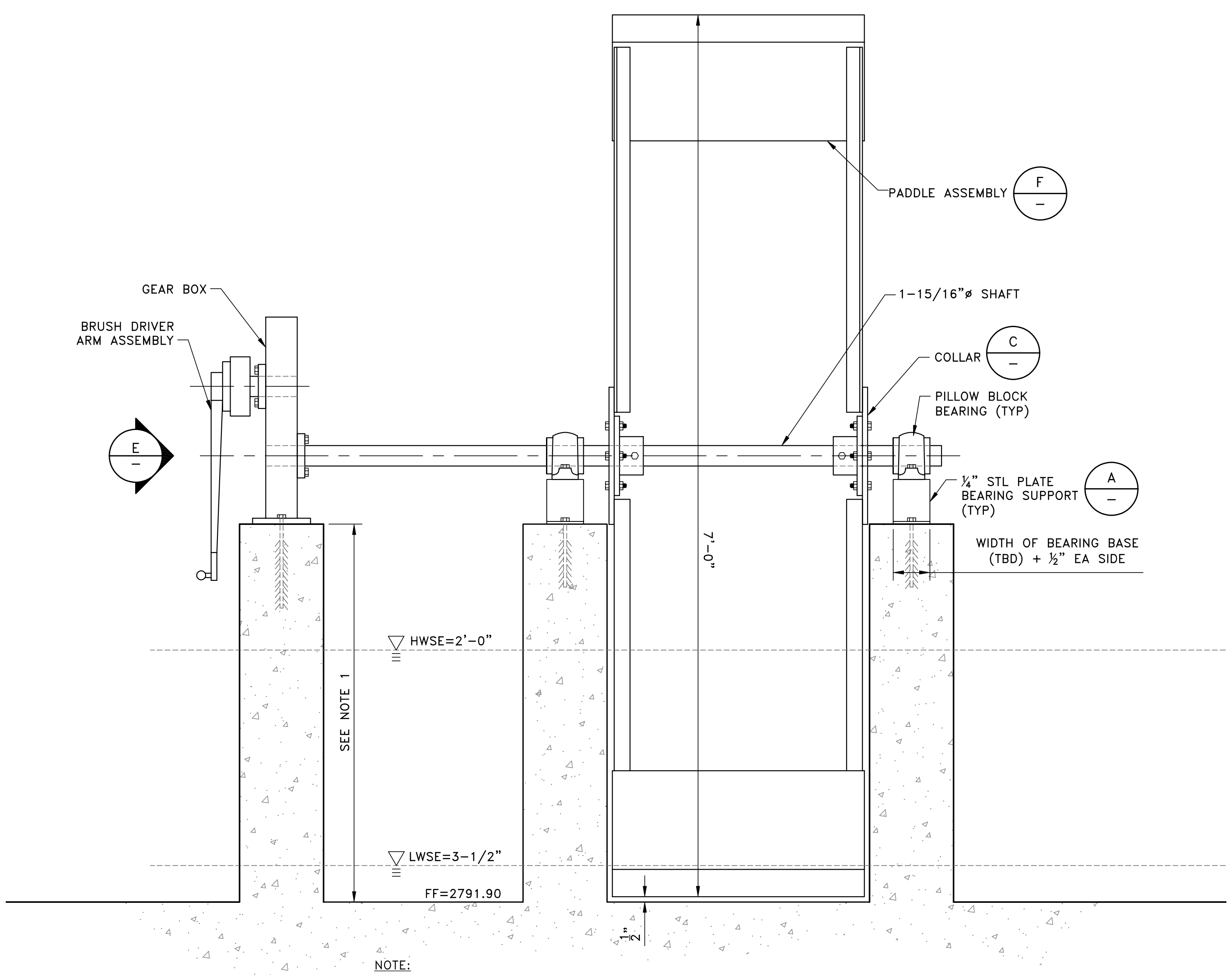
NOTE:

1. 1:1.5 INPUT/OUTPUT RATIO. (BRUSH DRIVE ARM TO ROTATE 1.5 TIMES PER EVERY REVOLUTION OF THE PADDLE WHEEL)

GEAR BOX DETAIL

SCALE: 3" = 1'

E M5



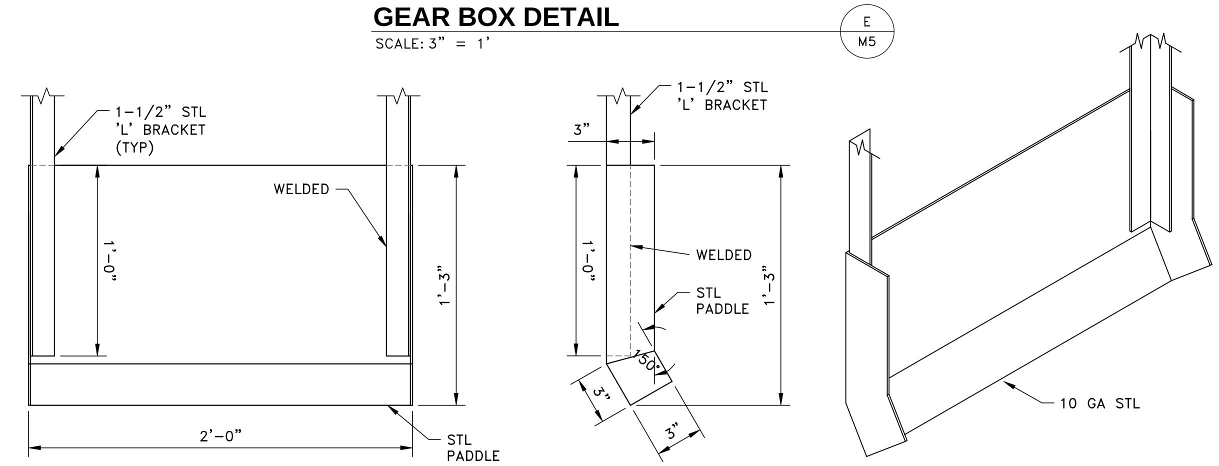
NOTE:

1. HEIGHT OF WALLS TO BE COORDINATED WITH GEAR BOX DIMENSIONS TO PROVIDE WATER WHEEL CLEARANCES.

WATER WHEEL SECTION

SCALE: 1-1/2" = 1'

D M5



PADDLE ASSEMBLY DETAIL

SCALE: 2" = 1'

F M5

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER MICHAEL S. WHEELER No. 77318 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

02.09.2011

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date: December 13, 2010

Drawing Name

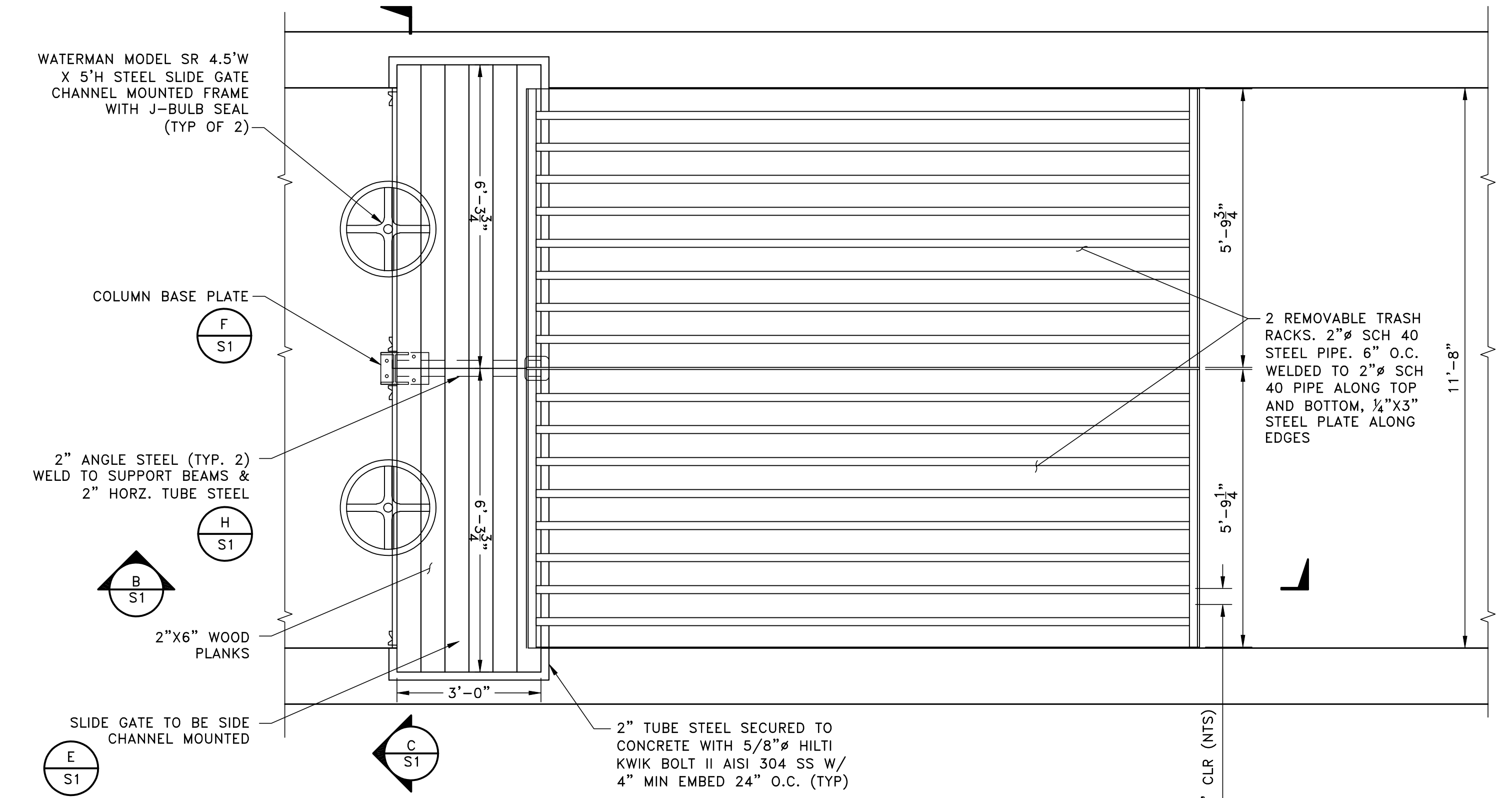
Sheet Title: *Water Wheel Elevations and Details*

Reference North

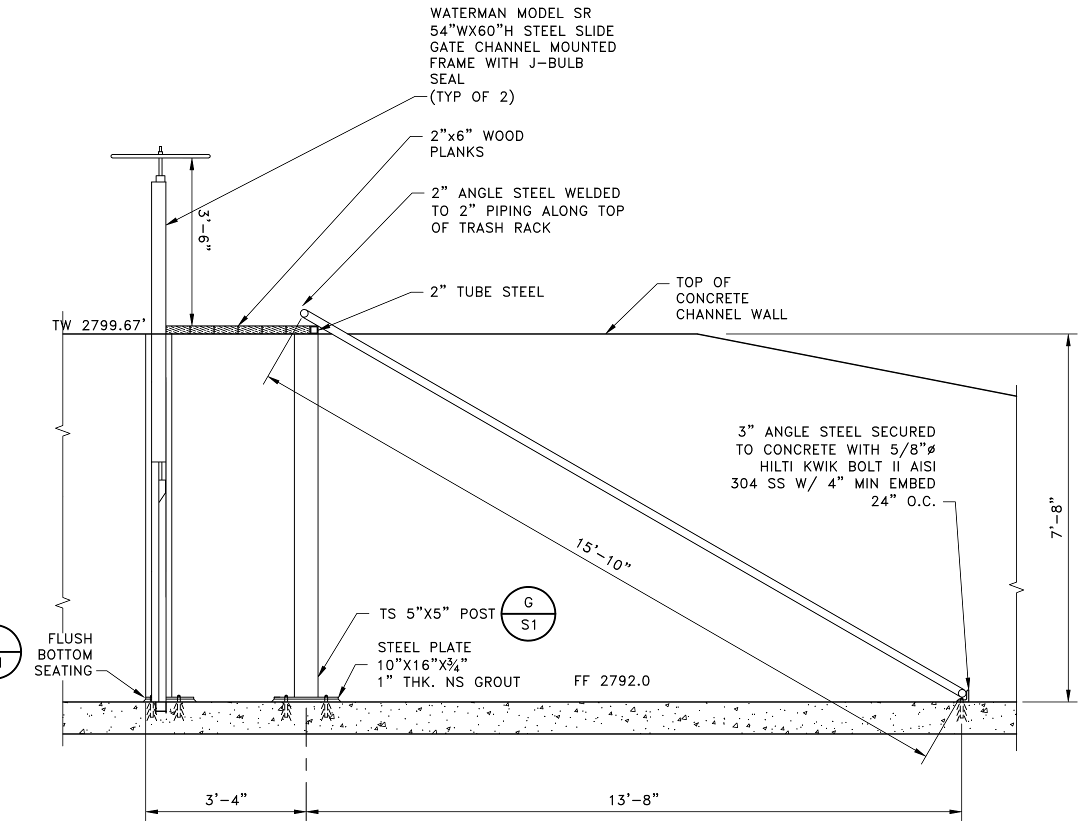
Job Number: NHYC09-001

Sheet Scale: AS SHOWN

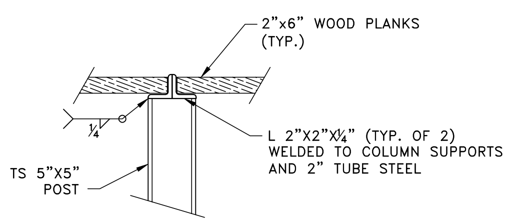
Sheet Number: **M5**



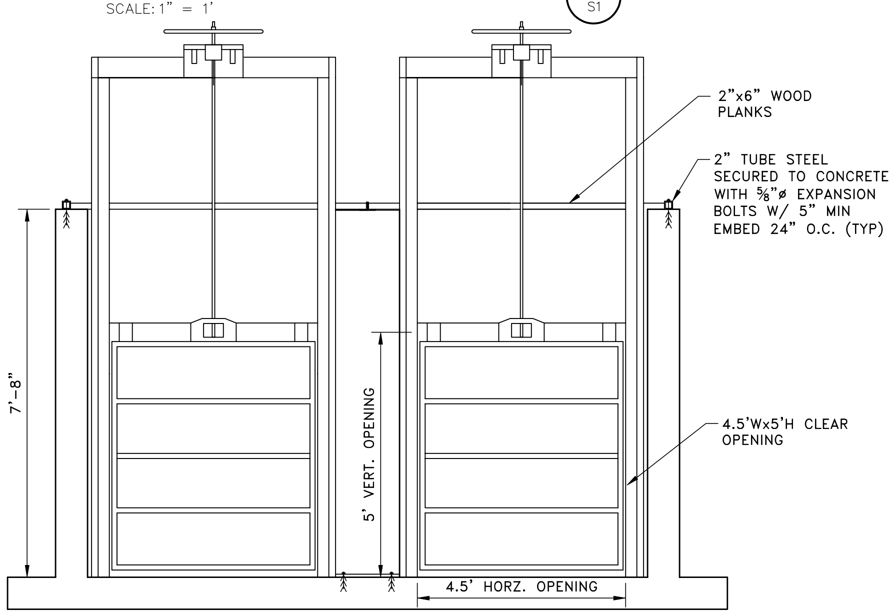
TRASH RACK AND SLIDE GATE DETAIL
A S1
SCALE: 1/2" = 1'



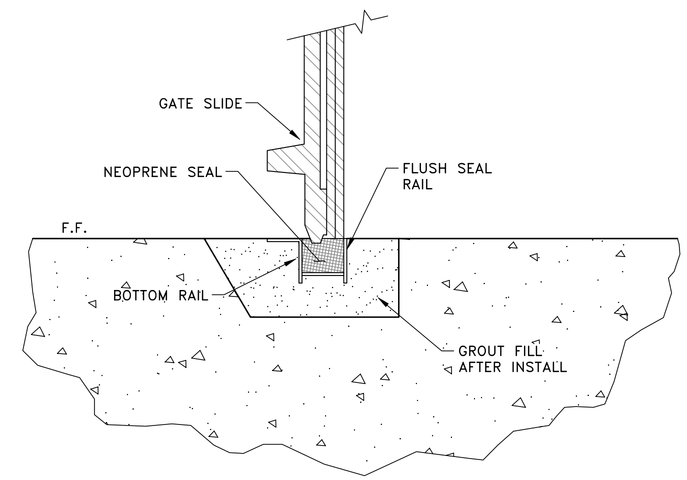
TRASH RACK AND SLIDE GATE SECTION
B S1
SCALE: 1/2" = 1'



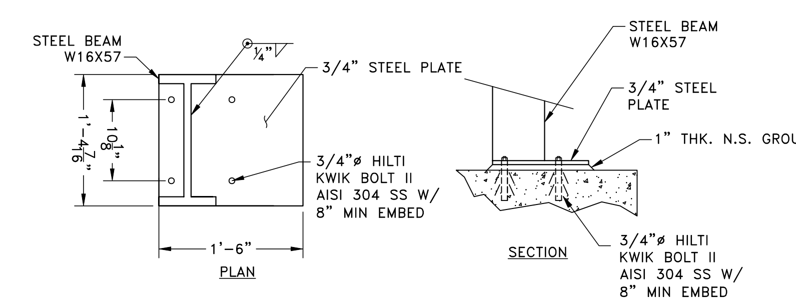
CENTER ANGLE STEEL SECTION
H S1
SCALE: 1" = 1'



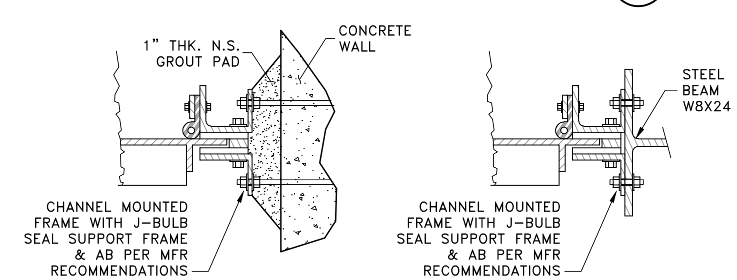
TRASH RACK AND SLIDE GATE SECTION
C S1
SCALE: 1/2" = 1'



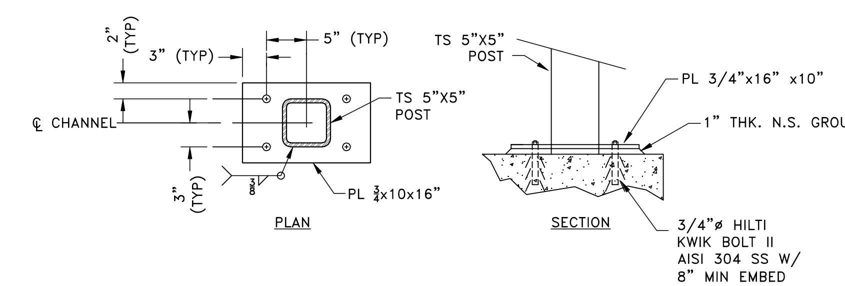
SLIDE GATE FLUSH BOTTOM DETAIL
D S1
SCALE: 3" = 1'



SLIDE GATE COLUMN BASE PLATE DETAIL
F S1
SCALE: 1" = 1'



SLIDE GATE CHANNEL MOUNT DETAIL
E S1
SCALE: 3" = 1'



TRASH RACK COLUMN BASE PLATE DETAIL
G S1
SCALE: 1" = 1'

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

Issue

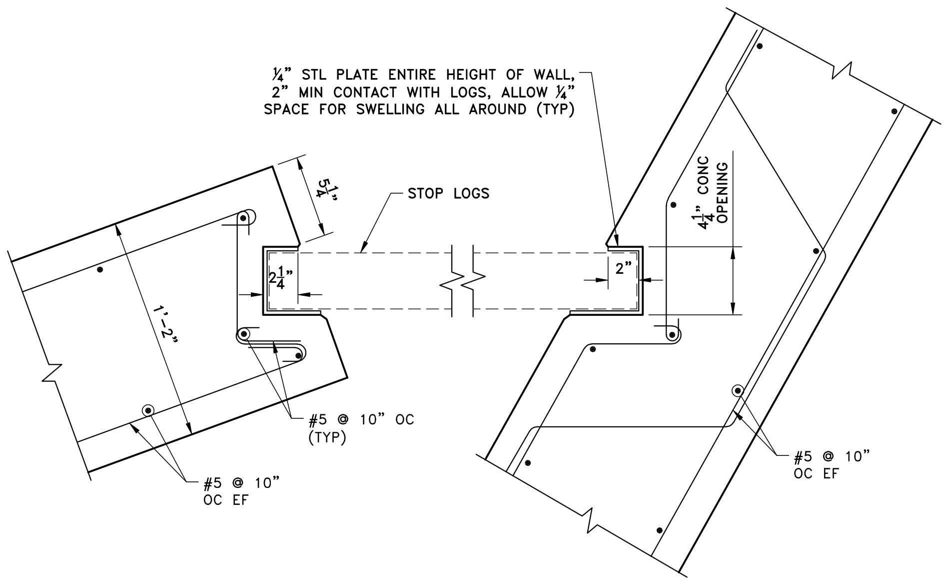
No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date: December 13, 2010
Drawing Name

Sheet Title
Trash Rack and Slide Gate Details

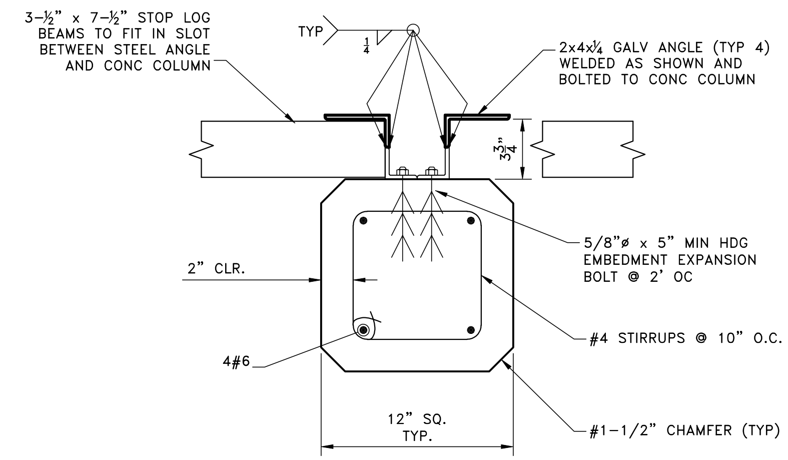
Reference North
Job Number: NHYC09-001
Sheet Scale: AS SHOWN
Sheet Number: S1
Sheet 15 of 21



4x8 STOP LOG SLOT DETAIL

A / S2

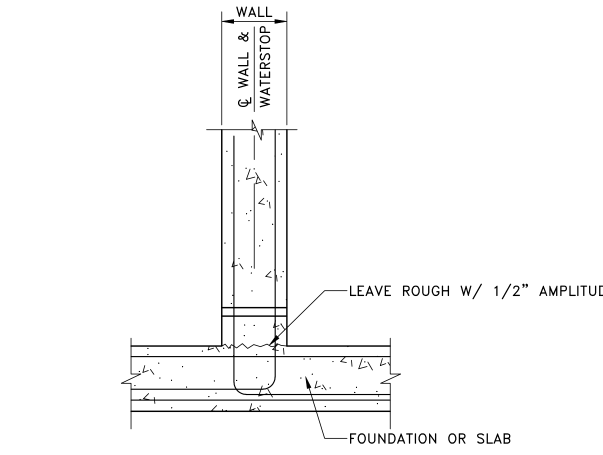
SCALE: 2" = 1'



CONCRETE COLUMN DETAIL

B / S2

SCALE: 2" = 1'



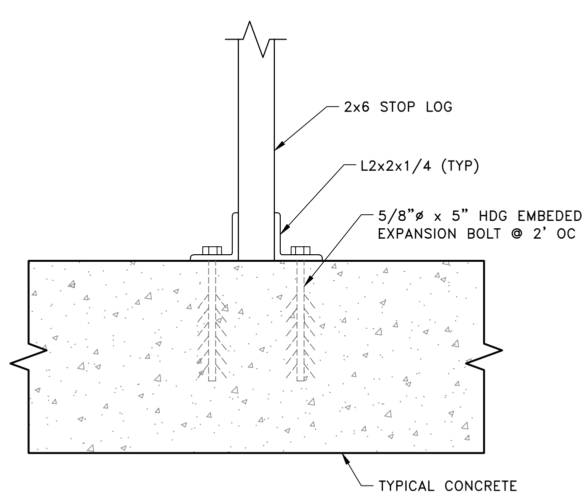
NOTE:

1. SEE DRAWINGS FOR REINFORCEMENT.

CONSTRUCTION JOINT- WALL TO FOUNDATION DOUBLE LAYER REINFORCING

C / S2

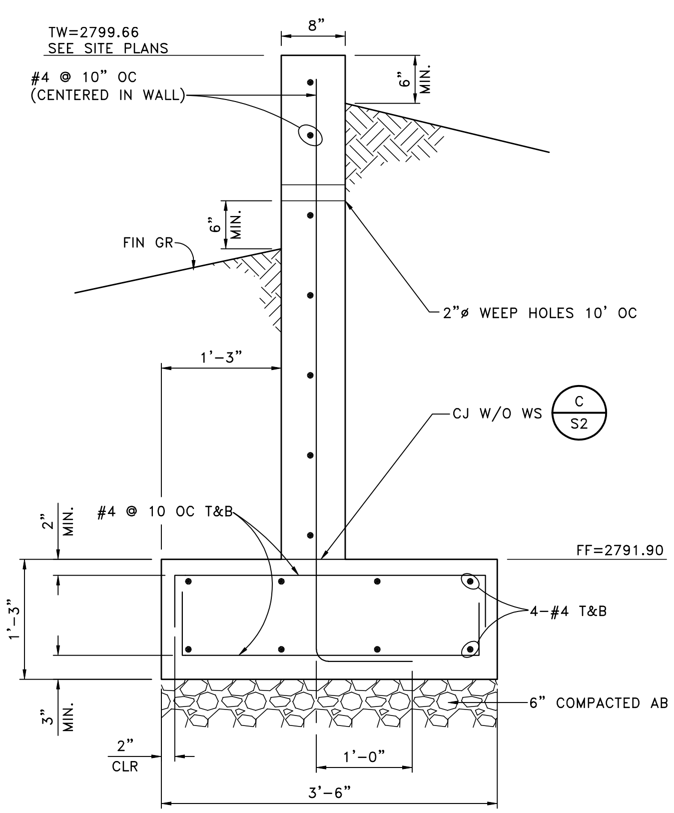
SCALE: NONE



2x6 STOP LOG CONNECTION DETAIL

D / S2

SCALE: 3" = 1'



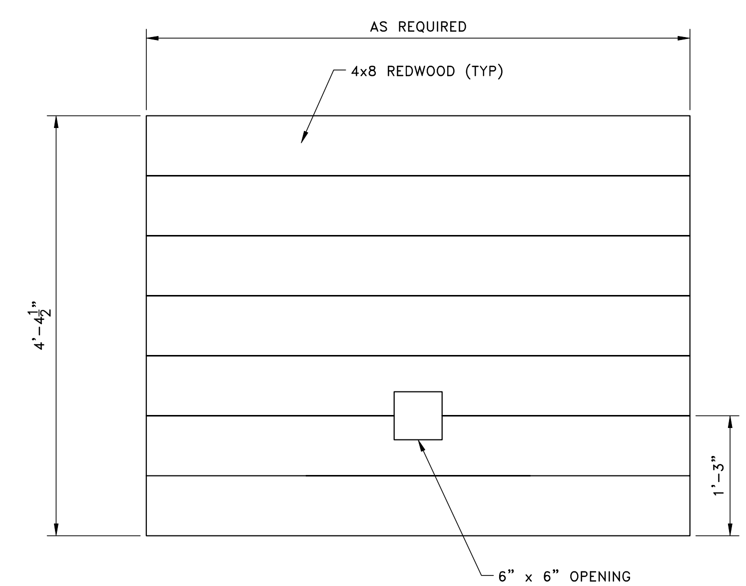
NOTE:

1. REFER TO SITE PLANS FOR THE LOCATION AND LAYOUT.

RETAINING WALL DETAIL

E / S2

SCALE: 1" = 1'



INTAKE STOP LOG ELEVATION

F / S2

SCALE: 1" = 1'

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

02.09.2011

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date
December 13, 2010

Drawing Name

Sheet Title
Miscellaneous Structural Details

Reference North

Job Number
NHYC09-001

Sheet Scale
AS SHOWN

Sheet Number
S2

Sheet 16 of 21

BAR SIZE	GRADE 60 A	GRADE 60 B
#3	17"	22"
#4	22"	29"
#5	28"	36"
#6	33"	43"
#7	48"	63"
#8	55"	72"
#9	62"	81"
#10	70"	91"

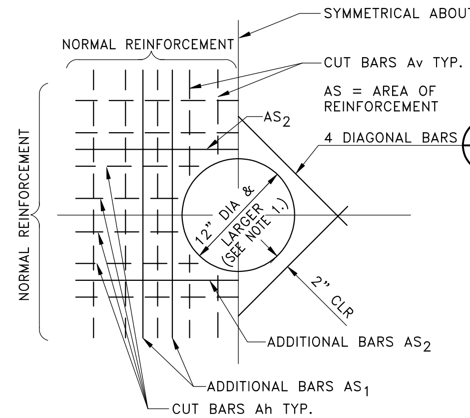
REF: S216, S217

1. THIS DETAIL TO BE USED EXCEPT WHEN NOTED OTHERWISE ON STRUCTURAL DRAWINGS.
2. NORMAL REINFORCEMENT CUT AT OPENING:
   AS_1 = 1/2 TOTAL Av CUT BARS
   AS_2 = 1/2 TOTAL Ah CUT BARS
   TO BE ADDED ON EACH SIDE OF OPENING.
3. DIAGONAL BARS TO BE PLACED:
   a) AT ℄ OF WALL OR SLAB WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   b) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
4. PROVIDE DIAGONAL DOWEL FOR EACH LAYER OF REINFORCEMENT (#4 x 3'-0") U.N.O.
5. LOCATE ADDITIONAL BARS AT MID SPACING BETWEEN CONTINUOUS BARS THAT ARE NOT CUT.

NOTES FOR ADDITIONAL REINFORCEMENT AT OPENINGS

A / S3

SCALE: NONE



FOR REINFORCEMENT SIZES AND LENGTHS SEE A / –

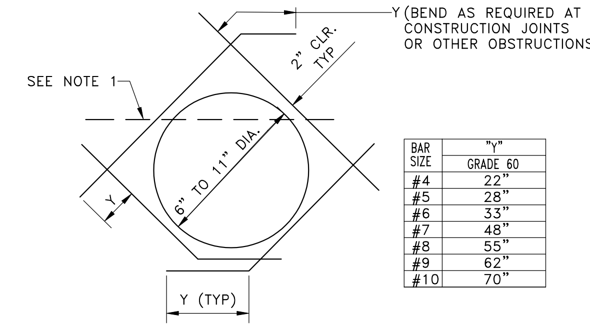
ELEVATION

NOTE:
1. FOR CIRCULAR OPENINGS LESS THAN 12"ø, SEE C / –

ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS

B / S3

SCALE: NONE



BAR SIZE	"Y" GRADE 60
#4	22"
#5	28"
#6	33"
#7	48"
#8	55"
#9	62"
#10	70"

1. CUT TYPICAL REINFORCEMENT AT OPENING.
2. DIAGONAL BARS TO BE PLACED:
   a) AT ℄ OF WALL OR SLAB WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   b) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. UNLESS OTHERWISE NOTED, SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST REINF. CUT.
4. USE THIS DETAIL FOR ALL CIRC. OPENINGS 6" THROUGH 11" U.N.O. ON THE STRUCT. DWGS.

DIAGONAL REINFORCEMENT AT CIRCULAR OPENINGS

C / S3

SCALE: NONE

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER PRIYATOSH RAY NO. C 55236 EXP. 6/30/2012 CIVIL STATE OF CALIFORNIA
02.09.2011

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date: December 13, 2010
Drawing Name

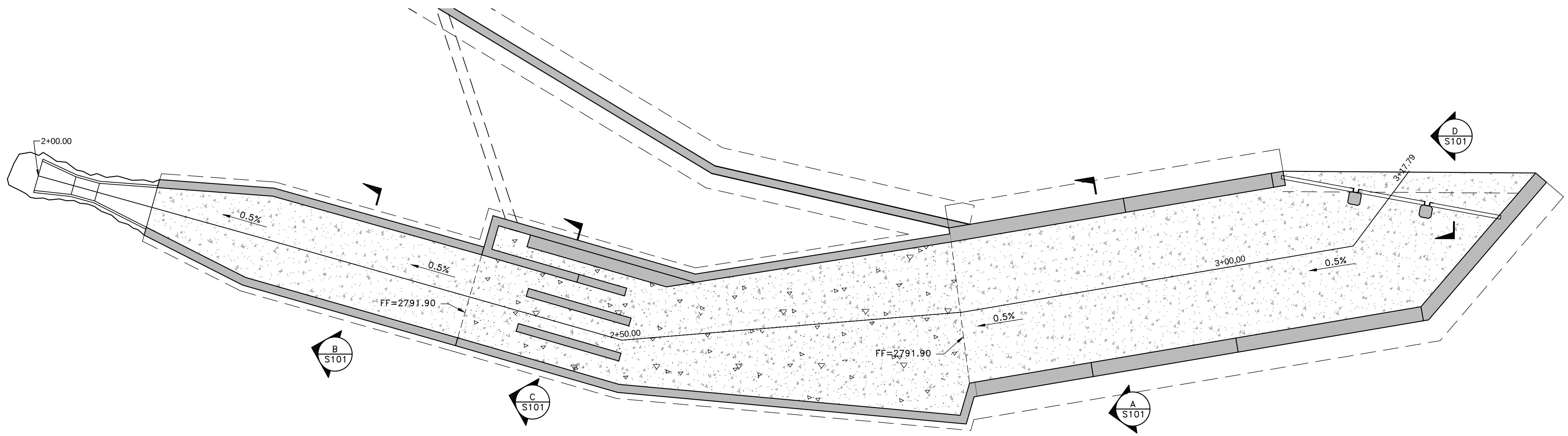
Sheet Title
Miscellaneous Structural Details

Reference North

Job Number: NHYC09-001

Sheet Scale: AS SHOWN

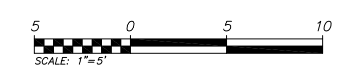
Sheet Number: **S3**



STRUCTURAL PLAN

SCALE: 1" = 5'

A
S100



STRUCTURAL PROFILE

SCALE: 1" = 5'

B
S100

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC
ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER
PRIYATOSH RAY
NO. C 55236
EXP. 6/30/2012
CIVIL
STATE OF CALIFORNIA
02.09.2011

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date: December 13, 2010
Drawing Name

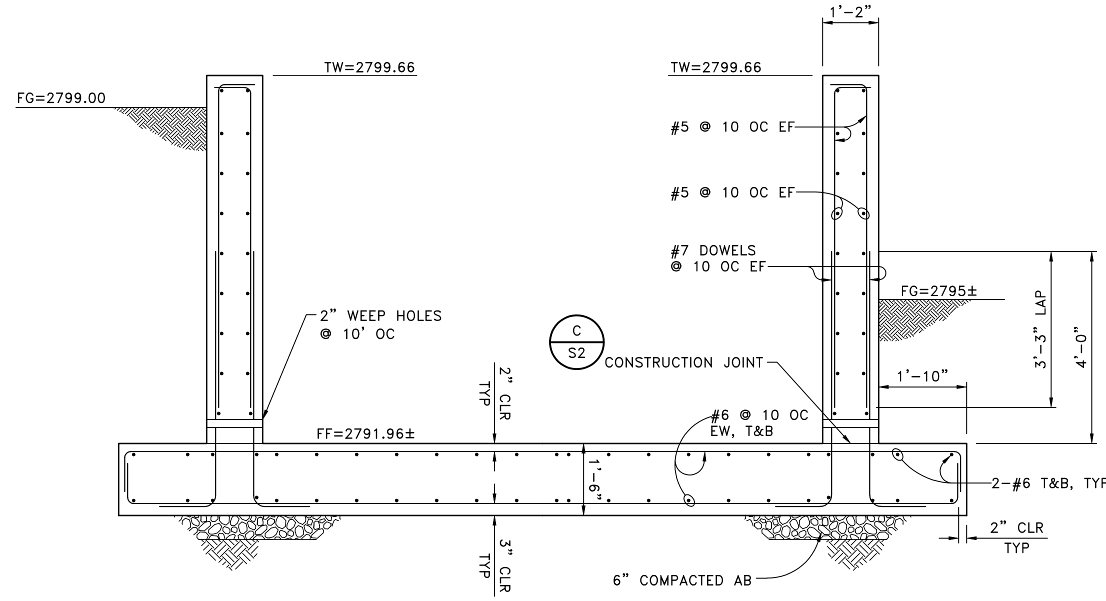
Sheet Title
Structural Plan and Profile

Reference North

Job Number: NHYC09-001

Sheet Scale: AS SHOWN

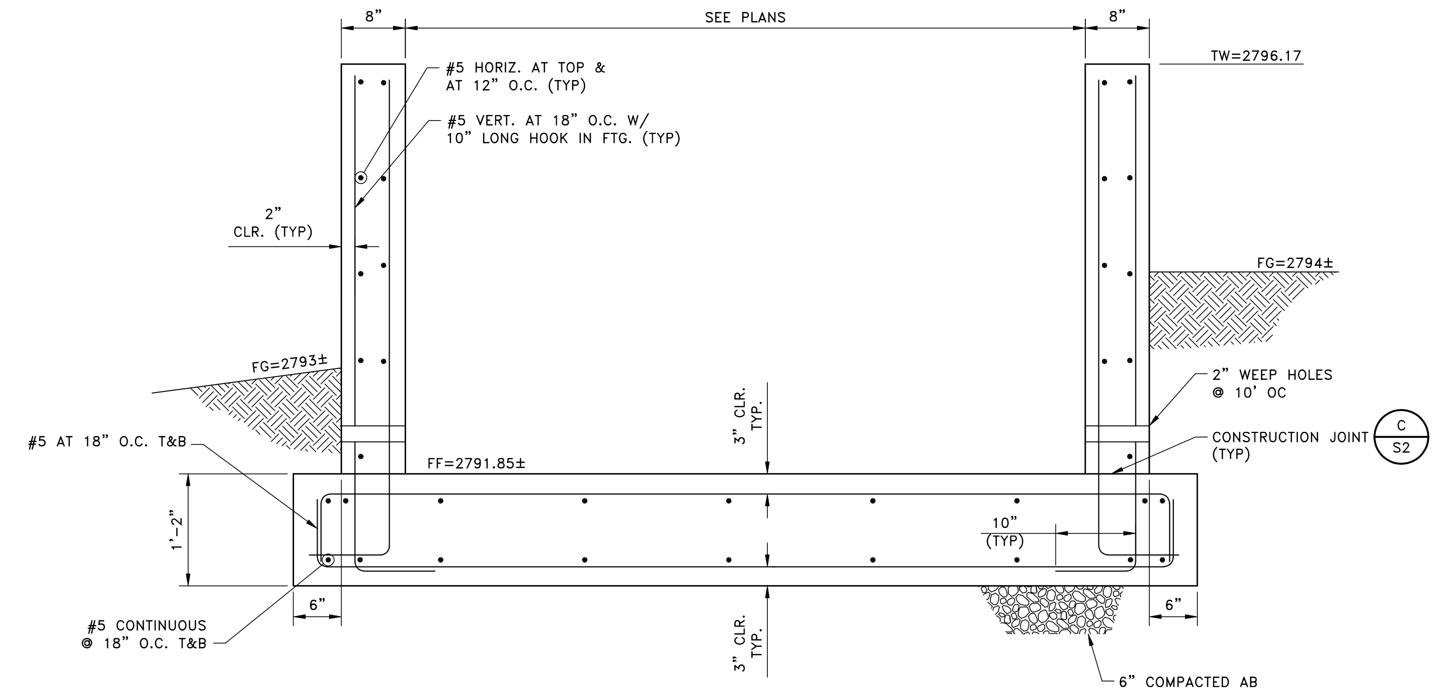
Sheet Number
S100



CONCRETE CHANNEL SECTION

A S101

SCALE: 1/2" = 1'



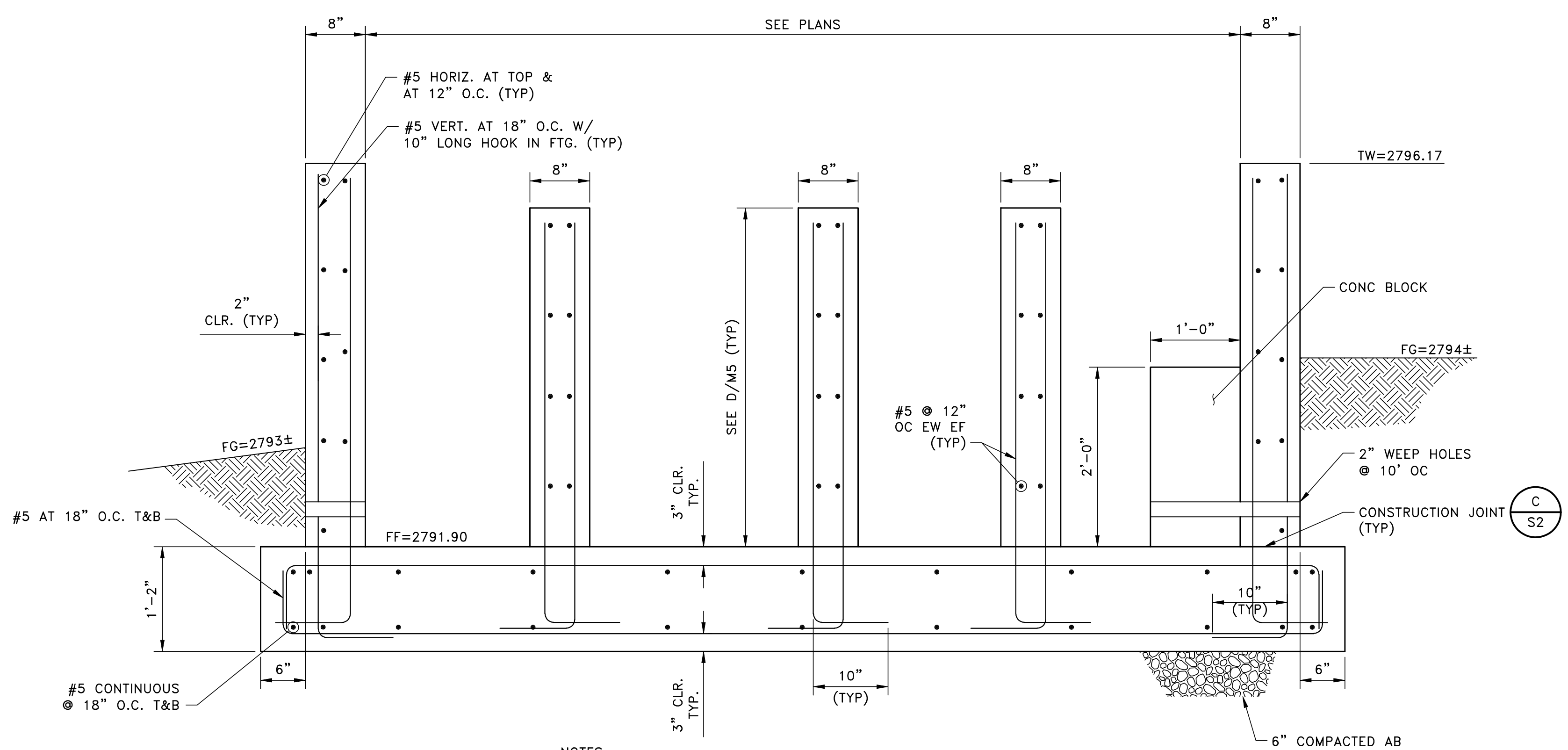
NOTES:

1. SEE SITE PLANS FOR LOCATION, ORIENTATION AND DIMENSIONS OF RECTANGULAR CONCRETE CHANNELS AND INTAKE/FISH SCREEN STRUCTURES.

CONCRETE CHANNEL SECTION

B S101

SCALE: 1" = 1'



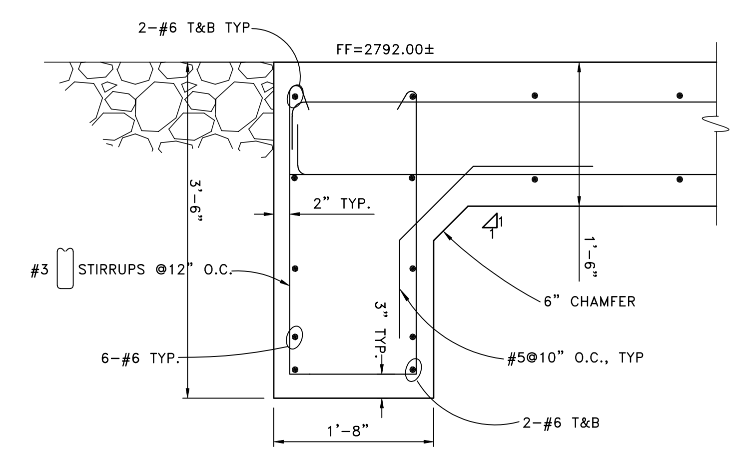
NOTES:

1. SEE SITE PLANS FOR LOCATION, ORIENTATION AND DIMENSIONS OF RECTANGULAR CONCRETE CHANNELS AND INTAKE/FISH SCREEN STRUCTURES.

CONCRETE CHANNEL SECTION

C S101

SCALE: 1" = 1'



NOTES:
1. DIMENSIONS AND ELEVATIONS SHOWN IN PARENTHESES ARE FOR SEDIMENT SLUICE CHANNEL.

EDGE BEAM DETAIL

D S101

SCALE: 1" = 1'

Project
Little Shasta River Fish Passage Improvement Project

Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER PRIYATOSH RAY NO. C 55236 EXP. 6/30/2012 CIVIL STATE OF CALIFORNIA

02.09.2011

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
MSW	DSK/DAD	JRH	DSK

Date
December 13, 2010

Drawing Name

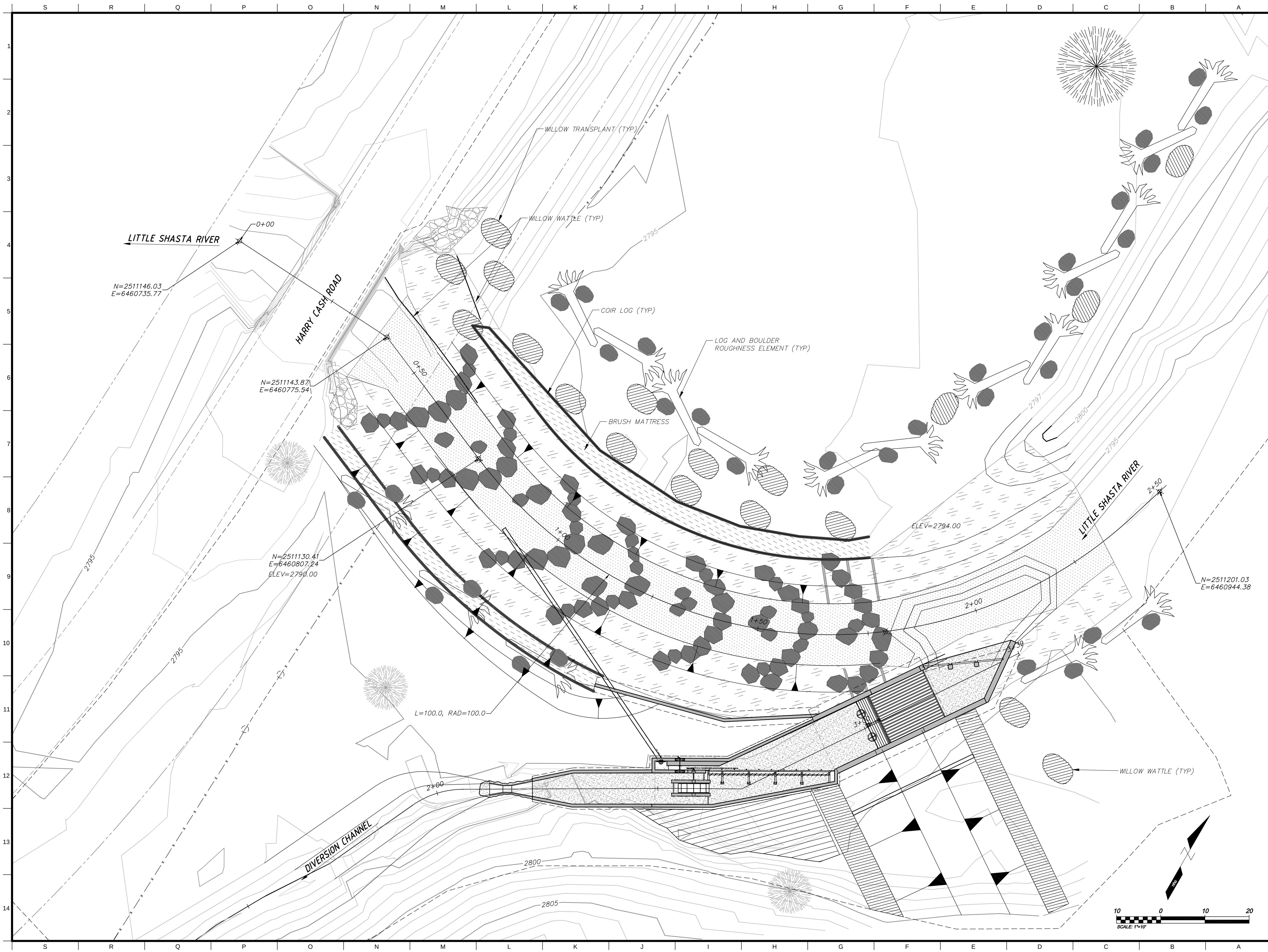
Sheet Title
Concrete Channel Sections

Reference North

Job Number
NHYC09-001

Sheet Scale
AS SHOWN

Sheet Number
S101



Project
Little Shasta River
Fish Passage
Improvement Project
Hart Water Diversion

Client / Agency

ECO:LOGIC
ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

REGISTERED PROFESSIONAL ENGINEER
LEONARD J. HOWARD
No. 53319
Exp: 06/30/11
CIVIL
STATE OF CALIFORNIA

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
ljh	jp	jp	

Date
February 14, 2011

Drawing Name

Sheet Title
Planting Sheet

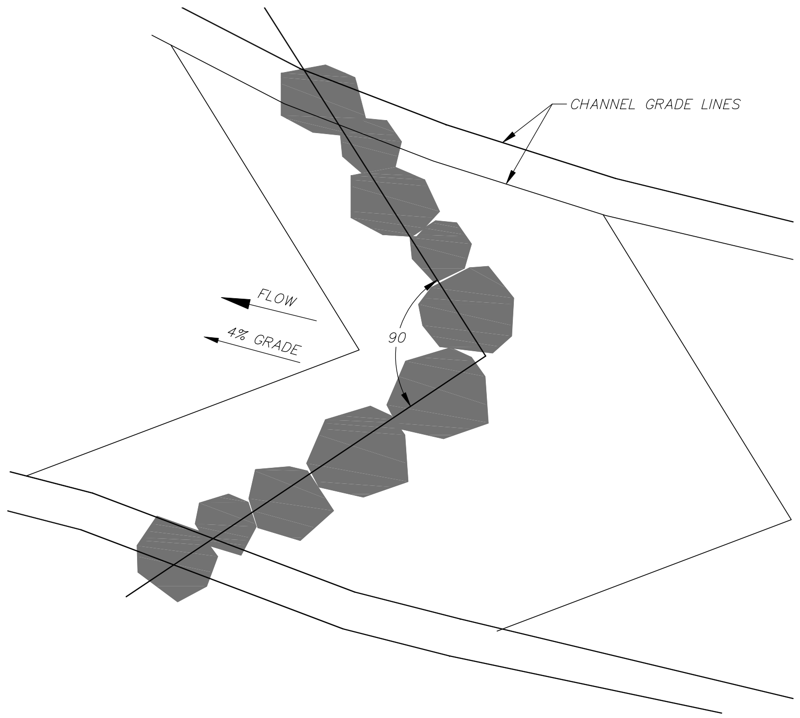
Reference North

Job Number
50555

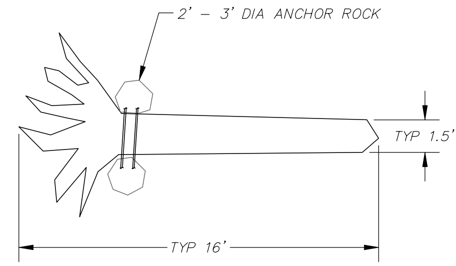
Sheet Scale
1"=10'

Sheet Number
P1

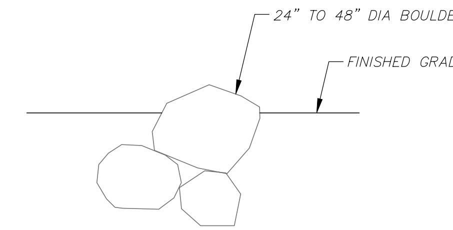
Sheet 20 of 21



A Detail - Boulder Buttress Plan
H:1"=5' V:1"=5'



B Detail - Floodplain Log
H:1"=5' V:1"=5'



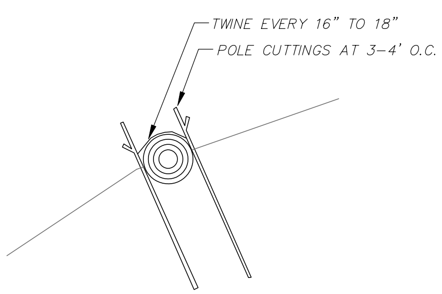
C Detail - BOULDER CLUSTER
H:1"=5' V:1"=5'

NOTES FOR BOULDER ANCHOR:

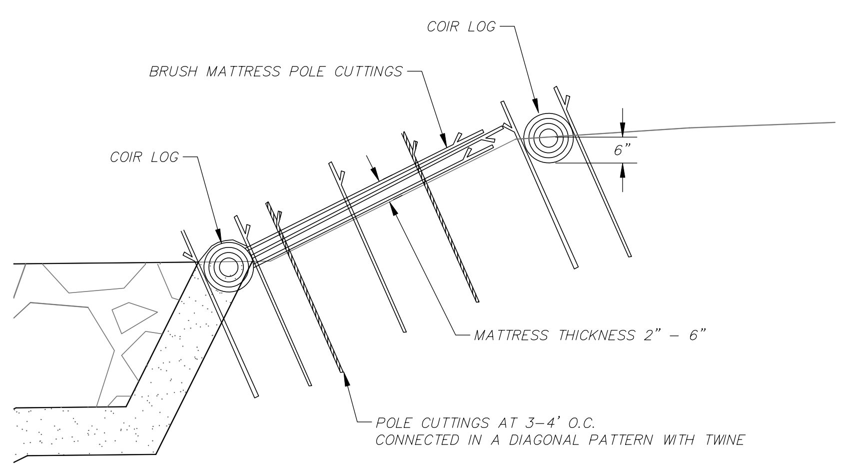
1. EACH BOULDER ANCHOR CONSISTS OF TWO BOULDERS AND TWO CABLES.
2. CABLE SHALL BE SECURED TO BOULDERS THROUGH PRE-DRILLED HOLES USING EPOXY.
3. ANCHOR SHALL BE INSTALLED BY EXCAVATING SUFFICIENT SPACE BELOW THE LOG STRUCTURE TO ALLOW THE BOULDER ANCHOR TO BE DRAPED OVER THE LOG AND HANG ON IT TO TENSION CABLES.

NOTES:

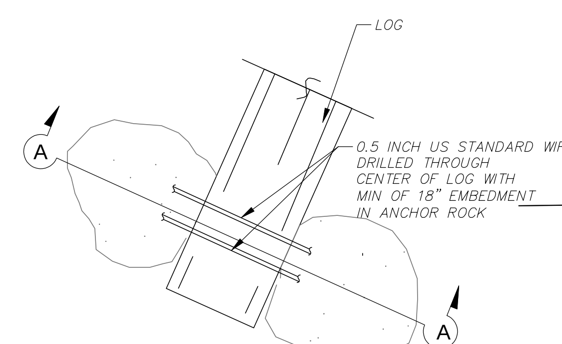
1. LARGE BOULDER BUTTRESSS TO BE PLACED AT LOCATION DIRECTED BY ENGINEER IN THE FIELD. ROCK PLACEMENT FOR REVETMENT AND BOULDER BUTTRESSESS SHALL BE PERFORMED BY PLACING INDIVIDUAL ROCKS WITH AT LEAST 3 POINT BEARING ON UNDERLYING ROCKS. PLACEMENT SHALL BE MADE TO FORM A STABLE MASS WITH SMALLER ROCKS USED TO MINIMIZE VOID SPACE. BEARING OF LARGER ROCKS SOLELY ON SMALLER ROCKS AND PLACEMENT BY DUMPING WILL NOT BE PERMITTED.
2. ALL METAL GATES AND WEIR TO BE CONSTRUCTED WITH GALVANIZED STEEL PER ASTM A123 SPECIFICATION REQUIREMENTS.
3. HARVEST AND PLANT STAKES DURING THE DORMANT SEASON.
4. USE HEALTHY, STRAIGHT AND LIVE WOOD AT LEAST 1 YEAR OLD.
5. MAKE CLEAN CUTS AND DO NOT DAMAGE STAKES OR SPLIT ENDS DURING INSTALLATION, USE A PILOT BAR IN FIRM SOILS.
6. SOAK CUTTINGS FOR 24 HOURS (MIN.) PRIOR TO INSTALLATION.
7. TAMP THE SOIL AROUND THE STAKE.



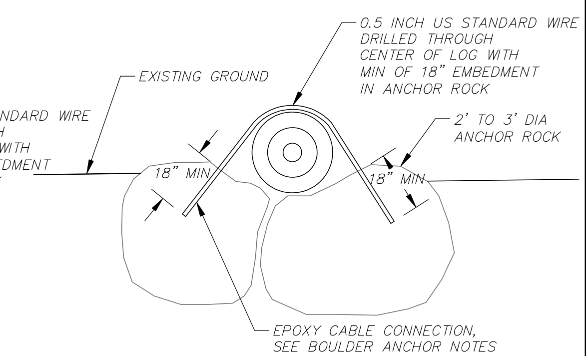
D Detail - Coir Log and Willow Poles
H:1"=2' V:1"=2'



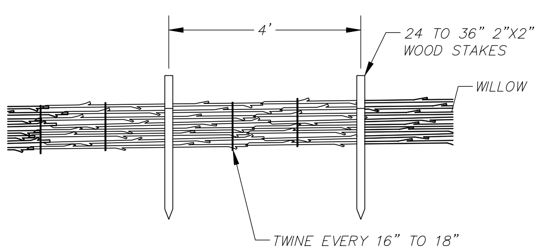
E Detail - Brush Mattress
H:1"=2' V:1"=2'



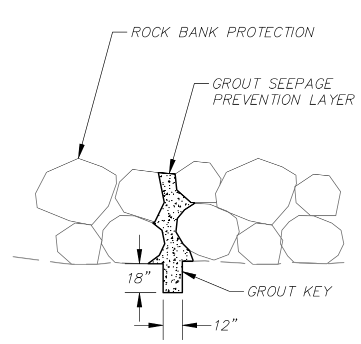
F Detail - Boulder Anchor
H:1"=2' V:1"=2'



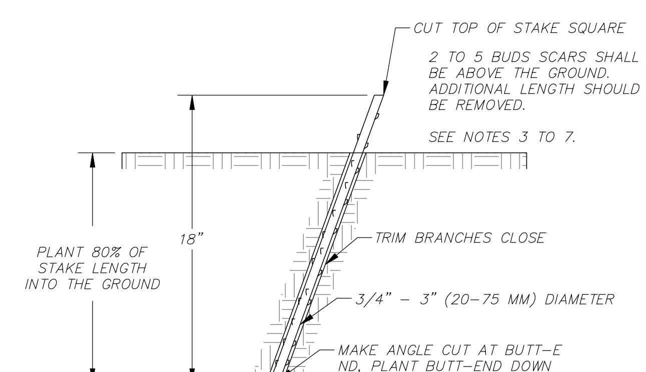
SECTION A - Boulder Anchor
H:1"=2' V:1"=2'



G Detail - Willow Wattle
H:1"=2' V:1"=2'



H Detail - SEEPAGE PREVENTION LAYER
H:1"=5' V:1"=5'



I Detail - Live Staking
H:1"=6" V:1"=6"

Project
Little Shasta River
Fish Passage
Improvement Project
Hart Water Diversion

Client / Agency

ECO:LOGIC ENGINEERS · CONSULTANTS
10381 Double R. Boulevard
Reno, Nevada 89521
Phone: (775) 827-2311
Fax: (775) 827-2316
www.ecologic-eng.com

nhc
northwest hydraulic consultants
3950 industrial boulevard, suite 100c
west sacramento, california 95691-6508
phone: (916) 371-7400
fax: (916) 371-7475
www.nhcweb.com

Issue

No.	Date	Description

Supervisor	Designer	Drafter	Checked
ljh	jp	jp	

Date
February 14, 2011

Drawing Name

Sheet Title
Planting and Boulder Placement Details

Reference North

Job Number
50555

Sheet Scale
AS SHOWN

Sheet Number
P2

Sheet 21 of 21

APPENDIX E

Biological Resources Report for California Environmental Quality Act (CEQA) Initial Study, Hart Ranch
Rabe Consulting
October 2016

Biological Resources Report for California Environmental Quality Act (CEQA) Initial Study

Hart Ranch Project

January 12, 2017

Prepared By: ____________________________ Date: ____________

Andréa Rabe, MS
Senior Environmental Consultant
421 Commercial Street
Klamath Falls, Oregon 97601
andrea@rabeconsulting.com
(541) 891-2137

Rabe Consulting

Contents

1. Introduction

The purpose of this Biological Report is to review the potential effects of the proposed Hart Ranch Project (Project) as required under the California Environmental Quality Act (CEQA) for potential impacts to biological resources including plants, fish and wildlife species, and/or their associated habitats. The biological resources considered include Federal or State listed Threatened, Endangered, or Candidate species and their critical habitats; riparian habitat; and sensitive native and resident, or migratory, fish or wildlife species.

Hart Ranch is located in Siskiyou County, California in Township 44N, Range 5W, Sections 34, 35, and 36 and Township 45N, Range 5W, Sections 1, 2, and 3. The proposed Hart Ranch Flow Enhancement Project is located within the north central portion of the unincorporated area of Siskiyou County, California. This project will be sited primarily at the Hart Ranch, with one component located upstream at the ranch's existing agricultural irrigation diversion on the Little Shasta River as illustrated in Figure 1, Project Location Map.

The overall project objectives are to (1) enhance flow in the Little Shasta River during critical coho salmon migration periods; (2) ensure long-term operation and maintenance of irrigation infrastructure for the Hart Ranch and the Montague Water Conservation District (MWCD); and (3) improve fish passage in the Little Shasta River.

By improving agricultural water infrastructure, water management opportunities, and fish passage in the Little Shasta River, the project intends to improve water quality and coho salmon habitat in the Little Shasta River with a resultant permanent instream dedication of up to 1.5 cfs and permissive dedication of their remaining 22.7 cfs water right by the Hart Ranch while maintaining viable agricultural lands.

2. Description of the Proposed Action

<u>Current Conditions</u>

The Hart Ranch Project, which consists of 65 acres of the 4,698-acre ranch, is privately owned and is operated primarily for beef cattle production, including extensive irrigation of forage and pasture. The Ranch lies within the Little Shasta River watershed and holds certain rights to Little Shasta River water, which are used with other water entitlements and groundwater for irrigation and livestock watering. All components of this project are located on existing active agricultural lands which are zoned for agricultural use by Siskiyou County.

Currently, Hart Ranch has a point of diversion on the Little Shasta River to deliver priority rights water to the ranch. The point of diversion is located upstream of Hart Ranch's northeastern boundary. Diverted water travels to the ranch through a large diversion ditch, then into a series of irrigation ditches within the ranch property. A portion of the Little Shasta River flows through the northwestern corner of the ranch.

Proposed Action

The Hart Ranch Flow Enhancement Project consists of the following elements, the locations of which are identified in Figure 1. All components are located on the Hart Ranch (41° 41' 25.85"N latitude, 122° 22' 51.11"W longitude). More details of the proposal can be found in CEQA document.

1) Stockwater Improvement: This project component is located on the Hart Ranch along Harry Cash Road south of the Little Shasta River. This component of the project consists of (1) retrofitting of an existing groundwater well a new pump and motor; (2) two new water storage tanks approximately 10,000 gallons in size; (3) installation of approximately 22,556 linear feet of underground PVC pipe connection to 20 stockwater troughs; (4) installation of approximately 7,500 linear feet of riparian grazing management fencing; and (5) riparian planting along the Little Shasta River for a distance of approximately 14,500 linear feet; and (6) approximately 14,850 linear feet of cross fencing in existing pastures.

2) Hart Ranch Main Pipeline Replacement: This component of the project includes replacement of the existing main canal earthen ditch and failing pipeline with approximately 7,280 linear feet of underground PVC pipe with risers, valves, flow meter, and connection to existing groundwater wells, for improved water management opportunities and flood irrigation of the eastern portion of the Ranch.

3) Montague Water Conservation District Canal Improvements: This component of the project is located along the Montague Water Conservation District (MWCD) main canal which bisects the Hart Ranch. The project's southern terminus is at Hart Road and is along the canal north.

4) Fish Passage Improvements: This component of the project includes (1) removal of the existing concrete dam, fish screen and old fish ladder walls along the Little Shasta River; (2) construction of approximately 105 linear feet of roughened channel with large boulder clusters and buttresses at a 2.5 - 3 percent grade, that provides fish passage opportunities; (3) modification of the agricultural diversion for the Hart Ranch (4) construction of a new cast-in-place concrete diversion structure with fish screen and fish return bypass that meets current NOAA and CDFW fish protection criteria; and (5) revegetation of the site.

Work will be conducted during the low flow period of August 15 to October 15. Stream flows during this period are anticipated to be less than about 3 cfs. Pumps will be used when necessary to remove ground water seepage into the isolated work area. Pumped ground water seepage will be spread over existing floodplain areas and allowed to infiltrate into the ground without causing river turbidity to increase. River flows will be diverted around the roughened channel and diversion structure intake during construction and will be returned to the newly constructed channel as soon as these portions of the work are complete. It is anticipated the project reach will be dewatered for less than 6 weeks. Prior to grading activities, the contractor will salvage and store existing vegetation cuttings and willow transplants to be replanted following project completion.

3. Pre-Field Review

The NOAA Fisheries website was consulted on August 10, 2016, and the U.S. Fish and Wildlife Service website was consulted on August 10, 2016 to identify a list of federally proposed and listed Endangered and Threatened species that may be present or exhibit habitat in the area of the proposed Project. The project is located in Siskiyou County and species identified in the search are listed in Tables 1 and 2 in Appendix B.

The California Department of Fish and Wildlife website and a 7.5' 9-quadrangle search of the California Natural Diversity Database was conducted on August 8, 2016 for a list of species the State of California has listed as Threatened, Endangered, or Candidate potentially occurring or exhibiting habitat in or around the project site. The project is located primarily in the Little Shasta quadrangle, with a small portion of the eastern extent of the project area occurring in the Solomon's Temple quadrangle, resulting in the need to search 12 quadrangles, not 9. The search included the following 12 7.5'-quadrangles: China Mountain, Gazelle, Hotlum, Juniper Flat, Lake Shastina, Little Shasta, Montague, Solomon's Temple, Grass Lake, Panther Rock, The Whaleback and Weed. All species identified in the search are listed in Tables 1 and 2 in Appendix B.

The U.S. Fish and Wildlife Service website was consulted on August 10, 2016 identified a list of birds protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. This list is found in Table 3 in Appendix B.

Federal or State species that may be present, or potentially have habitat present, in or near the project site are also listed below in an abbreviated table. These species were specifically targeted in the field survey on August 24, 2016.

Scientific Name	Common Name	State Status	Federal Status*	Federal Critical Habitat Present?	California Rare Plant Rank or CDFW Status**	General Habitat Description
Carex atherodes	Wheat sedge	None	None	None	2B.2	Marshes and moist prairie, seasonally wet meadows, pinyon and juniper woodland
Scirpus pendulus	Pendulous bulrush	None	None	None	2B.2	Marshes, wet meadows, ditches
Emys marmorata	Western pond turtle	None	None	None	SSC	Permanent water with basking sites (ponds, ditches, streams)
Rana pretiosa	Oregon spotted frog	None	Threatened	None	None	Wetlands, lakes and slow-moving streams
Oncorhynchus kisutch	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	Designated	None	Shasta River and tributaries
Oncorhynchus mykiss irideus	steelhead - Klamath Mountains Province DPS	None	Threatened	None	SSC	Shasta River and tributaries
Oncorhynchus tshawytscha	Chinook salmon-upper Klamath and Trinity Rivers ESU	None	None	None	SSC	Shasta River and tributaries
Agelaius tricolor	tricolored blackbird	None	None	No	SSC	Colonial breeder near freshwater, preferably in emergent wetland with tall, dense cattails or tules; also thickets of willow, blackberry, wild rose, tall herbs. Feeds in grass/crop lands.
Buteo swainsoni	Swainson's hawk	Threatened	MBTA	None	None	Open grassland/croplands

						with scattered large trees/groves.
Chlidonias niger	black tern	None	None	No	SSC	Loosely colonial breeders; Breeds in freshwater wetlands or dry ground, other abandoned nests (muskrat, coot, grebe); emergent wetland, lakes, ponds, moist grasslands, ag fields; insect and small aquatic prey
Circus cyaneus	Northern harrier	None	None	None	SSC	Nests on ground in shrubby veg, usually at marsh edge. Meadows, grasslands, open rangelands, fresh & saltwater emergent wetlands.
Contopus cooperi	Olive-sided flycatcher	None	MBTA	None	None	Montane & coniferous forests, forest edge meadows/ponds.
Empidonax traillii	Willow flycatcher	None	MBTA	None	None	Moist, shrubby areas near water
Grus canadensis tabida	greater sandhill crane	Threatened	None	None	FP	Wet meadow, emergent wetlands; croplands
Haliaeetus leucocephalus	bald eagle	Endangered	Delisted, BGEPA, MBTA	None	FP	Near large water bodies, rivers with adjacent perches
Lanius ludovicianus	Loggerhead shrike	None	MBTA	None	None	Open country with spiny shrubs/low trees, ag fields, riparian
Selasphorus rufus	Rufous hummingbird	None	MBTA	None	None	Open shrub or forested areas, mountain meadows.
Stellula calliope	Calliope hummingbird	None	MBTA	None	None	Open montane forest, mountain meadows, willow/alder thickets.

Taxidea taxus	American badger	None	None	None	SSC	Herbaceous or shrub, must have friable soils; primarily rodent prey
*MBTA = Migratory Bird Treaty Act, BGEPA = Bald and Golden Eagle Protection Act **2B.2 = Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California, SSC = CDFW Species of Special Concern, FP= CDFW Fully Protected						

4. Field Survey Results

On August 24, 2016, Andréa Rabe (PWS and Botanist) and Trisha Roninger (Wildlife Biologist) surveyed the project impact area. The project impact area was defined as the project footprint with a 25 ft buffer. The MWCD canal was surveyed with the canal footprint and a 50 ft buffer, from the northern to southern property line of Hart Ranch. The portions of the MWCD canal outside of the Hart Ranch were not surveyed. The survey area at the diversion is 0.16 acres. The survey area within Hart Ranch is 41.5 acres with an additional 4.7 miles of MWCD canal.

Sparse riparian vegetation is present along the irrigation ditches and canals within the proposed project area. The riparian vegetation along the irrigation canals consists of bulrush and cattails along with other sedges and rushes in a narrow band a few inches (1-8 inches) wide along the high water line of the canals. The canal banks are steep and do not allow for a riparian bench. The smaller irrigation ditches exhibit mostly grasses with few sedges and rushes at their ordinary water line.

The Little Shasta River exhibits dense shrub and tree growth in the riparian area, with little to no understory. The shrubs include multiple species of willows.

A 7.5 acre area along the eastern toe of Dorris Hill exhibits bulrush and cattail marsh. This marsh area is wetland seasonally and in large part receives water from the irrigation ditch tailwater. The marsh does not exhibit open water areas. The marsh is about 95% wetland plant cover with 5-10% cover of litter.

The upland area around Dorris Hill and upslope toward the summit exhibit sparse sagebrush scrub with limited bunch grass cover (less than 25%). The area is rocky and exhibits areas of bare soil. The lower elevation areas below the slopes of Dorris Hill are fields are primarily permit pasture exhibiting pasture grasses or alfalfa fields used for hay production. Both of the field types are flood irrigated, but generally do not exhibit wetland features.

<u>Plants</u>
Wheat sedge and pendulus bulrush were not observed nor was habitat present for either species.

<u>Terrestrial Wildlife Species</u>
Pre-field visit data indicates that habitat is potentially present for tricolored blackbirds and black terns. However, upon site visit, it was determined that large galleries of willows or dense blackberry patches

are not present in the study area for nesting tricolored blackbirds, and areas of freshwater wetlands with emergent vegetation are not present in the study area. Therefore, habitat for nesting tricolored blackbirds and black terns is not present in the study area.

American badger, Swainson's hawk, northern harrier, and bald eagle foraging areas are present, but no badger dens, Swainson's hawk, northern harrier, or eagle nests were observed within 660 feet or 0.125 miles of the proposed project site.

The limited size of the riparian areas along the ditches and canals is not typical migratory bird habitat, because it is not large enough to provide adequate cover and/or forage.

There is quality habitat along the Little Shasta River, which was not exhibited along the banks of the ditches and canals, for rufous and calliope hummingbirds, loggerhead shrike, olive-sided flycatcher, and willow flycatcher.

Hart Ranch has breeding habitat for sandhill crane in the wet-open meadows exhibiting bulrush and cattails; approximately 7.5 acres of habitat was identified.

<u>Aquatic Wildlife Species</u>
No Oregon spotted frogs were observed. No slow water or back water areas with breeding habitat components were present in the river adjacent to the proposed fish screen location or in the vicinity of the current diversion. The ditch banks are moderately steep without shelves and do not provide flat areas where breeding frogs can lay eggs. Vegetation along the ditch banks is grazed and there is not adequate thatch to provide surfaces for egg laying to occur. Therefore, the ditches are not breeding habitat.

No basking structures for western pond turtles were observed in the river adjacent to the proposed fish screen location or in the vicinity of the current diversion. The ditches are not habitat as the ditch banks are sloped at greater than 10:1 and do not exhibit basking sites.

Surveys were not conducted for fish; however, the Little Shasta River is known habitat for coho salmon, steelhead and chinook salmon.

<u>Wetlands and Riparian Areas</u>
A wetland delineation was also conducted on August 24, 2016. The delineation identified jurisdictional wetlands. The results of the wetland delineation are documented in the wetland delineation report (a separate document), which includes maps of the wetland areas and data forms.

Riparian vegetation is present along the segments of the Little Shasta River and along some irrigation canals within the proposed project area.

5. Effects of the Proposed Project

After the field review on August 24, 2016, it was determined that the following species have habitat in or immediately adjacent to the proposed project footprint: sandhill crane, rufous hummingbird, calliope hummingbird, loggerhead shrike, olive-sided flycatcher, willow flycatcher, coho salmon, and steelhead.

Rufous and Calliope hummingbirds, loggerhead shrike, olive-sided flycatcher, and willow flycatcher are dependent upon riparian vegetation such as alders and willows. Riparian vegetation will be affected by the proposed project; however, these effects will be short-term in nature and will only occur within the project footprint. Riparian vegetation is available immediately adjacent to the project site. As mitigation, prior to grading activities, the contractor will salvage and store existing vegetation cuttings and willow transplants to be replanted following the project completion. The project will not create any obstructions to flight patterns. Therefore, any short-term impacts to listed riparian-dependent species are less than significant with incorporation of all of the relevant protection measures.

Approximately 7.5 acres of sandhill crane nesting habitat is present within the project area on Hart Ranch and identified on Figure 2. The field visit was not conducted during the time of year when cranes would be nesting; however, given that the habitat is available, it is assumed it will be occupied during the nesting season. Nesting habitat will not be affected by the project; however, activities are scheduled to occur immediately adjacent to the habitat and could result in disturbance to the nesting individuals. A seasonal limited operating period will be placed on construction activities within 500 feet of the nesting habitat on Figure 2 from March 1 to June 30; therefore, no construction activities will occur during this window of time in this area, minimizing disturbance to nesting cranes. Any short-term impacts to sandhill cranes are less than significant with incorporation of the limited operating period.

Oregon spotted frog breeding habitat is not present in the ditches on Hart Ranch or at the point of diversion on the Little Shasta River. Ditches may be used for dispersal movements by frogs when the ditches are in use and full of water. However, short-duration construction work will not occur in the ditches when they are full, as construction will occur in or crossing the ditches outside of the irrigation season when the ditches are dewatered. The proposed action will change the timing of the water delivery in the future, but will not directly impact frog habitat; therefore, impacts to the Oregon spotted frog are less than significant.

Coho salmon (southern Oregon / northern California ESU), steelhead (Klamath Mountains Province DPS) and chinook salmon (upper Klamath and Trinity Rivers ESU) are present in the Little Shasta River. Any impacts to fish habitat are temporary and of short duration, and will have long-term benefits to fish habitat. This component of the project includes (1) removal of the existing concrete dam, fish screen and old fish ladder walls along the Little Shasta River; (2) construction of approximately 105 linear feet of roughened channel with large boulder clusters and buttresses at a 2.5 - 3 percent grade, that provides fish passage opportunities; (3) modification of the agricultural diversion for the Hart Ranch (4) construction of a new cast-in-place concrete diversion structure with fish screen and fish return bypass that meets current NOAA and CDFW fish protection criteria; and (5) revegetation of the site.

All potential impacts to federally listed coho salmon and steelhead from moving the fish screen, piping the ditches, and installing new headgates and flow meters were consulted upon and addressed in the 2012 Biological Opinion issued by NOAA Fisheries pertaining to future U.S. Army Corps of Engineers permits within the Siskiyou and other northern California counties. All relevant protection measures identified in the Biological Opinion (NOAA Fisheries 2012) will be implemented to minimize impacts to listed fish species and their habitat to minimize impacts to listed fish and will be insignificant. A complete list of these protective measures can be found in Appendix C. The general construction season for instream work will be during the low flow period of August 15 to October 15 outside of spawning, incubation, and rearing periods of listed fish. Restoration, construction, fish relocation, and dewatering activities within any wetted or flowing stream channel will occur within this period. Therefore, any short-term impacts associated with construction to listed fish species are less than significant with incorporation of all of the relevant protection measures and have a long-term benefit to the species.

Any potential impacts to jurisdictional wetlands permitted through a Section 404 permit from the Army Corps of Engineers will be temporary and restored to pre-project conditions. Temporary wetland impacts are discussed in the wetland delineation report (a separate document).

6. Determinations

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<u>IV. BIOLOGICAL RESOURCES:</u> Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

7. References Cited

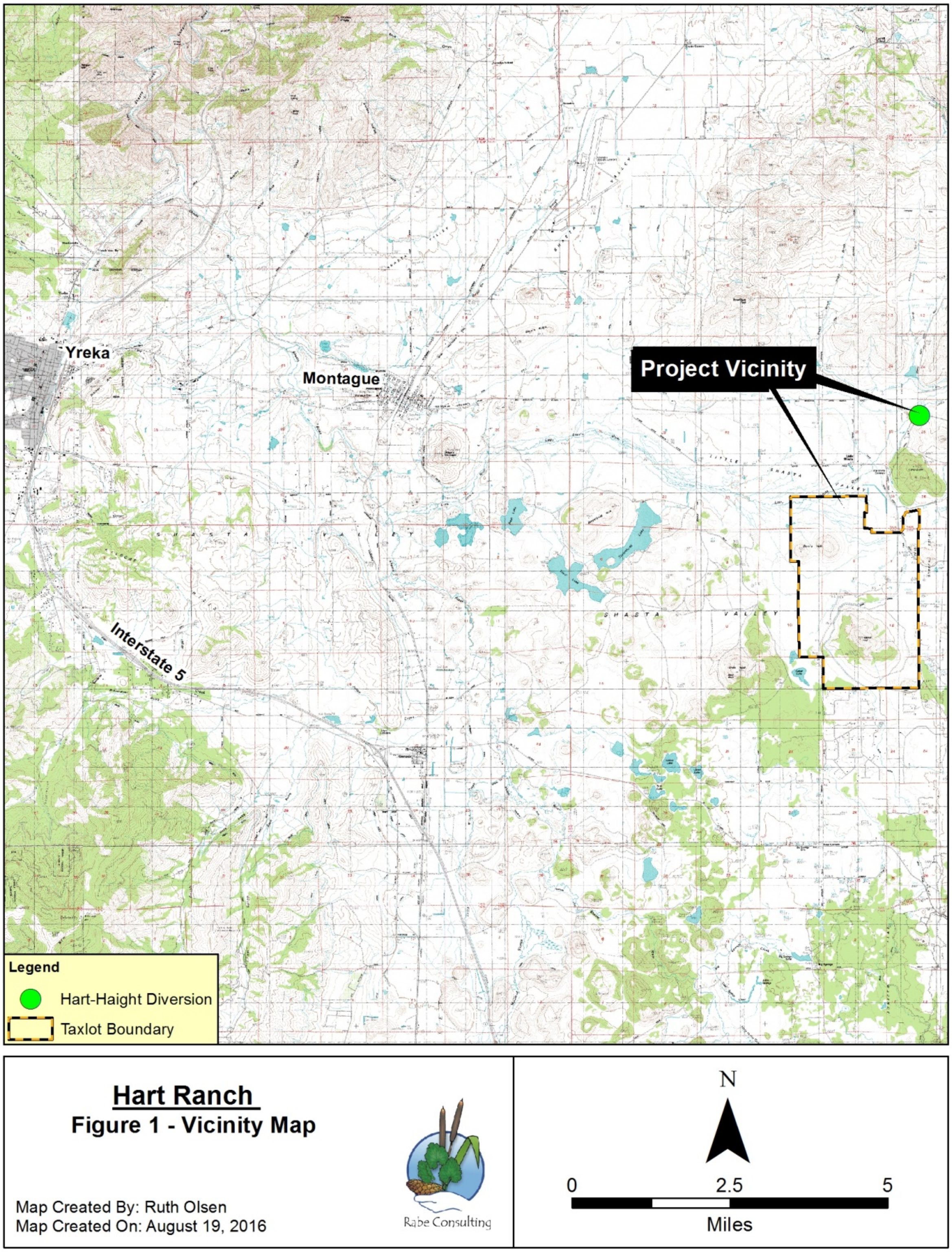
California Natural Diversity Database. 2016. Accessed on August 8, 2016. http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

NOAA Fisheries. 2012. NOAA's National Marine Fisheries Service's (NMFS) final biological opinion (enclosure 1) and Essential Fish Habitat (EFH) consultation (enclosure 2) pertaining to the NOAA's Restoration Center's proposed funding and the U.S. Army Corps of Engineers proposed permitting of restoration projects within the National Marine Fisheries Service's Northern California Office jurisdictional area from 2012 through 2022. Issued March 21, 2012.

NOAA Fisheries. 2016. Website was consulted on August 10, 2016. http://www.nmfs.noaa.gov/pr/species/esa/listed.htm

U.S. Fish and Wildlife Service. 2016. IPaC website was accessed on August 10, 2016. https://ecos.fws.gov/ipac/

Appendix A – Maps

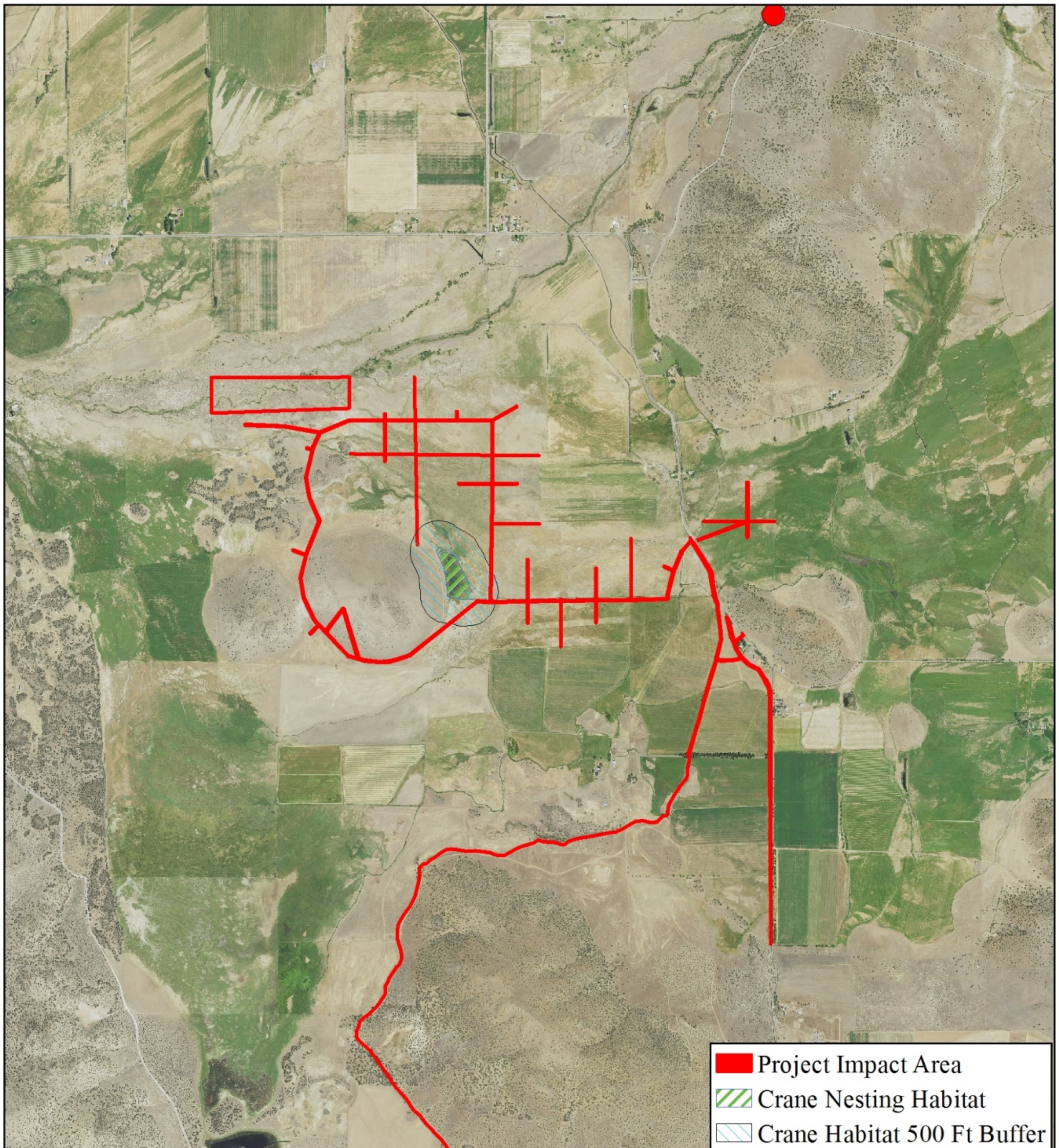


Hart Ranch

Figure 1 - Vicinity Map

Map Created By: Ruth Olsen
Map Created On: August 19, 2016

Rabe Consulting



Hart Ranch Project

Figure 2 - Sandhill Crane Nesting Habitat and 500-foot No Disturbance Buffer

Rabe Consulting

Map Created By: Ruth Olsen
Map Created On: August 22, 2016

N

0 0.65 1.3
Miles

Appendix B – Species Lists

Table 1. Sensitive Status Vascular Plant Species

Scientific Name	Common Name	State Status	Federal Status	Federal Critical Habitat Present?	California Rare Plant Rank*	General Habitat Description	Habitat Potentially Present?	Species Presence Known?
Fritillaria gentneri	Gentner's fritillary	None	Endangered	None designated	None	Open oak or madrone woodland, chaparral/grassland habitat	No	No
Chamaesyce hooveri	Hoover's spurge	None	Threatened	No	None	Vernal pools	No	No
Orcuttia tenuis	slender orcutt grass	None	Threatened	No	None	Vernal pools	No	No
Phlox hirsuta	Yreka phlox	Endangered	Endangered	None designated	1B.2	Serpentine talus, montane conifer	No	No
Alisma gramineum	grass alisma	None	None	None	2B.2	Fresh or brackish marshes and swamps, vernal pools	No	No
Allium siskiyouense	Siskiyou onion	None	None	None	4.3	Serpentine and rocky soils; lower- and upper montane coniferous forest	No	No
Androsace filiformis	slender-stemmed androsace	None	None	None	2B.3	Upper montane coniferous forest, meadows and seeps	No	No
Anthoxanthum nitens ssp. nitens	nodding vanilla-grass	None	None	None	2B.3	Wet meadows, seeps	No	No
Balsamorhiza lanata	woolly balsamroot	None	None	None	1B.2	Foothill (Cismontane) woodland; Open woods with grassy slopes, full sun, rocky, volcanic; blooms M12M51Apr-Jun.	No	No

Betula glandulosa	dwarf resin birch	None	None	None	2B.2	High altitude streams, meadow edges and in shrublands.	No	No
Calochortus greenei	Greene's mariposa-lily	None	None	None	1B.2	Volcanic; cismontane woodland, meadows and seeps, pinyon and juniper woodland, upper montane coniferous forest	No	No
Calochortus monanthus	single-flowered mariposa-lily	None	None	None	1A	Meadows and seeps; presumed extinct. Single specimen found on the banks of the Shasta River near Yreka	No	No
Campanula scabrella	rough harebell	None	None	None	4.3	Bare talus slopes	No	No
Carex atherodes	**wheat sedge**	**None**	**None**	**None**	**2B.2**	**Marshes and moist prairie, seasonally wet meadows, pinyon and juniper woodland**	**Yes**	**No**
Carex geyeri	Geyer's sedge	None	None	None	4.2	Mountain meadows, grasslands, open forest slopes	No	No
Carex klamathensis	Klamath sedge	None	None	None	1B.2	Serpentine soil; fens or other wet habitats	No	No
Chaenactis suffrutescens	Shasta chaenactis	None	None	None	1B.3	Grows in coniferous forests, sometimes on serpentine soils.	No	No
Collomia tracyi	Tracy's collomia	None	None	None	4.3	Rocky, sometimes serpentite, broad-leafed upland forest, lower montane coniferous forest	No	No
Cordylanthus tenuis ssp. pallescens	pallid bird's-beak	None	None	None	1B.2	Open volcanic alluvium	No	No
Cuscuta jepsonii	Jepson's dodder	None	None	None	1B.2	Parasitic on ceanothus diversifolius and c. prostratus which grow in oak-conifer forests, open flats, volcanic soils.	No	No
Cypripedium californicum	California lady's-slipper	None	None	None	4.2	Margins of woodland streams in mixed-evergreen or conifer forest	No	No

Cypripedium fasciculatum	clustered lady's-slipper	None	None	None	4.2	Serpentine seeps/streambanks, lower montane and north coast coniferous forests	No	No
Cypripedium montanum	mountain lady's-slipper	None	None	None	4.2	Broad-leafed upland forest, cismontane woodland, lower montane and north coast coniferous forests	No	No
Darlingtonia californica	California pitcherplant	None	None	None	4.2	Mesic, serpentite seeps; bogs and fens, meadows and seeps	No	No
Draba carnosula	Mt. Eddy draba	None	None	None	1B.3	Serpentine outcrops	No	No
Epilobium luteum	yellow willowherb	None	None	None	2B.3	Lower montane coniferous forest, moist streambanks, montane meadows	No	No
Erigeron bloomeri var. nudatus	Waldo daisy	None	None	None	2B.3	Tends to grow on rocky slopes, lava beds, meadows, 2000'-7500' elevation	No	No
Erigeron nivalis	snow fleabane daisy	None	None	None	2B.3	Rocky sites and meadows in open woods and subalpine areas.	No	No
Erigeron petrophilus var. viscidulus	Klamath rock daisy	None	None	None	4.3	Rocky foothills to montane forests, sometimes on serpentine soils	No	No
Eriogonum congdonii	Congdon's buckwheat	None	None	None	4.3	Lower montane coniferous forest, serpentine soils	No	No
Eriogonum siskiyouense	Siskiyou buckwheat	None	None	None	4.3	Lower montane coniferous forest, often serpentine soils	No	No
Eriogonum strictum var. greenei	Greene's buckwheat	None	None	None	4.3	Lower montane coniferous forest, serpentine soils	No	No
Eriogonum umbellatum var. humistratum	Mt. Eddy buckwheat	None	None	None	4.3	Rocky, usually serpentine, alpine boulder field, chaparral, meadows and seeps, upper montane coniferous forest	No	No

Erythronium revolutum	coast fawn lily	None	None	None	2B.2	Coastal; streambanks, bogs, wet forest understory	No	No
Eurybia merita	subalpine aster	None	None	-	2B.3	Dry, open areas at subalpine levels	No	No
Galium serpenticum ssp. scotticum	Scott Mountain bedstraw	None	None	-	1B.2	Lower montane coniferous forest, serpentine soils	No	No
Helianthus exilis	serpentine sunflower	None	None	-	4.2	Gravelly streamsides, often on serpentine soils	No	No
Helodium blandowii	Blandow's bog moss	None	None	-	2B.3	Subalpine coniferous forest; meadows and seeps	No	No
Hesperocyparis bakeri	Baker cypress	None	None	-	4.2	Serpentine or volcanic, chaparral, lower montane coniferous forest	No	No
Hulsea nana	little hulsea	None	None	-	2B.3	Volcanic talus	No	No
Hymenoxys lemmonii	alkali hymenoxys	None	None	-	2B.2	Great basin scrub and lower montane coniferous forest; meadows and seeps (subalkaline)	No	No
Iliamna bakeri	Baker's globe mallow	None	None	-	4.2	Volcanic; mountain slopes, juniper woodland, lava beds	No	No
Ivesia pickeringii	Pickering's ivesia	None	None	-	1B.2	Mesic, clay, usually serpentite seeps. Lower montane coniferous forest meadows and seeps	No	No
Limnanthes floccosa ssp. floccosa	woolly meadow-foam	None	None	-	4.2	Vernally mesic; chaparral, cismontane woodland, valley and foothill grassland, vernal pool edges	No	No
Lomatium engelmannii	Engelmann's lomatium	None	None	-	4.3	Serpentine soils;	No	No
Lomatium peckianum	Peck's lomatium	None	None	-	2B.2	Pine-oak woodlands	No	No
Meesia triquetra	three-ranked hump moss	None	None	-	4.2	Subalpine coniferous forest, upper montane coniferous forest; meadows and seeps, bogs, fens	No	No

Meesia uliginosa	broad-nerved hump moss	None	None	-	2B.2	Subalpine coniferous forest, upper montane coniferous forest; meadows and seeps, bogs, fens	No	No
Minuartia stolonifera	Scott Mountain sandwort	None	None	-	1B.3	Serpentine soils, Jeffery-pine forest	No	No
Opuntia fragilis	brittle prickly-pear	None	None	-	2B.1	Juniper woodland	No	No
Orthocarpus pachystachyus	Shasta orthocarpus	None	None	-	1B.1	Sagebrush scrub, meadows and seeps, valley and foothill grasslands; blooms in May	No	No
Penstemon cinicola	ashy-gray beardtongue	None	None	-	4.3	Volcanic, lower- and upper montane coniferous forest, meadows and seeps	No	No
Penstemon heterodoxus var. shastensis	Shasta beardtongue	None	None	-	4.3	Volcanic, clay loam; broad-leafed upland forest, chaparral, lower- and upper montane coniferous forest, meadows and seeps	No	No
Phacelia cookei	Cooke's phacelia	None	None	-	1B.1	Forest and scrub, sandy, ashy volcanic soil	No	No
Phacelia greenei	Scott Valley phacelia	None	None	-	1B.2	Serpentine soils, coniferous forest	No	No
Phacelia sericea var. ciliosa	blue alpine phacelia	None	None	-	2B.3	Great basin scrub and upper montane coniferous forest	No	No
Phlox hirsuta	Yreka phlox	Endangered	Endangered	-	1B.2	Upper and lower montane coniferous forest; serpentine, talus	No	No
Polemonium carneum	Oregon polemonium	None	None	-	2B.2	Coastal; lower montane coniferous forest	No	No
Polemonium pulcherrimum var. shastense	Mt. Shasta sky pilot	None	None	-	1B.2	Alpine boulder, subalpine- and upper montane coniferous forest	No	No
Potentilla newberryi	Newberry's cinquefoil	None	None	-	2B.3	Marshes and swamps, vernal pools	No	No

Ribes hudsonianum var. petiolare	western black currant	None	None	-	2B.3	moist, wooded areas, mountain streambanks, swamp thickets	No	No
Scirpus pendulus	**pendulous bulrush**	**None**	**None**	**-**	**2B.2**	**Marshes, wet meadows, ditches**	**Yes**	**No**
Sedum divergens	Cascade stonecrop	None	None	-	2B.3	Gravelly flats, slopes, lava beds	No	No
Sedum laxum ssp. flavidum	pale yellow stonecrop	None	None	-	4.3	Gravelly flats, rocky outcrops, elevations 2600'-6600'	No	No
Shepherdia canadensis	Canadian buffalo-berry	None	None	-	2B.1	Streambanks, slopes, upper montane conifer forest	No	No
Thelypodium brachycarpum	short-podded thelypodium	None	None	-	4.2	Alkaline wetland and serpentine soils	No	No
Trifolium siskiyouense	Siskiyou clover	None	None	-	1B.1	Wet mountain meadows	No	No
Triteleia grandiflora	large-flowered triteleia	None	None	-	2B.1	Grassland, sagebrush, pine forests	No	No
Note: California State listed species are identified from California Natural Diversity Database. The project is located in the Little Shasta and Solomon's Temple quadrangles. The 12-quadrangle search included: China Mtn, Gazelle, Hotlum, Juniper Flat, Lake Shastina, Little Shasta, Montague, Solomon's Temple, Panther Rock, Grass Lake, The Whaleback and Weed. Federal species lists are for the entire county.								
* All plants tracked by the CNDDB are assigned to a California Rare Plant Rank category. These categories are: 1A= Plants presumed extinct in California and rare/extinct elsewhere 1B.1= Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California 1B.2= Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California 1B.3= Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California 2A= Plants presumed extirpated in California, but more common elsewhere 2B.1= Plants rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California 2B.2= Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California 2B.3= Plants rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California 3.1= Plants about which we need more information; seriously threatened in California 3.2= Plants about which we need more information; fairly threatened in California 3.3= Plants about which we need more information; not very threatened in California 4.1= Plants of limited distribution; seriously threatened in California 4.2= Plants of limited distribution; fairly threatened in California 4.3= Plants of limited distribution; not very threatened in California								

Table 2. Sensitive Status Animal Species								
Scientific Name	**Common Name**	**State Status**	**Federal Status**	**Federal Critical Habitat Present?**	**CDFW Status***	**General Habitat Description**	**Habitat Potentially Present?**	**Species Present Known?**
Amphibians and Reptiles								
Rana pretiosa	Oregon spotted frog	None	Threatened	No	None	Wetlands, lakes and slow-moving streams	Yes	No
Ambystoma macrodactylum sigillatum	Southern long-toed salamander	None	None	No	SSC	Pine, hardwood-conifer, mixed conifer, montane riparian, red fir and wet meadows.	No	No
Rana cascadae	Cascades frog	None	None	No	SSC	Mountain lakes, small streams, ponds; shallow (standing water) required for breeding; habitats W/O predatory fish	No	No
Emys marmorata	western pond turtle	None	None	No	SSC	Permanent water with basking sites (ponds, ditches, streams)	Yes	No
Birds								
Coccyzus americanus	Yellow-billed cuckoo	Endangered	Threatened	No	None	Wooded habitats with dense cover and water nearby; shrublands and dense thickets	No	No
Strix occidentalis caurina	Northern spotted owl	Candidate Threatened	Threatened	No	SSC	Old growth/mature conifer forest	No	No
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	No	FP	Near large water bodies, rivers with adjacent perches	Yes	No
Accipiter cooperii	Cooper's hawk	None	None	No	WL	Dense stands of live oak, riparian deciduous or other forest habitats near water.	No	No
Accipiter gentilis	northern goshawk	None	None	No	SSC	Mature and old growth forests	No	No

Accipiter striatus	sharp-shinned hawk	None	None	No	WL	Breeds in pine/conifer, oak, riparian deciduous habitats. Forages in openings at edges of woodlands, hedgerows, brushy pasture, shoreline	Yes	No
Agelaius tricolor	tricolored blackbird	None	None	No	SSC	Colonial breeder near freshwater, preferably in emergent wetland with tall, dense cattails or tules; also thickets of willow, blackberry, wild rose, tall herbs. Feeds in grass/crop lands.	Yes	No
Aquila chrysaetos	golden eagle	None	None	No	FP ; WL	Rolling foothills, mountain areas, sage-juniper flats, desert; cliffs or large trees used for nesting	No	No
Ardea herodias	great blue heron	None	None	No	None	Nests in colonies in large snags/trees; forages in shallow estuaries and fresh & saline emergent wetlands, rivers, croplands, pastures, mountains.	Yes	No
Asio otus	long-eared owl	None	None	No	SSC	Riparian habitat required; live oak or dense tree stands	No	No
Athene cunicularia	burrowing owl	None	None	No	SSC	Open, dry grassland and desert habitats; grass, forb and open shrub stages of pinyon-juniper & ponderosa pine habitats	No	No
Bonasa umbellus	ruffed grouse	None	None	No	WL	Valley foothill riparian and surrounding conifer forests	No	No
Buteo swainsoni	Swainson's hawk	Threatened	None	No	None	Open grassland/cropland with scattered large trees/groves	Yes	No
Chlidonias niger	black tern	None	None	No	SSC	Loosely colonial breeders; Breeds in freshwater wetlands or dry ground, other abandoned nests (muskrat, coot, grebe); emergent wetland, lakes, ponds, moist	Yes	No

						grasslands, ag fields; insect and small aquatic prey		
Circus cyaneus	northern harrier	None	None	No	SSC	Nests on ground in shrubby veg, usually at marsh edge. Meadows, grasslands, open rangelands, fresh & saltwater emergent wetlands.	Yes	No
Falco mexicanus	prairie falcon	None	None	No	WL	Perennial grasslands, savannahs, rangeland, some ag fields and desert scrub.	Yes	No
Grus canadensis tabida	greater sandhill crane	Threatened	None	No	FP	Wet meadow, emergent wetlands; croplands. Nesting season March-June.	Yes - summer range	Yes
Larus californicus	California gull	None	None	No	WL	Nests colonially in alkali & freshwater lacustrine habitats; frequents inland lacustrine, riverine and cropland habitats	No	No
Pandion haliaetus	osprey	None	None	No	WL	Large, fish-bearing waters primarily in ponderosa pine and mixed conifer habitats	No	No
Phalacrocorax auritus	double-crested cormorant	None	None	No	WL	Coast, inland lakes, estuaries. Lacustrine & riverine habitats.	Yes	No
Psiloscops flammeolus	flammulated owl	None	None	No	None	Coastal breeder; coniferous habitats with low to intermediate canopy closure	No	No
Riparia riparia	bank swallow	Threatened	None	No	None	Riparian, lacustrine and coastal areas with vertical banks, bluffs and cliffs with fine-textured or sandy soil.	No	No
Crustaceans								
Branchinecta conservatio	Conservancy fairy shrimp	None	Endangered	No	None	Vernal pools	No	No

Branchinecta lynchi	Vernal pool fairy shrimp	None	Threatened	No	None	Vernal pools	No	No
Lepidurus packardi	Vernal pool tadpole shrimp	None	Endangered	No	None	Vernal pools	No	No
Fishes								
Deltistes luxatus	Lost River sucker		Endangered	No	None	Klamath River	No	No
Chasmistes brevirostris	Shortnose sucker		Endangered	No	None	Klamath River	No	No
Oncorhynchus kisutch	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	Yes	None	Shasta River and tributaries	Yes	Yes
Oncorhynchus mykiss irideus	steelhead - Klamath Mountains Province DPS	None	None	No	SSC	Shasta River and tributaries	Yes	Yes
Oncorhynchus tshawytscha	Chinook salmon-upper Klamath and Trinity Rivers ESU	None	None	None	SSC	Shasta River and tributaries		
Mammals								
Taxidea taxus	American badger	None	None	None	SSC	Herbaceous or shrub, must have friable soils; primarily rodent prey	Yes	No
Pekania pennanti	fisher - West Coast DPS	Candidate Threatened	Proposed threatened	No	SSC	Coniferous forest or dense deciduous riparian	No	No
Canis lupus	gray wolf	Endangered	Endangered	No	None	Generalist; ungulate prey & low human presence	No	No
Vulpes vulpes necator	Sierra Nevada red fox	Threatened	None	None	None	Alpine and conifer forests, wet meadows	No	No

Corynorhinus townsendii	Townsend's big-eared bat	Candidate Threatened	None	None	SSC	Caves, mines, tunnels, structures	No	No
Gulo gulo	California wolverine	Threatened	None	None	FP	Douglas-fir and mixed conifer habitats, wet meadow and montane riparian.	No	No
Note: California State listed species are identified from California Natural Diversity Database. The project is located in the Lake Shastina quadrangle. The 9-quadrangle search include: China Mtn, Gazelle, Hotlum, Juniper Flat, Lake Shastina, Little Shasta, Montague, Solomons Temple, and Weed. Federal species lists are for the entire county.								
*The California Department of Fish and Wildlife (CDFW) Status applies to animals only. The possible values for CDFW Status are: **FP Fully Protected**: This classification was the State of California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal endangered species acts. **SSC Species of Special Concern**: It is the goal and responsibility of the Department of Fish and Wildlife to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability. **WL Watch List**: The Department of Fish and Wildlife maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.								

Table 3. Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act Species List			
COMMON NAME	**SCIENTIFIC NAME**	**BREEDING HABITAT TYPE**	**Species or Habitat Potentially Present?**
Bald Eagle	*Haliaeetus leucocephalus*	Large water bodies, rivers with adjacent perches.	Yes
Black Swift	*Cypseloides niger*	Nests on ledges or shallow caves in steep rock faces.	No
Brewer's Sparrow	*Spizella breweri*	Breeds in sagebrush-dominated shrublands.	No
Calliope Hummingbird	*Stellula calliope*	Open montane forest, mountain meadows, willow/alder thickets.	Yes
Flammulated Owl	*Otus flammeolus*	Open pine (ponderosa) forests with abundant insect prey.	No
Fox Sparrow	*Passerella iliaca*	Brushy fields, dense riparian thickets.	No
Green-tailed Towhee	*Pipilo chlorurus*	Dense shrubs, deserts, sagebrush shrubsteppe, oak-juniper woodlands	No
Lewis's Woodpecker	*Melanerpes lewis*	Open pine (ponderosa) forest, open riparian (cottonwood) woodlands.	No
Loggerhead Shrike	*Lanius ludovicianus*	Open country with spiny shrubs/low trees, ag fields, riparian	Yes
Oak Titmouse	*Baeolophus inornatus*	Oak or oak-pine woodlands	No
Olive-sided Flycatcher	*Contopus cooperi*	Montane & coniferous forests, forest edge meadows/ponds.	Yes
Peregrine Falcon	*Falco peregrinus*	Nests on high ledges of rock or manmade structures.	No
Purple Finch	*Carpodacus purpureus*	Open coniferous & mixed coniferous-deciduous forests.	No
Rufous Hummingbird	*Selasphorus rufus*	Open or shrubby areas, mountain meadows. Nest in deciduous or conifer trees.	Yes
Sage Thrasher	*Oreoscoptes montanus*	Shrubsteppe habitats, dense sagebrush.	No
Short-eared Owl	*Asio flammeus*	Nests on the ground in prairies, hayfields or stubble fields.	No
Snowy Plover	*Charadrius alexandrinus*	Breeds on coastal beaches, sand spits, beaches at river mouths.	No
Swainson's Hawk	*Buteo swainsoni*	Shrubsteppe with scattered trees, large shrubs & riparian adjacent to irrigated agricultural areas.	Yes
Western grebe	*Aechmophorus occidentalis*	Breed on freshwater lakes & marshes.	No
White Headed Woodpecker	*Picoides albolarvatus*	Montane coniferous pine forests.	No
Williamson's Sapsucker	*Sphyrapicus thyroideus*	Open coniferous & mixed coniferous-deciduous forests.	No
Willow Flycatcher	*Empidonax traillii*	Moist, shrubby areas near water.	Yes

Appendix C – Protective Measures

A seasonal limited operating period will be placed on construction activities within 500 feet of the sandhill crane nesting habitat (Figure 2). From March 1 to June 30, no construction activities will occur in the area, thus minimizing disturbance to nesting cranes.

All potential impacts to federally listed coho and steelhead from moving the fish screen, piping the ditches, installing new headgates and flow meters were consulted upon and addressed in the 2012 Biological Opinion issued by NOAA Fisheries pertaining to future U.S. Army Corps of Engineers permits within Siskiyou and other northern California counties. The following measures identified in the Biological Opinion will be implemented to minimize impacts to listed fish species and their habitat:

General Protection Measures

- Work shall not begin until (a) the Corps and/or NOAA Restoration Center has notified the applicant to the Program that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized and (b) all other necessary permits and authorizations are finalized.
- The general construction season shall be from June 15 to November 1. Restoration, construction, fish relocation, and dewatering activities within any wetted or flowing stream channel shall only occur within this period. Revegetation outside of the active channel may continue beyond November 1, if necessary.
- Construction within or through the ditches will occur outside of the irrigation season, when the ditches are dewatered.
- Poured concrete shall be excluded from the wetted channel for a period of 30 days after it is poured. During that time the poured concrete shall be kept moist, and runoff from the concrete shall not be allowed to enter a live stream. Commercial sealants may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is dry and fully cured according to the manufacturer's specifications.

Piping Ditches

- Landowners will enter into an agreement with NOAA RC or Corps stating that they will maintain the pipe for at least 10 years.

Dewatering Areas

- In those specific cases where it is deemed necessary to work in flowing water, the work area shall be isolated and all flowing water shall be temporarily diverted around the work site to maintain downstream flows during construction.
- Exclude fish from occupying the work area by blocking the stream channel above and below the work area with fine-meshed net or screens. Mesh will be no greater than 1/8 inch diameter. The bottom of a seine must be completely secured to the channel bed. Screens must be checked twice daily and cleaned of debris to permit free flow of water. Block nets shall be placed and maintained throughout the dewatering period at the upper and lower extent of the areas where fish will be removed. Block net mesh shall be sized to ensure salmonids upstream or downstream do not enter the areas proposed for dewatering between passes with the electrofisher or seine.

- Prior to dewatering, determine the best means to bypass flow through the work area to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic vertebrates.
- Coordinate project site dewatering with a qualified biologist to perform fish and amphibian relocation activities. The qualified biologist(s) must possess a valid state of California Scientific Collection Permit as issued by the CDFG and must be familiar with the life history and identification of listed salmonids and listed amphibians within the action area.
- Prior to dewatering a construction site, qualified individuals will capture and relocate fish and amphibians to avoid direct mortality and minimize adverse effects. This is especially important if listed species are present within the project site.
- Minimize the length of the dewatered stream channel and duration of dewatering, to the extent practicable.
- Any temporary dam or other artificial obstruction constructed shall only be built from materials such as sandbags or clean gravel which will cause little or no siltation. Visqueen shall be placed over sandbags used for construction of cofferdams construction to minimize water seepage into the construction areas. Visqueen shall be firmly anchored to the streambed to minimize water seepage. Coffer dams and stream diversion systems shall remain in place and fully functional throughout the construction period.
- Secure pumps by tying off to a tree or stake in place to prevent movement by vibration. Refuel in an area well away from the stream channel and place fuel absorbent mats under pump while refueling. Pump intakes shall be covered with 1/8 inch mesh to prevent potential entrainment of fish or amphibians that failed to be removed. Check intake periodically for impingement of fish or amphibians.
- If pumping is necessary to dewater the work site, procedures for pumped water shall include requiring a temporary siltation basin for treatment of all water prior to entering any waterway and not allowing oil or other greasy substances originating from operations to enter or be placed where they could enter a wetted channel. Projects will adhere to NMFS Southwest Region Fish Screening Criteria for Salmonids (NMFS 1997a).
- Discharge sediment-laden water from construction area to an upland location or settling pond where it will not drain sediment-laden water back to the stream channel.
- When construction is complete, the flow diversion structure shall be removed as soon as possible in a manner that will allow flow to resume with the least disturbance to the substrate. Cofferdams will be removed so surface elevations of water impounded above the cofferdam will not be reduced at a rate greater than one inch per hour. This will minimize the probability of fish stranding as the area upstream becomes dewatered.

Instream Work

- If the stream channel is seasonally dry between June 15 and November 1, construction will only occur during this dry period.
- Debris, soil, silt, excessive bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil or entering the waters of the United States. Any of these materials, placed within or where they may enter a stream or lake, by the applicant or any party working under contract, or with permission of the applicant, shall be

removed immediately. During project activities, all trash that may attract potential predators of salmonids will be properly contained, removed from the work site, and disposed of daily.

- Where feasible, the construction shall occur from the bank, or on a temporary pad underlain with filter fabric.
- Use of heavy equipment shall be avoided in a channel bottom with rocky or cobbled substrate. If access to the work site requires crossing a rocky or cobbled substrate, a rubber tire loader/backhoe is the preferred vehicle. Only after this option has been determined infeasible will the use of tracked vehicles be considered. The amount of time this equipment is stationed, working, or traveling within the creek bed shall be minimized. When heavy equipment is used, woody debris and vegetation on banks and in the channel shall not be disturbed if outside of the project's scope.
- All mechanized equipment working in the stream channel or within 25 feet of a wetted channel shall have a double containment system for diesel and oil fluids. Hydraulic fluids in mechanical equipment working within the stream channel shall not contain organophosphate esters. Vegetable based hydraulic fluids are preferred.
- The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into waters of the state (Fish and Game Code 5650).
- Areas for fuel storage, refueling, and servicing of construction equipment must be located in an upland location.
- Prior to use, clean all equipment to remove external oil, grease, dirt, or mud. Wash sites must be located in upland locations so wash water does not flow into a stream channel or adjacent wetlands.
- All construction equipment must be in good working condition, showing no signs of fuel or oil leaks. Prior to construction, all mechanical equipment shall be thoroughly inspected and evaluated for the potential of fluid leakage. All mechanical equipment shall be inspected on a daily basis to ensure there are no motor oil, transmission fluid, hydraulic fluid, or coolant leaks. All leaks shall be repaired in the equipment staging area or other suitable location prior to resumption of construction activity.
- Oil absorbent and spill containment materials shall be located on site when mechanical equipment is in operation with 100 feet of the proposed watercourse crossings. If a spill occurs, no additional work shall commence in-channel until (1) the mechanical equipment is inspected by the contractor, and the leak has been repaired, (2) the spill has been contained, and (3) CDFG and NOAA RC are contacted and have evaluated the impacts of the spill.

Minimizing Impacts to Migratory Birds

- If possible, conduct all vegetation removal, including trees for large would structures, outside of the migratory nesting season (February 1 to August 31). However, if clearing of any vegetation or any construction activities occur during the avian breeding window in the riparian area along the Little Shasta River, preconstruction surveys for nesting migratory birds shall be conducted no earlier than 7 days prior to removal by a qualified wildlife biologist. Surveys shall be conducted in accordance with CDFW or USFWS survey protocol for each species. Survey area shall include construction zone, all vegetation removal and transport areas, staging areas, and a 300 ft radius surrounding construction zone to determine whether activities taking place have the potential to disturb or otherwise harm nesting migratory birds. If nests are found, consultation with CDFW and USFWS migratory bird program shall occur regarding the appropriate action.

- If a migratory bird nest is located within the 300 feet of disturbance, and the disturbance must take place during nesting season (February 1 through August 31), a buffer zone shall be established by the biologist and confirmed by the appropriate resource agency (CDFG an/or USFWS). The buffer area requirements will be 300 feet for any willow flycatcher nest (or as approved by CDFG). A qualified wildlife biologist shall monitor the nest to determine when the you have fledged and submit bi-weekly reports throughout the nesting season.

Minimizing Impacts to Water Quality
(1) General erosion control during construction:
- When appropriate, isolate the construction area from flowing water until project materials are installed and erosion protection is in place.
- Effective erosion control measures shall be in place at all times during construction. Do not start construction until all temporary control devices (*e.g.*, straw bales with sterile, weed free straw, silt fences*)* are in place downslope or downstream of project site within the riparian area. The devices shall be properly installed at all locations where the likelihood of sediment input exists. These devices shall be in place during and after construction activities for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and detaining sediment-laden water on site. If continued erosion is likely to occur after construction is complete, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided. Erosion control devices such as coir rolls or erosion control blankets will not contain plastic netting of a mesh size that would entrain reptiles (esp. snakes) and amphibians.
- Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be sterile and weed free, staked and dug into the ground 12 cm. Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.
- Sediment-laden water created by construction activity shall be filtered before it leaves the settling pond or enters the stream network or an aquatic resource area.
- The contractor/applicant to the Program is required to inspect, maintain or repair all erosion control devices prior to and after any storm event, at 24 hour intervals during extended storm events, and a minimum of every two weeks until all erosion control measures have been completed.

(2) Guidelines for temporary stockpiling:
- Minimize temporary stockpiling of material. Stockpile excavated material in areas where it cannot enter the stream channel. Prior to start of construction, determine if such sites are available at or near the project location. If nearby sites are unavailable, determine location where material will be deposited. Establish locations to deposit spoils well away from watercourses with the potential to delivery sediment into streams supporting, or historically supporting populations of listed salmonids. Spoils shall be contoured to disperse runoff and stabilized with mulch and (native) vegetation. Use devices such as plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms of hay bales, to minimize movement of exposed or stockpiled soils.
- If feasible, conserve topsoil for reuse at project location or use in other areas. End haul spoils away from watercourses as soon as possible to minimize potential sediment delivery.

(3) Minimizing potential for scour:
- When needed, utilize instream grade control structures to control channel scour, sediment routing, and headwall cutting.

- For relief culverts or structures, if a pipe or structure that empties into a stream is installed, an energy dissipater shall be installed to reduce bed and bank scour. This does not apply to culverts in fish bearing streams.
- The toe of rock slope protection used for streambank stabilization shall be placed below the bed scour depth to ensure stability.

(4) Post construction erosion control:

- Immediately after project completion and before close of seasonal work window, stabilize all exposed soil with erosion control measures such as mulch, seeding, and/or placement of erosion control blankets. Remove all artificial erosion control devices after the project area has fully stabilized. All exposed soil present in and around the project site shall be stabilized after construction. Erosion control devices such as coir rolls or erosion control blankets will not contain plastic netting of a mesh size that would entrain reptiles (esp. snakes) and amphibians.
- All bare and/or disturbed slopes (> 100 square ft of bare mineral soil) will be treated with erosion control measures such as hay bales, netting, fiber rolls, and hydroseed as permanent erosion control measures.
- Where straw, mulch, or slash is used as erosion control on bare mineral soil, the minimum coverage shall be 95 percent with a minimum depth of two inches.
- When seeding is used as an erosion control measure, only seeds from native plant species will be used. Sterile (without seeds), weed-free straw, free of exotic weeds, is required when hay or hay bales are used as erosional control measures.

APPENDIX F

Hart Ranch Wetland Delineation Prepared for: Hart Ranch
Rabe Consulting, November
2016

Hart Ranch

Wetland Delineation

Prepared for:
Hart Ranch
November 2016

Andréa Rabe, PWS
Sr. Environmental Consultant
421 Commercial Street
Klamath Falls, OR 97601

andrea@rabeconsulting.com
(541) 891 - 2137

Table of Contents

Introduction

Rabe Consulting has performed a wetland investigation and delineation on an irrigation pipeline and fish screen project in Siskiyou County, California. Preliminary pre-field investigation showed that there are NWI maps for the proposed project site that display wetlands on the subject parcel (Appendix A).

This report presents the results of the Hart Ranch Project Wetland Delineation, which was conducted by Andréa Rabe of Rabe Consulting on August 10, 2016. The investigation occurred during the irrigation season. Andréa Rabe, a Professional Wetland Scientist, has 18 years of experience conducting wetland delineations. She has been trained in the use of the Army Corps of Engineers Western Mountains, Valleys, and Coast Regional Supplement for conducting wetland delineations.

This report documents the investigation, best professional judgment and conclusions of the investigators. It should be considered a Preliminary Jurisdictional Delineation and used at your own risk until it has been reviewed and approved in writing by the U.S. Army Corps of Engineers.

The overall project objectives are to (1) enhance flow in the Little Shasta River during critical coho salmon migration periods; (2) ensure long-term operation and maintenance of irrigation infrastructure for the Hart Ranch and the Montague Water Conservation District (MWCD); and (3) improve fish passage in the Little Shasta River.

By improving agricultural water infrastructure, water management opportunities, and fish passage in the Little Shasta River, the project intends to improve water quality and coho salmon habitat in the Little Shasta River with a resultant permanent instream dedication of up to 1.5 cfs and permissive dedication of their remaining 22.7 cfs water right by the Hart Ranch while maintaining viable agricultural lands.

A. Landscape Setting and Land Use

The study area is approximately 65.00 acres in a rural area within the north central portion of the unincorporated area of Siskiyou County, California (Appendix A). Hart Ranch is located in Siskiyou County, California in Township 44N, Range 5W, Sections 34, 35, and 36 and Township 45N, Range 5W, Sections 1, 2, 3, 11, 12 and 14. This project will be sited primarily at the Hart Ranch, with one component located upstream at the existing agricultural irrigation diversion on the Little Shasta River.

The Hart Ranch Project, which consists of 1,276.5 acres of the 4,698-acre ranch, is privately owned and is operated primarily for beef cattle production, including extensive irrigation of forage and pasture. The Ranch lies within the Little Shasta River watershed and holds certain rights to Little Shasta River water, which are used with other water entitlements and groundwater for irrigation and livestock watering. All components of this project are located on existing active agricultural lands which are zoned for agricultural use by Siskiyou County.

Currently, Hart Ranch has a point of diversion on the Little Shasta River to deliver priority rights water to the ranch. The point of diversion is located upstream of Hart Ranch’s northeastern boundary. Diverted water travels to the ranch through a large diversion ditch, then into a series of irrigation ditches within the ranch property. A portion of the Little Shasta River flows through the northwestern corner of the ranch.

The Hart Ranch Flow Enhancement Project consists of the following elements, the locations of which are identified in Figure 1. All components are located on the Hart Ranch (41˚41' 25.85"N latitude, 122˚22' 51.11"W longitude). More details of the proposal can be found in CEQA document.

1) Stockwater Improvement: This project component is located on the Hart Ranch along Harry Cash Road south of the Little Shasta River. This component of the project consists of (1) retrofitting of an existing groundwater well a new pump and motor; (2) two new water storage tanks approximately 10,000 gallons in size; (3) installation of approximately 22,556 linear feet of underground PVC pipe connection to 20 stockwater troughs; (4) installation of approximately 7,500 linear feet of riparian grazing management fencing; and (5) riparian planting along the Little Shasta River for a distance of approximately 14,500 linear feet; and (6) approximately 14,850 linear feet of cross fencing in existing pastures.
2) Hart Ranch Main Pipeline Replacement: This component of the project includes replacement of the existing main canal earthen ditch and failing pipeline with approximately 7,280 linear feet of underground PVC pipe with risers, valves, flow meter, and connection to existing groundwater wells, for improved water management opportunities and flood irrigation of the eastern portion of the Ranch.
3) Montague Water Conservation District Canal Improvements: This component of the project is located along the Montague Water Conservation District (MWCD) main canal which bisects the Hart Ranch. The project’s southern terminus is at Hart Road and is along the canal north.
4) Fish Passage Improvements: This component of the project includes (1) removal of the existing concrete dam, fish screen and old fish ladder walls along the Little Shasta River; (2) construction of approximately 105 linear feet of roughened channel with large boulder clusters and buttresses at a 2.5 - 3 percent grade, that provides fish passage opportunities; (3) modification of the agricultural diversion for the Hart Ranch (4) construction of a new cast-in-place concrete diversion structure with fish screen and fish return bypass that meets current NOAA and CDFW fish protection criteria; and (5) revegetation of the site.

Work will be conducted during the low flow period of August 15 to October 15. Stream flows during this period are anticipated to be less than about 3 cfs. Pumps will be used when necessary to remove ground water seepage into the isolated work area. Pumped ground water seepage will be spread over existing floodplain areas and allowed to infiltrate into the ground without causing river turbidity to increase. River flows will be diverted around the roughened channel and diversion structure intake during construction and will be returned to the newly constructed channel as soon as these portions of the work are complete. It is anticipated the project reach will be dewatered for less than 6 weeks. Prior to grading activities, the contractor will salvage and store existing vegetation cuttings and willow transplants to be replanted following project completion.

The project impact area was defined as the project footprint with a 25 ft buffer. The MWCD canal was surveyed with the canal footprint and a 50 ft buffer, from the northern to southern property line of Hart Ranch. The portions of the MWCD canal outside of the Hart Ranch were not surveyed. The survey area at the diversion is 0.16 acres. The survey area within Hart Ranch is 41.5 acres with an additional 4.7 miles of MWCD canal.

Sparse riparian vegetation is present along the irrigation ditches and canals within the proposed project area. The riparian vegetation along the irrigation canals consists of bulrush and cattails along with other sedges and rushes in a narrow band a few inches (1-8 inches) wide along the high water line of the canals. The canal banks are steep and do not allow for a riparian bench. The smaller irrigation ditches exhibit mostly grasses with few sedges and rushes (1-3 inches in width) at their ordinary water line.

The Little Shasta River exhibits dense shrub and tree growth in the riparian area, with little to no understory. The shrubs include multiple species of willows.

The upland area around Dorris Hill and upslope toward the summit exhibit sparse sagebrush scrub with limited bunch grass cover (less than 25%). The area is rocky and exhibits areas of bare soil. The lower elevation areas below the slopes of Dorris Hill are fields are primarily permit pasture exhibiting pasture grasses or alfalfa fields used for hay production. Both of the field types are flood irrigated, but generally do not exhibit wetland features.

During the first field visit in August, the irrigation ditches were full or had some flow. During the second field visit in October, the ditches were dry as irrigation season had concluded. The study area is located in open space with no structures, exhibiting irrigated pastures, hayfields and natural areas.

B. Site Alterations

There are no recent site alterations in the study area. Past alterations on-site include development of the irrigation ditches, irrigation supply canal, and subsequent installation of irrigation pipeline in portions of the ditch. These alterations include a diversion from the Little Shasta River.

Off-site the following alterations occurred: agricultural land conversion with scattered residential residences surrounding the ranch, and native uplands surrounding portions of the ranch.

C. Precipitation Data and Analysis

The Weed Airport RAWS station (nearest weather station to the study area) received no precipitation from July 27 through August 9, 2016, the 14 days prior to the field investigation.

There was no precipitation on August 10, 2016. The following is based on the WETS Table for Yreka, California because the Weed Airport weather station does not generate a WETS table. Based on the Yreka WETS table, this area of Siskiyou County had a greater than normal amount of precipitation over the winter (December through March).

Summary of Precipitation between May 2016 and July 2016					
Month	**Total Precipitation (in.)**	**Normal Range WETS**	**Within Normal Range?**	**Monthly Average (in.)**	**Departure From Average**
May	1.61	0.40 – 1.38 in.	Yes	1.15	+0.46 in. (140%)
June	1.20	0.23 – 1.13 in.	No, Higher	0.95	-0.25 in. (79%)
July	0.01	0.07 – 0.55 in.	No, Lower	0.49	-0.48 in. (2%)

USDA Field Office Climate Data

WETS Station : YREKA, CA9866 Creation Date: 11/01/2016
Latitude: 4142 Longitude: 12238 Elevation: 02625
State FIPS/County(FIPS): 06093 County Name: Siskiyou
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	Temperature (Degrees F.) avg daily min	Temperature (Degrees F.) avg	Precipitation (Inches) avg	Precipitation 30% chance will have less than	Precipitation 30% chance will have more than	avg # of days w/.1 or more	avg total snow fall
January	45.1	23.1	34.1	3.19	1.53	3.90	7	4.4
February	51.3	26.0	38.7	2.27	1.13	2.77	5	2.3
March	56.9	29.2	43.1	2.04	0.94	2.50	5	2.2
April	63.5	33.5	48.5	1.20	0.62	1.47	3	0.3
May	72.6	39.4	56.0	1.15	0.40	1.38	3	0.0
June	81.5	46.0	63.8	0.95	0.23	1.13	2	0.0
July	90.5	51.1	70.8	0.49	0.07	0.55	1	0.0
August	90.2	50.1	70.2	0.54	0.04	0.60	2	0.0
September	82.3	43.6	63.0	0.75	0.19	0.90	2	0.0
October	69.9	35.1	52.5	1.11	0.41	1.36	3	0.1
November	52.5	28.3	40.4	2.80	1.22	3.41	6	1.3
December	44.5	23.5	34.0	3.17	1.34	3.86	7	3.1
Annual	-----	-----	-----	------	16.37	22.19	--	----
Average	66.7	35.7	51.3	------	------	------	--	----
Average	-----	-----	-----	19.66	------	------	45	14.1

GROWING SEASON DATES

Probability	Temperature 24 F or higher	Temperature 28 F or higher	Temperature 32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	3/27 to 11/10 227 days	4/26 to 10/23 180 days	5/21 to 10/ 6 138 days
70 percent *	3/20 to 11/17 241 days	4/21 to 10/28 189 days	5/16 to 10/11 147 days

D. Methods

Rabe Consulting conducted a wetland delineation within the study area, which encompasses areas in Township 44N, Range 5W, Sections 34, 35, and 36 and Township 45N, Range 5W, Sections 1, 2, 3, 11, 12 and 14. The methods to delineate the study area were straightforward considering the nature of the parcel, which is largely a gradually sloped, open landscape.

The NWI map showed wetlands in portions of the study area (Appendix A: Figure 3). There is no Local Wetland Inventory (LWI) for this area.

The delineation was conducted on August 10, 2016, using the criteria outlined in the ACOE Manual as supplemented by the Western Mountains, Valleys and Coastal Regional Supplement (Version 2.0). Western Mountain, Valleys, and Coast Region Wetland Delineation data forms were used to record soils, vegetation, and hydrology data at sample plots within the study area (Appendix B).

Paired data plots were used to test for wetland presence at the wetted area near the river, but no wetland vegetation or soils were noted outside of the channel. Single data plots were used in the upland areas. In the areas with well-defined ditch channels, plot sets of three (one adjacent to the ditch, one in the ditch and one adjacent to the other side of the ditch) were used. Plot locations within the study area were chosen based on ArcGIS maps created showing topography, aerial imagery, soils and hydrology, and on observations of vegetation and hydrology during the field visit. Photo points were also taken with the plot number and direction of the photo noted. The study area boundary, photo points, and data plots were identified with a Trimble Juno 3B GPS unit with DGNSS/SBAS, with post-processing accuracy of 0.729m.

E. Description of All Wetlands and Other Non-Wetland Waters

Wetland Areas
Twenty two distinct wetland features, totaling 9.03 acres, were identified by Rabe Consulting wetland scientists within the Hart Ranch study area. The remainder of the study area is uplands. One waterway is a portion of the Shasta River. The remaining wetland/waterway areas are irrigation ditches. The wetlands documented in this report are graphically depicted on the wetland delineation maps (Appendix A). Jurisdictional wetlands were classified according to the Classification of Wetlands and Deepwater Habitats of the U.S. Classification System (Cowardin et al. 1979).

The following are descriptions of the wetlands located within the study area.

Wetland 1-10

These wetlands are small irrigation supply ditches within the study area. The study area crosses portions of these ditches, so only the portion within the study area was delineated with the remainder extending outside of the study area. These ditches are well maintained and therefore well defined. They exhibit steep ditchbanks which leave very little to no riparian vegetation before the waterway transitions from wetland to upland. The ditch banks are all considered upland and exhibit upland weedy species and pasture grasses.

The wetlands have the following sizes:

- Wetland 1: 0.01 acre
- Wetland 2: 0.02 acre
- Wetland 3: 0.02 acre
- Wetland 4: 0.02 acre
- Wetland 5: 0.01 acre
- Wetland 6: 0.04 acre
- Wetland 7: 0.02 acre
- Wetland 8: 0.06 acre
- Wetland 9: 0.03 acre
- Wetland 10: 0.02 acre

Wetland 11

This waterway is a portion of the Shasta River located in the north end of the study area where the diversion point intersects the Shasta River. The wetland is the active Shasta River channel and a narrow edge of vegetation along the ordinary high water margin. The upper bank of the river has mature willows. It is well defined by hydrologic indicators, topography and vegetation. The wetland within the study area is at the site of the diversion, which will be installed in the bottom of the river channel, and the diversion intake structure which is at the end of the ditch; the wetland area is less than 0.03 acre in size. The wetland (Shasta River) extends beyond the study area.

MWCD Wetlands

The MWCD canal within the Hart Ranch is approximately 5.7 miles in length. The waterway is intersected along this route by culverts and bridges for road crossings. Therefore, the portion of the canal within the study area is broken into 7 distinct wetland waterways. The canal channel varies from 18-22 feet in width. The channel is excavated with ditchbanks elevated above the adjacent agricultural fields and natural areas. The ditchbanks are upland and exhibit upland weedy species and grasses. Within the channel, the banks are steep leaving little to no riparian vegetation. The wetland boundary, is marked at the Ordinary High Water line (OHW). Therefore, the MWCD wetlands are considered non-vegetated waterways instead of wetlands. The waterway extends past the study area to the north and south.

The distinct MWCD Wetlands segments have the following sizes:

- MWCD Wetland 1: 1.07 acres
- MWCD Wetland 2: 0.86 acres
- MWCD Wetland 3: 0.81 acres
- MWCD Wetland 4: 2.55 acres
- MWCD Wetland 5: 1.35 acres
- MWCD Wetland 6: 1.80 acres
- MWCD Wetland 7: 0.25 acres

Evans Wetlands
The Evans irrigation ditch is located within the eastern portion of the Hart Ranch. The waterway is intersected along this route by culverts and bridges for road crossings and a section is piped. Therefore, the portion of the irrigation ditch within the study area is broken into 4 distinct wetland waterways. The ditch channel varies from 2-4 feet in width. The channel is excavated with ditchbanks elevated above the adjacent agricultural fields and natural areas. The ditchbanks are upland and exhibit upland weedy species and grasses. Within the channel, the banks are steep leaving little to no riparian vegetation. The wetland boundary, is marked at the Ordinary High Water line (OHW). Therefore, the Evans wetlands are considered non-vegetated waterways instead of wetlands. The entire Evans ditch is include in the study area.

The distinct Evans Wetlands segments have the following sizes:

- Evans Wetland 1: 0.01 acre
- Evans Wetland 2: 0.01 acre
- Evans Wetland 3: 0.02 acre
- Evans Wetland 4: 0.02 acre

Upland Areas
The majority of the study area consists of upland, as it does not exhibit wetland soils, hydrology or vegetation. The upland areas are similar or higher in elevation to surrounding irrigated fields. The upland areas around Doris Hill exhibit typical scrub habitat species such as sagebrush, rabbit brush, pasture grasses and forbs. Within the irrigated fields, the duration of flood or sprinkler irrigation was not long enough to create wetland characteristics. The irrigation is approximately applied for 2-3 days every 2 weeks, depending on weather and seasonality. The ditch banks did not exhibit wetland characteristics and are elevated compared to the ditches and fields.

F. Deviation from LWI or NWI

A review of the National Wetlands Inventory Map (Appendix A) indicates the presence of wetlands along some of the ditch and areas within the historic floodplain of the Shasta River within the study area. The wetlands are identified as Freshwater Emergent Wetland (PEMC) and Freshwater Forested/Shrub Wetland (PFOC). The scale and methodology used to produce the NWI map (high altitude aerial photography interpretation) imposes some limitations on the accuracy of the NWI maps. It is highly recommended to field check NWI map data, as was done in this case.

This Delineation deviates from the NWI Maps as it did not identify wetlands within the portions of the irrigated fields which area within the study area. The wetlands associated with irrigation ditches were within areas identified as upland and wetland by NWI Maps.

G. Mapping Methods

All data plots, study area boundaries, and wet feature boundaries were mapped using a Trimble Juno 3B GPS unit with DGNSS/SBAS, with post-processing accuracy of 0.729m horizontal error (number of satellites 7).

H. Jurisdiction

The jurisdictional status of each feature is considered separately. In order to determine the jurisdictional status of the features, Rabe Consulting staff reviewed topographical maps and looked at the connectivity of the wetlands to surrounding jurisdictional features.

The following are descriptions of the wetlands located within the study area.

Wetlands 1-10
These wetlands are portions of irrigation ditches. Portions of the irrigation ditches are excavated within wetland areas. The ditch network drains back in the tributaries to the Shasta River, at least seasonally during high irrigation flows. Therefore, these wetlands are considered jurisdictional by Army Corps of Engineers guidelines.

Wetland 11
This wetland is a portion of the active river channel and is less than 0.01 acre in size; the wetland extends beyond the study area. The Shasta River is naturally occurring, although it is now controlled by the Dwinnell Dam. The wetland is fish bearing. This wetland is jurisdictional by Army Corps of Engineers guidelines.

MWCD Wetlands
These wetlands are segments of the MWCD irrigation supply canal. Whereas the majority of this canal is excavated from uplands, some portions of the canal are excavated from wetlands. The canal has a fish screen at the diversion, and is therefore non-fish bearing. As portions of this canal are excavated from wetlands, the MWCD Wetlands are considered jurisdictional by the Army Corps of Engineers guidelines.

Evans Wetlands
These wetlands are segments of the Evans irrigation supply canal. Whereas the majority of this canal is excavated from uplands, some portions of the canal are excavated from

wetlands. The canal has a fish screen at the diversion, and is therefore non-fish bearing. As portions of this canal are excavated from wetlands, the Evans Wetlands are considered jurisdictional by the Army Corps of Engineers guidelines.

I. Results and Conclusion

Twenty wetland or waterway areas, totaling 9.03 acres, were identified within the Hart Ranch study area; the rest of the study area is uplands. One waterway is a portion of the Shasta River. The remaining wetland/waterway areas are irrigation ditches. Portions of the ditches are excavated from wetlands, therefore all of the wetlands/waterways mapped within the study area are considered jurisdictional.

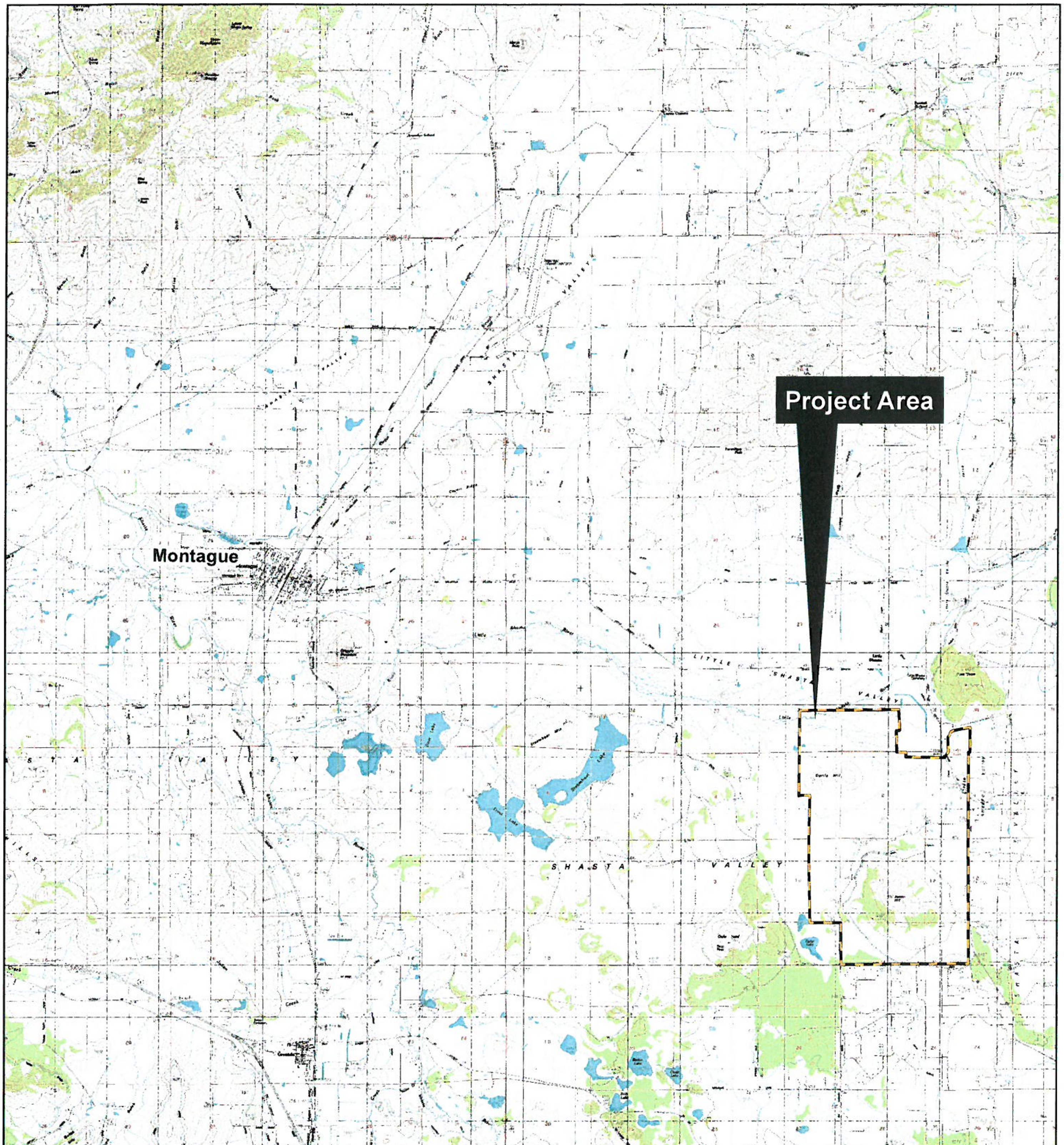
J. Disclaimer

This report documents the investigation, best professional judgment and conclusions of the investigator. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Delineation and used at your own risk until it has been reviewed and approved in writing by the US Army Corps of Engineers.

Respectfully submitted,

Andréa Rabe, PWS
Rabe Consulting

Appendix A Maps



Hart Ranch Project: Figure 1 Vicinity

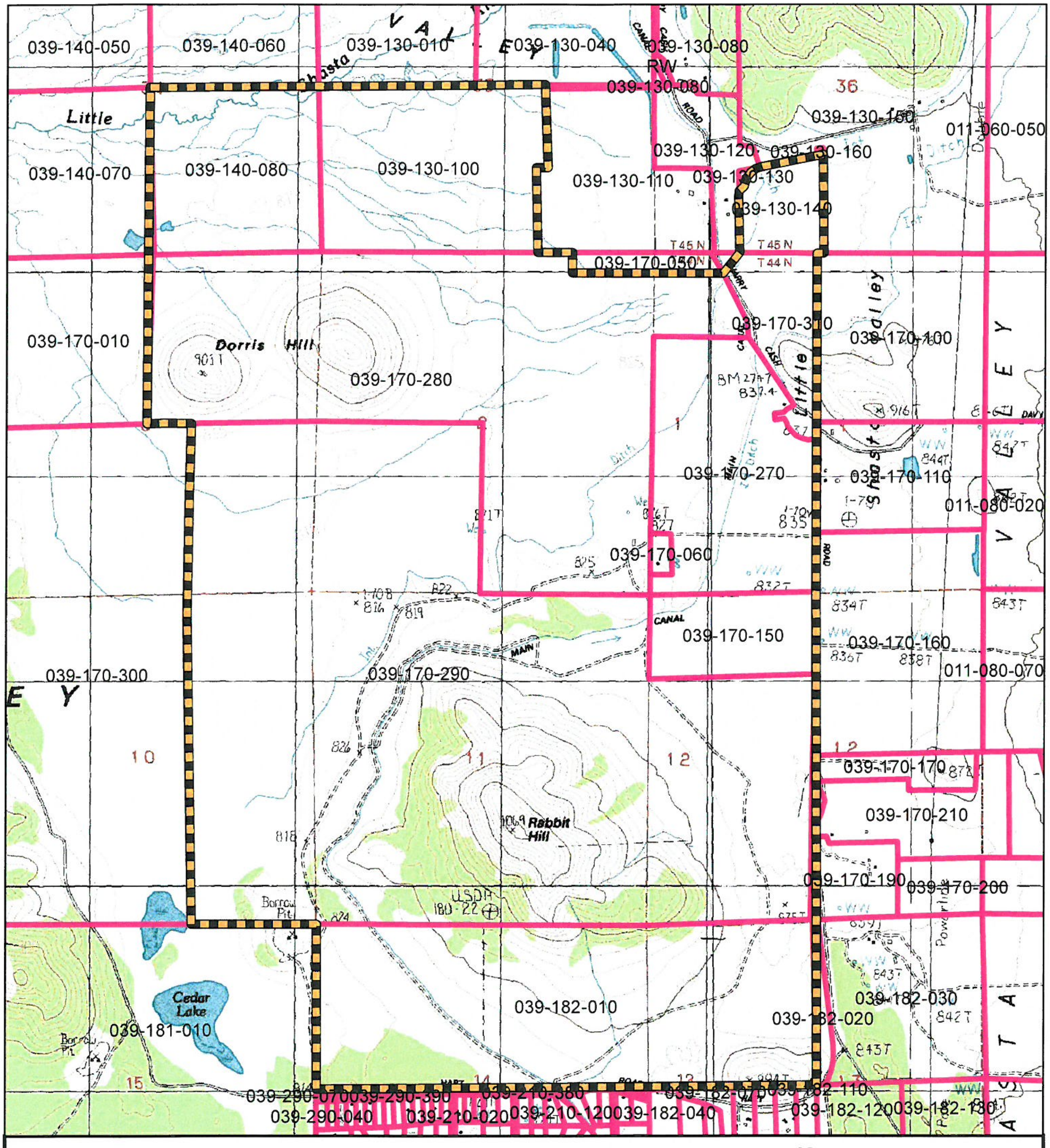
Rabe Consulting

Map Created By: Andrea Rabe
Map Created On: October 1, 2016

N

0 10000 20000
Feet

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document.



Hart Ranch Project: Figure 2 Taxlot

N

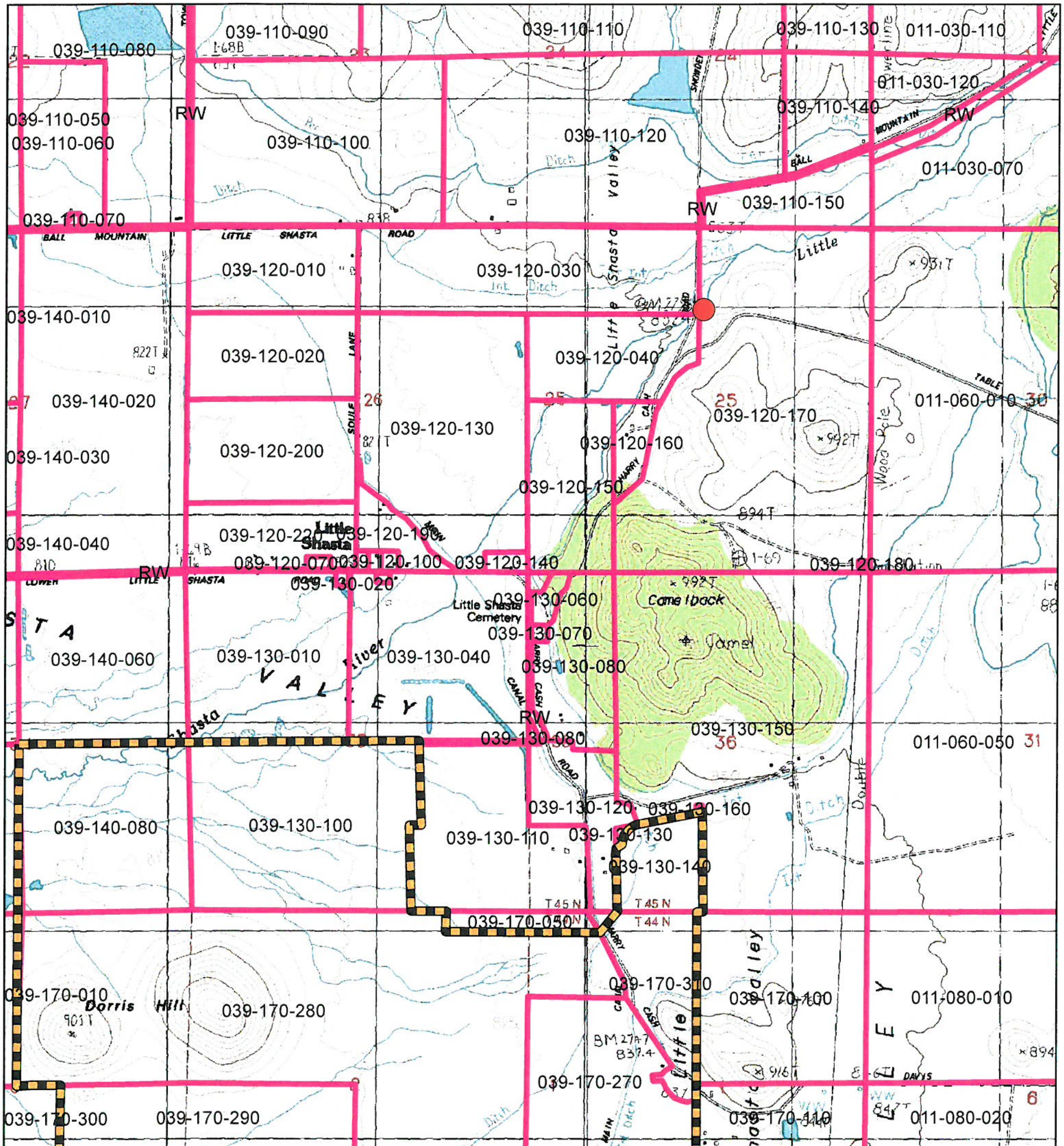
0 2500 5000

Feet

Rabe Consulting

Map Created By: Andrea Rabe
Map Created On: October 1, 2016

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document.



Hart Ranch Project: Figure 2a Taxlot

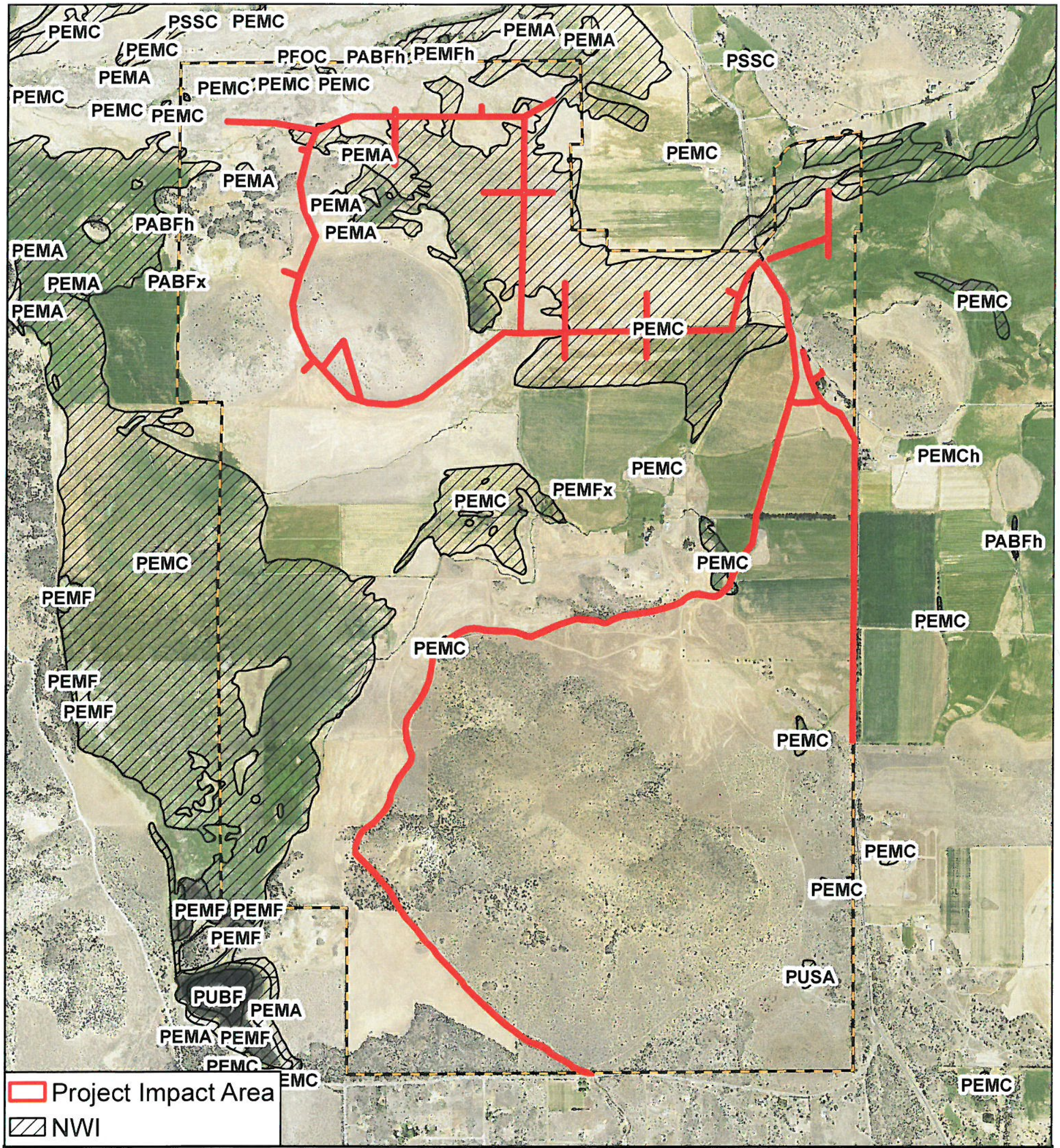
Map Created By: Andrea Rabe
Map Created On: October 1, 2016

N

0 2500 5000
Feet

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document.

Rabe Consulting



Hart Ranch Project: Figure 3 NWI

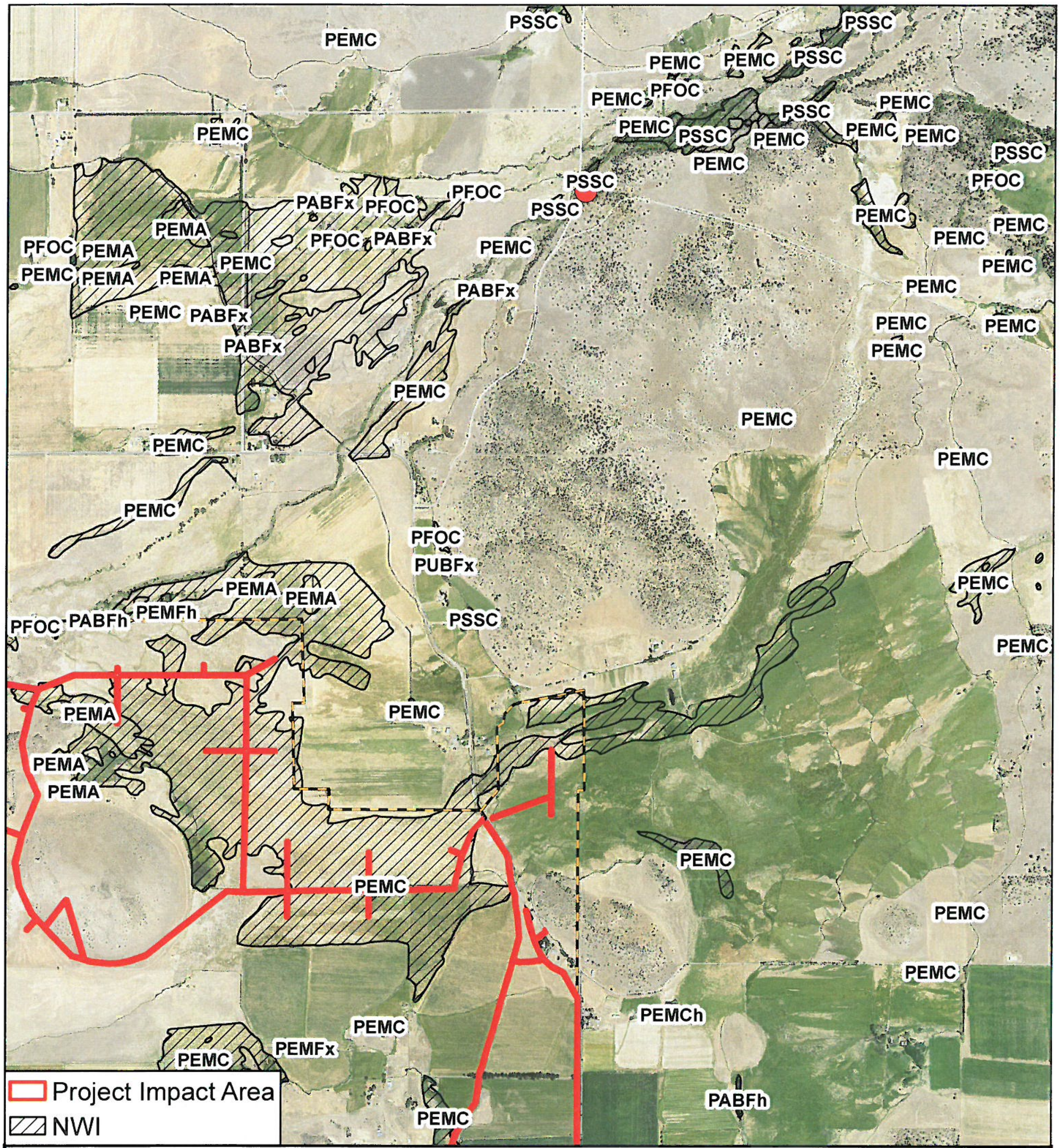
Map Created By: Andrea Rabe
Map Created On: October 1, 2016

N

0 2500 5000
Feet

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document.

Rabe Consulting



Hart Ranch Project: Figure 3a NWI

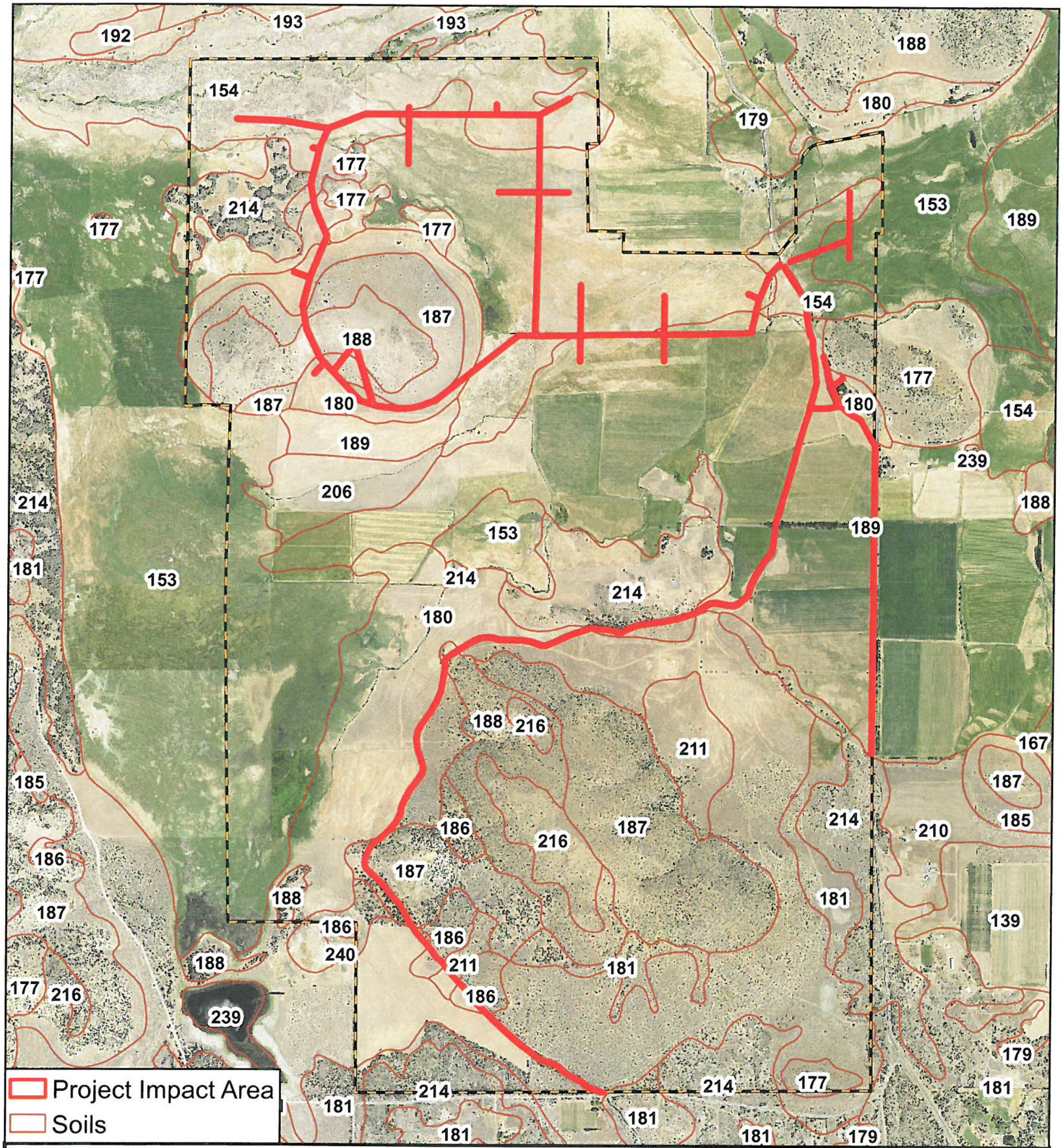
Map Created By: Andrea Rabe
Map Created On: October 1, 2016

N

0 2500 5000
Feet

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document.



Hart Ranch Project: Figure 4 Soils

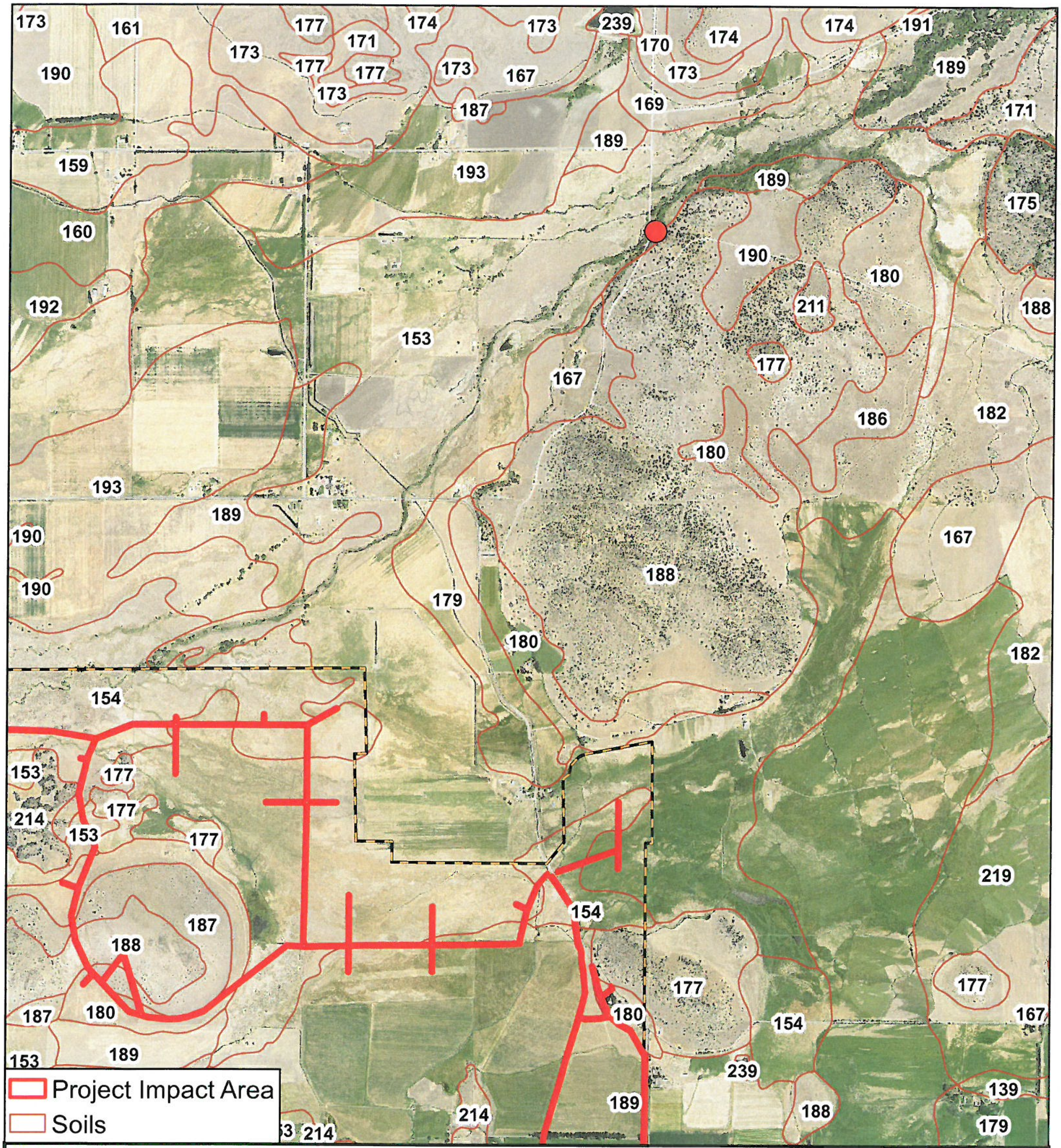
Map Created By: Andrea Rabe
Map Created On: October 1, 2016

N

0 2400 4800
Feet

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document.



Hart Ranch Project: Figure 4 Soils

Map Created By: Andrea Rabe
Map Created On: October 1, 2016

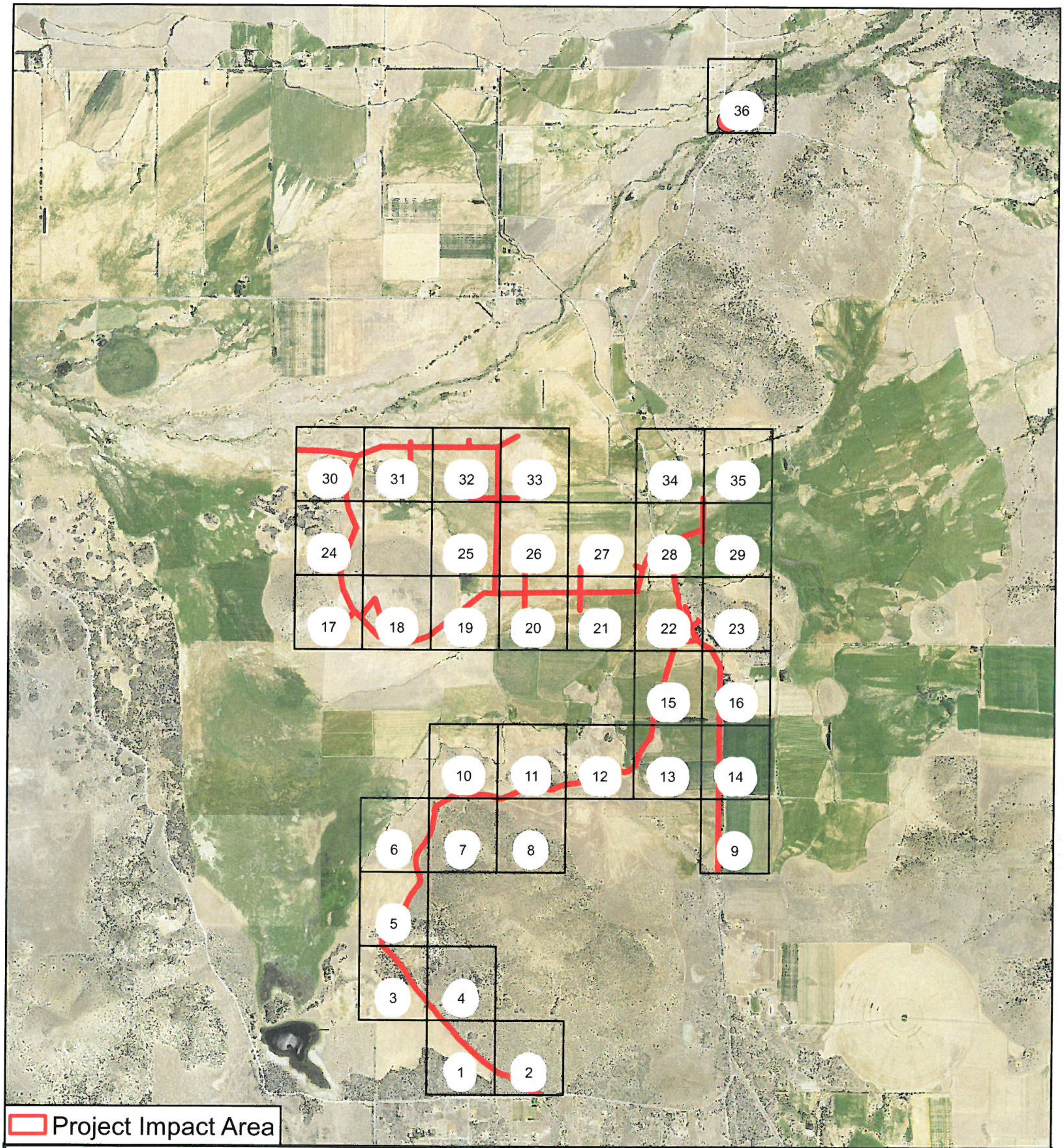
N

0 2400 4800
Feet

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document.

Rabe Consulting

Soil Map Number	Soil Name
153	GAZELLE SILT LOAM
154	GAZELLE VARIANT SANDY CLAY LOAM
177	LITHIC HAPLOXEROLLS-ROCK OUTCROP COMPLEX, 0 TO 65 PERCENT SLOPES*
180	LOUIE LOAM, 2 TO 9 PERCENT SLOPES
186	MARY LOAM, 9 TO 15 PERCENT SLOPES
187	MARY STONY LOAM, 2 TO 50 PERCENT SLOPES
188	MARY-ROCK OUTCROP COMPLEX, 2 TO 50 PERCENT SLOPES
189	MEDFORD CLAY LOAM, COOL, 0 TO 2 PERCENT SLOPES
211	REDOLA LOAM, 2 TO 9 PERCENT SLOPES
214	ROCK OUTCROP-LOUIE COMPLEX, 0 TO 15 PERCENT SLOPES



Rabe Consulting

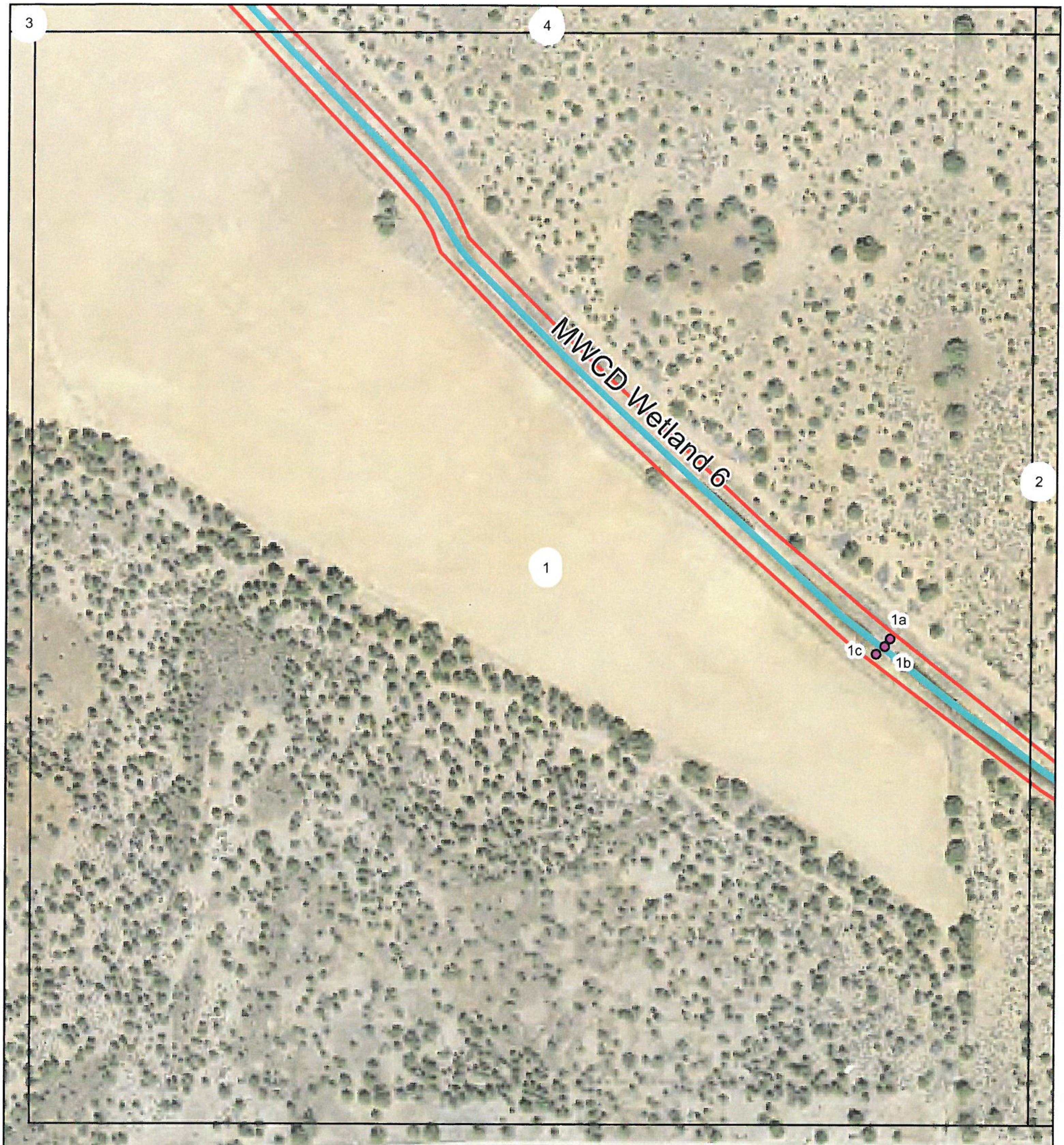
Hart Ranch Project

Map Created By: Andrea Rabe
Map Created On: October 1, 2016

N

0 0.7 1.4
Miles

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document.



Hart Ranch Wetland Plates

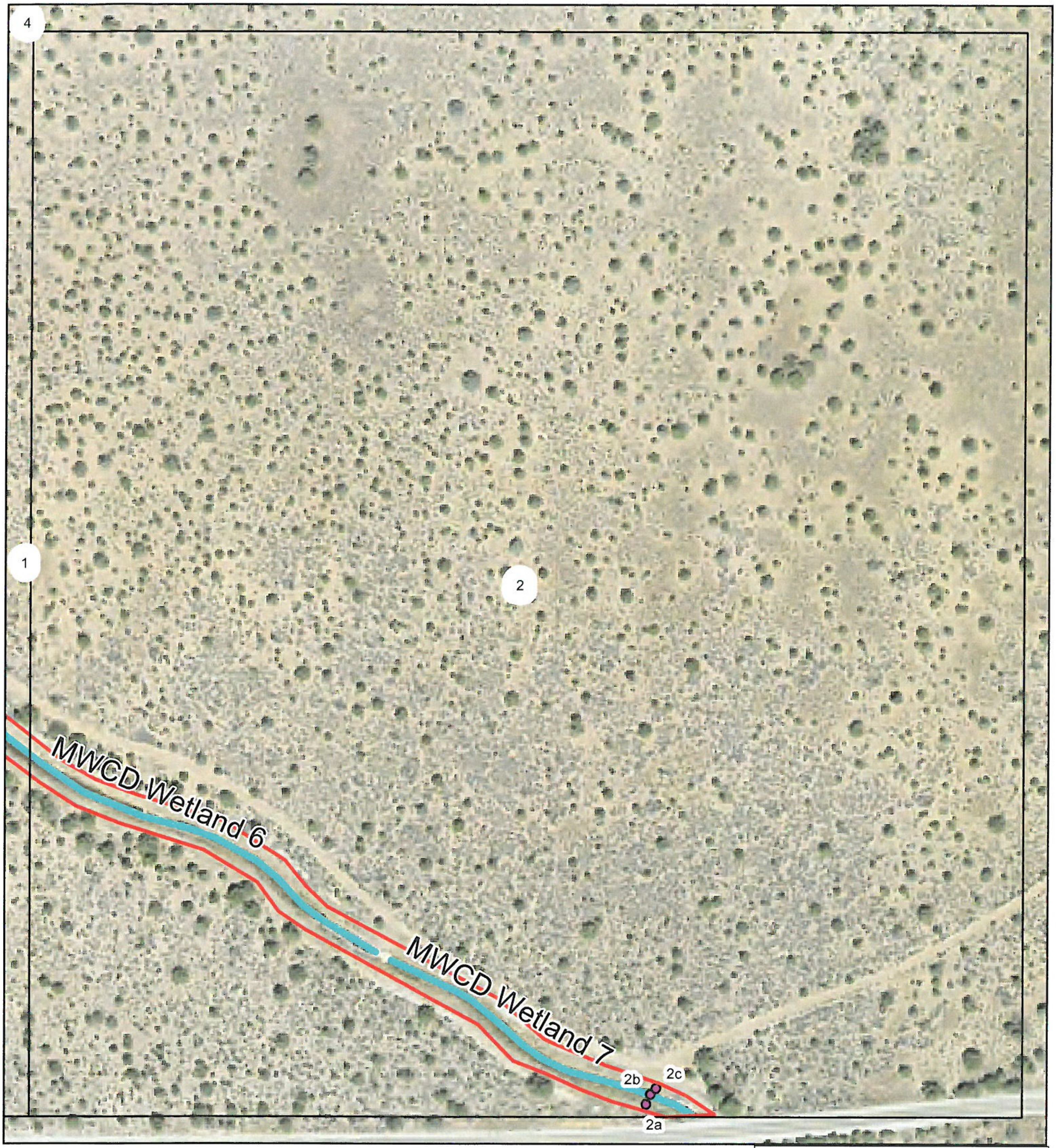
0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Rabe Consulting



Rabe Consulting

Hart Ranch Wetland Plates

0 260 520

Feet

N

Project Study Area

Data Plots

Wetlands

MWCD Ditch Wetland

Evans Ditch Wetland

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting

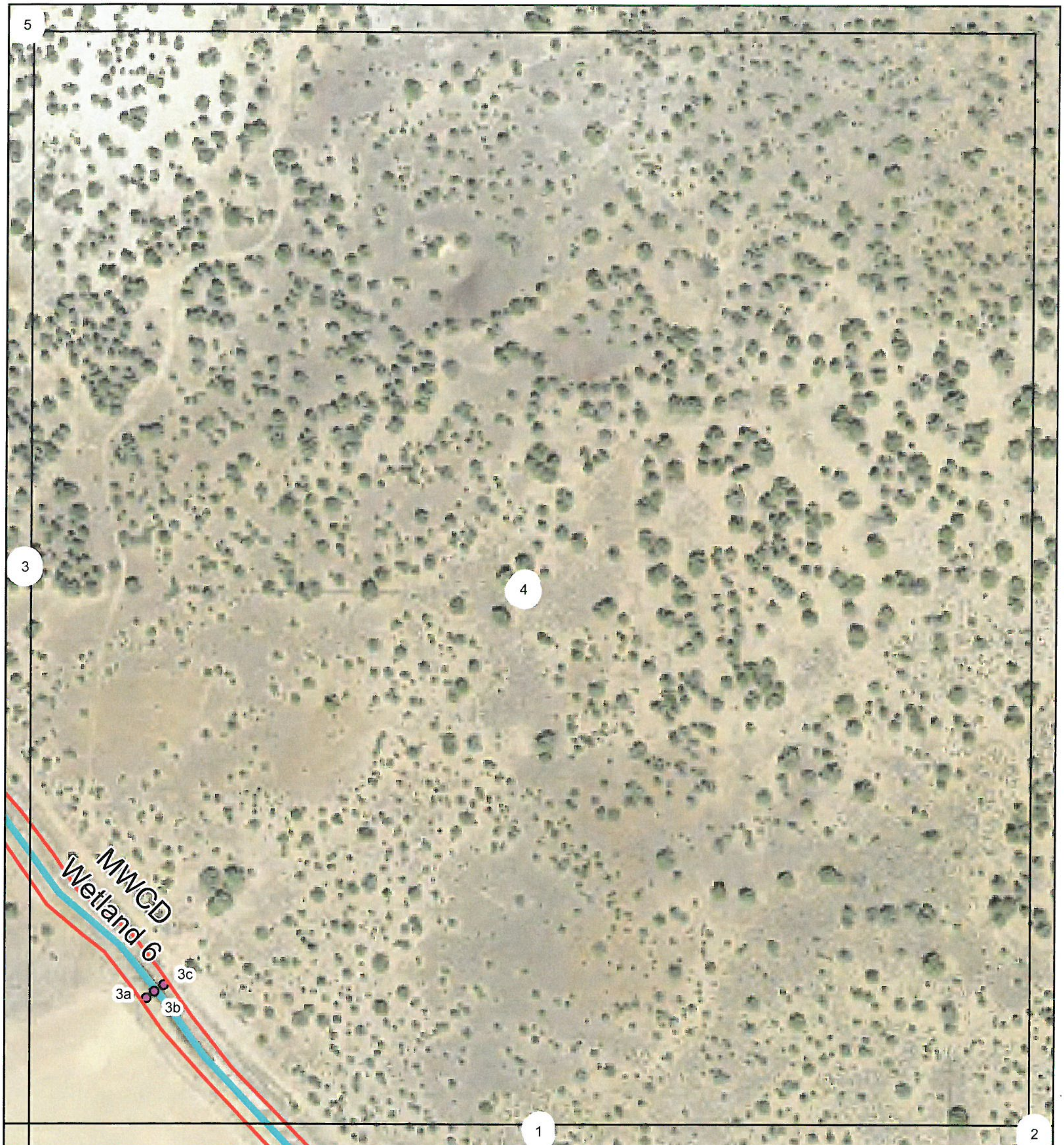
Hart Ranch Wetland Plates

0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



Hart Ranch Wetland Plates

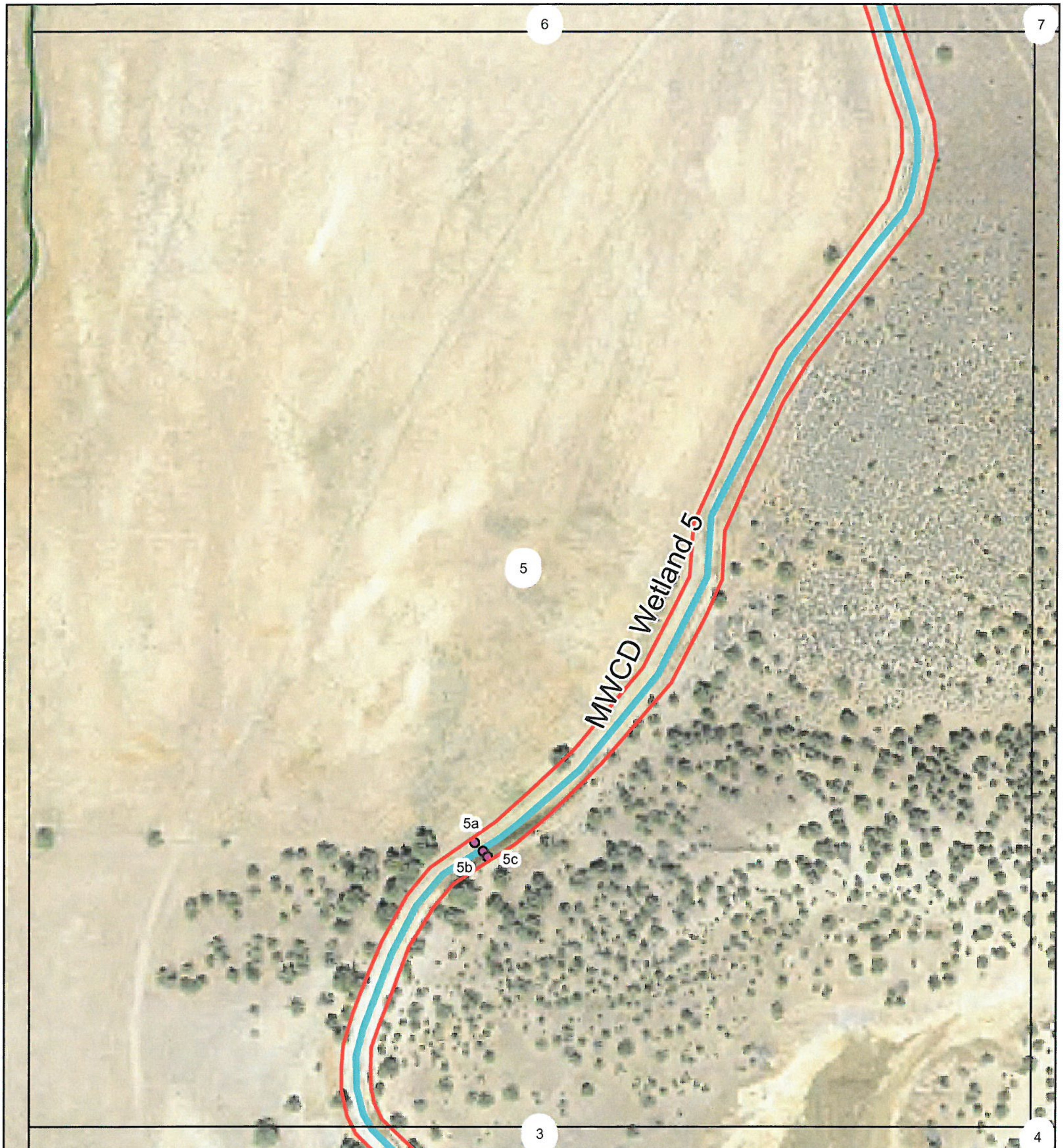
0 260 520
Feet

N

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



Rabe Consulting

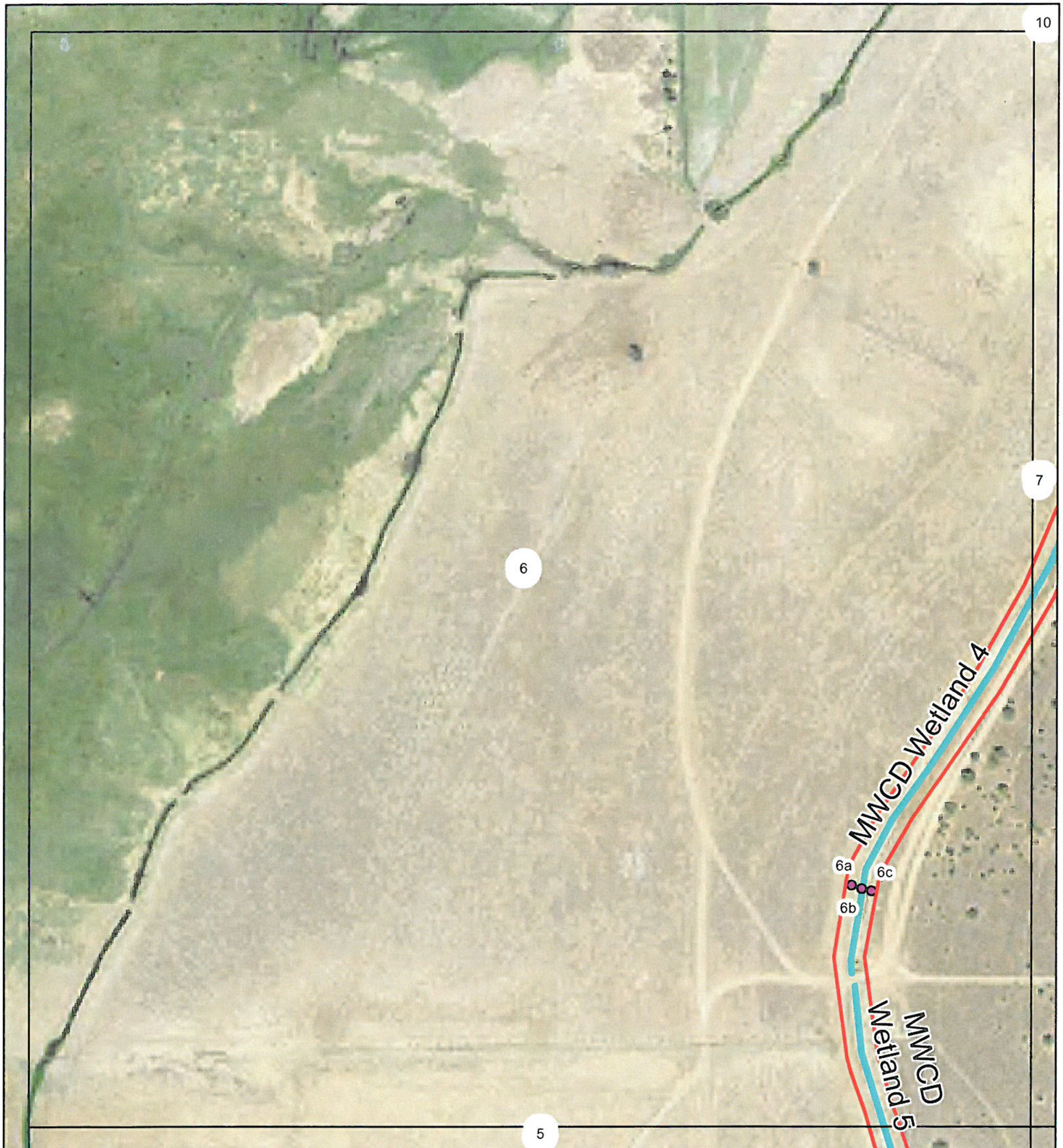
Hart Ranch Wetland Plates

0 260 520
Feet

N

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016



Rabe Consulting

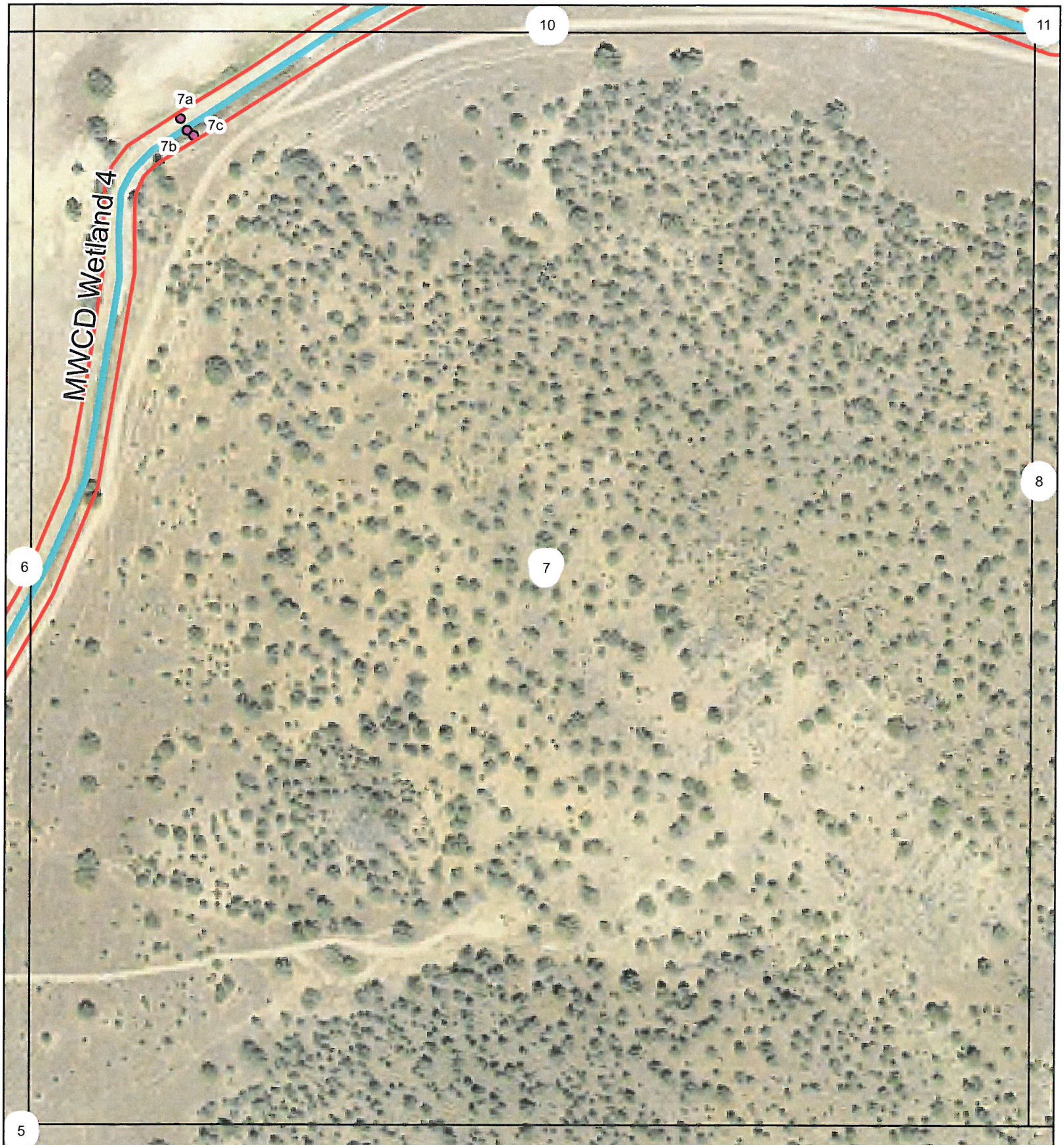
Hart Ranch Wetland Plates

0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



Hart Ranch Wetland Plates

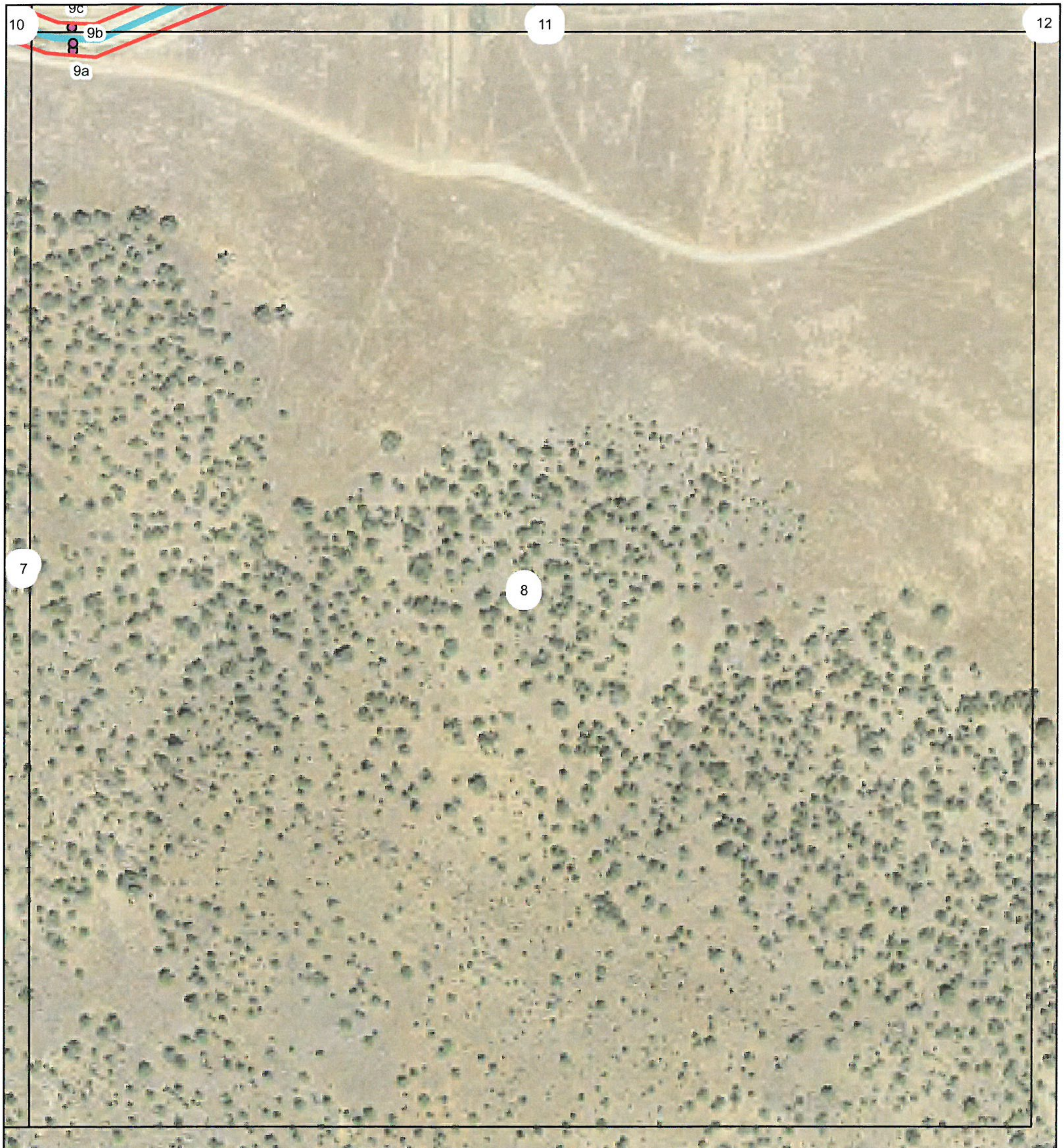
0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



Hart Ranch Wetland Plates

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting

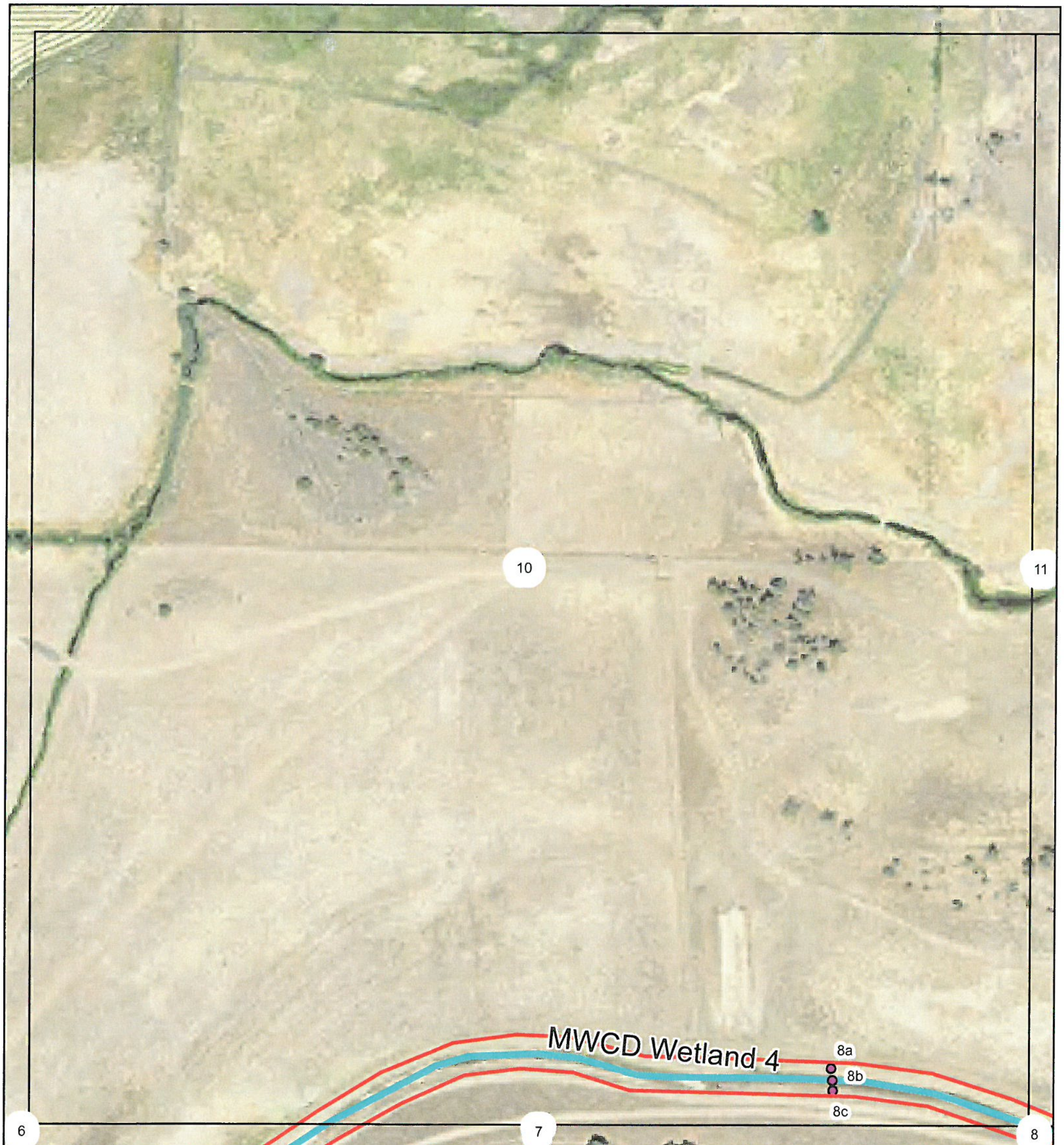
Hart Ranch Wetland Plates

0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

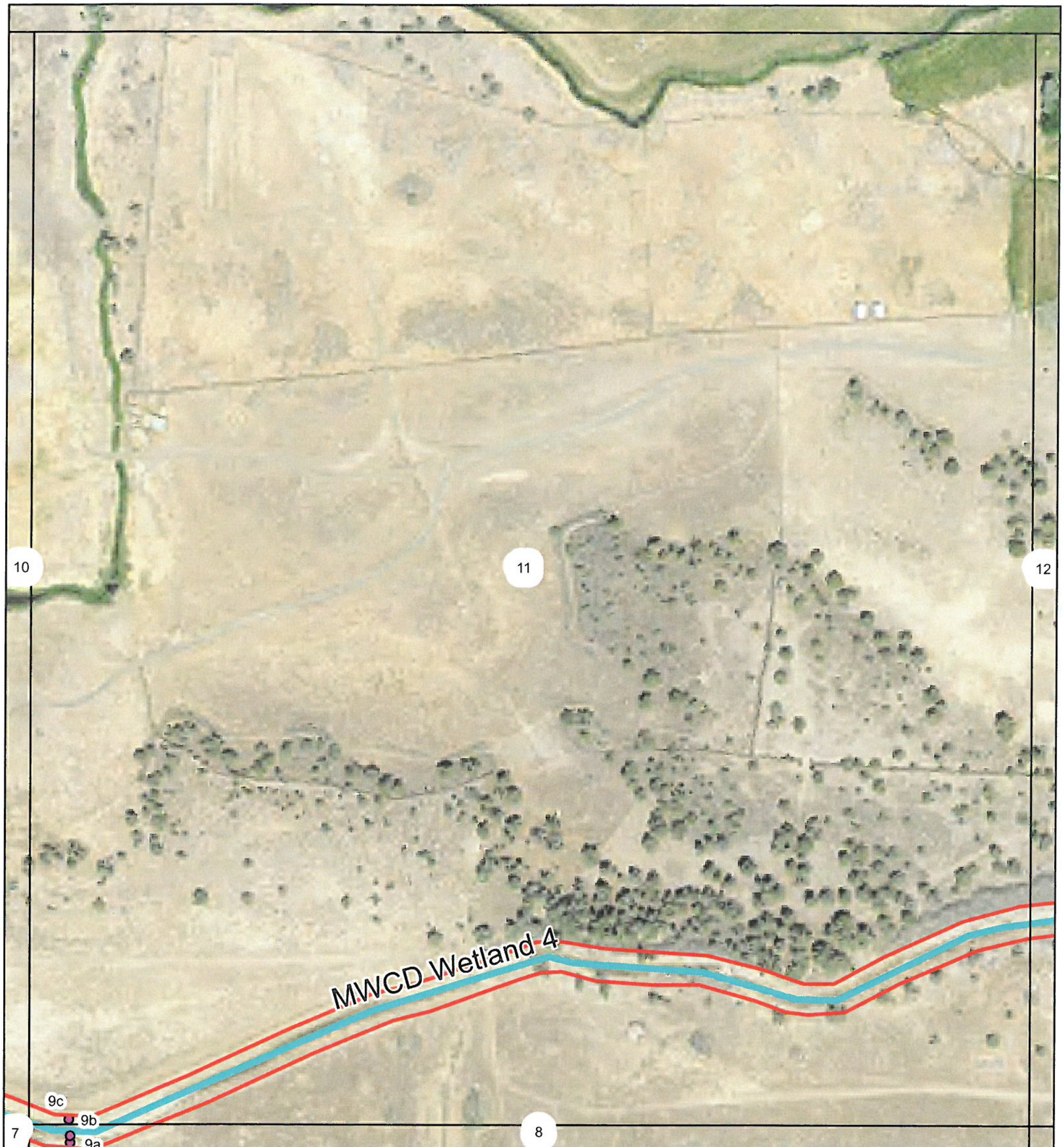
Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland



Hart Ranch Wetland Plates

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



Hart Ranch Wetland Plates

0 260 520
Feet

N

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting

Hart Ranch Wetland Plates

0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Hart Ranch Wetland Plates

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland

Hart Ranch Wetland Plates

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland

Hart Ranch Wetland Plates

0 260 520
Feet

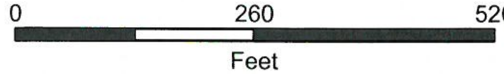
N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Hart Ranch Wetland Plates



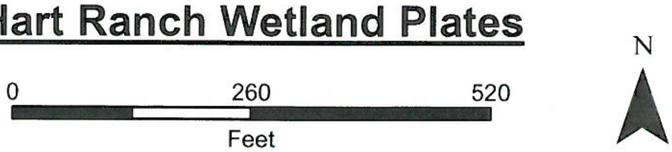
N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

	Project Study Area
	Data Plots
	Wetlands
	MWCD Ditch Wetland
	Evans Ditch Wetland

Rabe Consulting

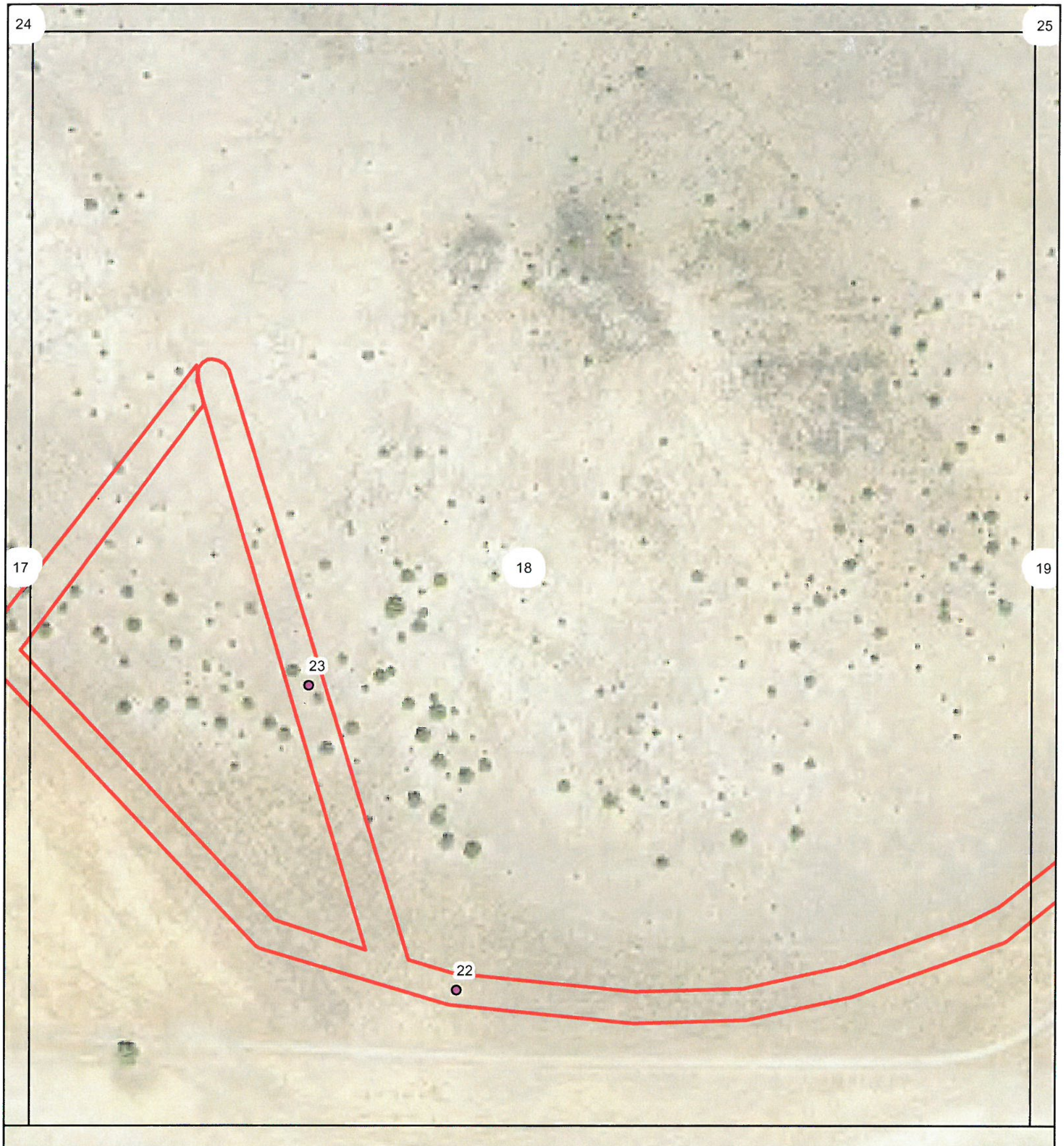
Hart Ranch Wetland Plates



Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016



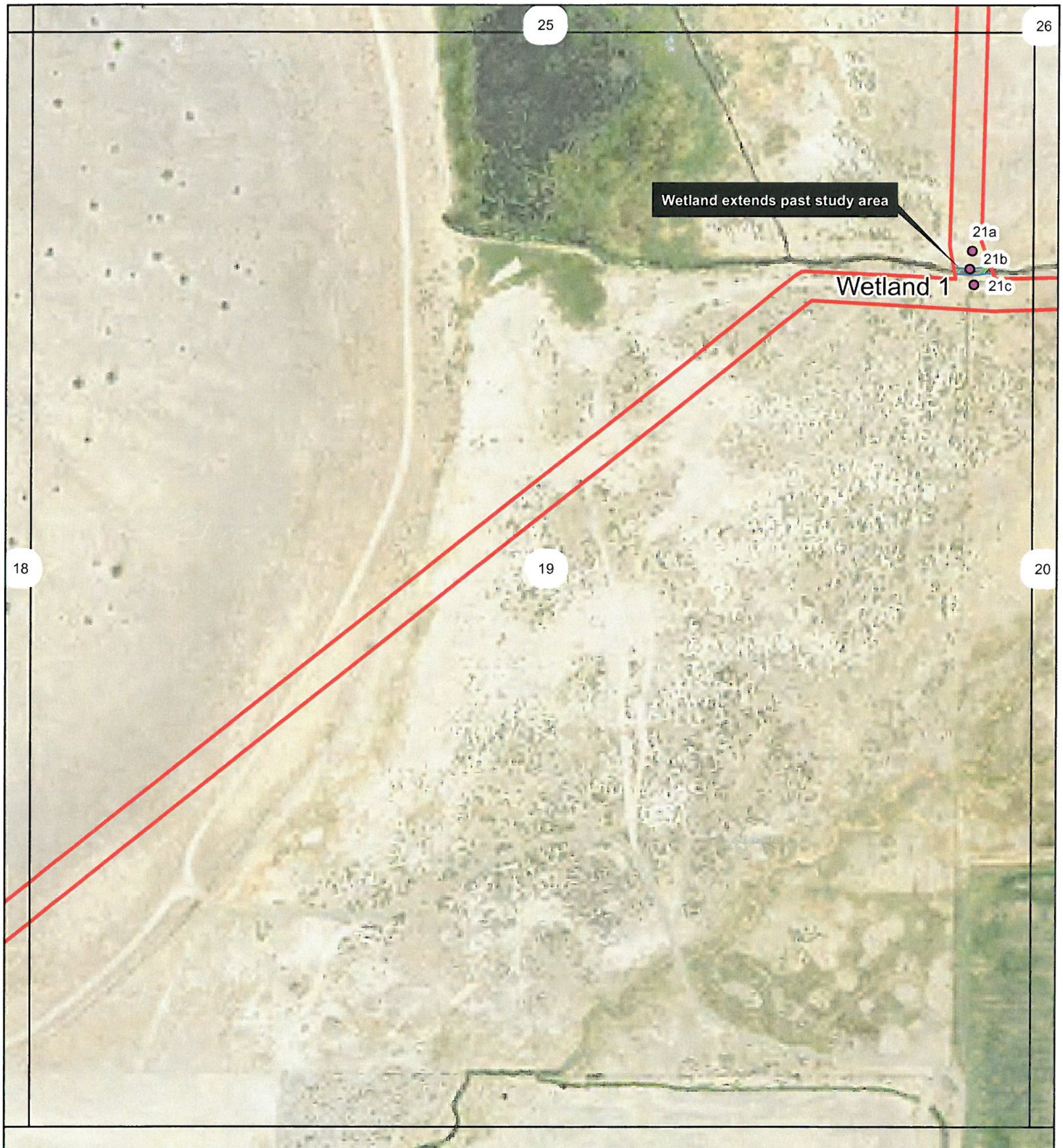
Hart Ranch Wetland Plates

0 260 520
Feet

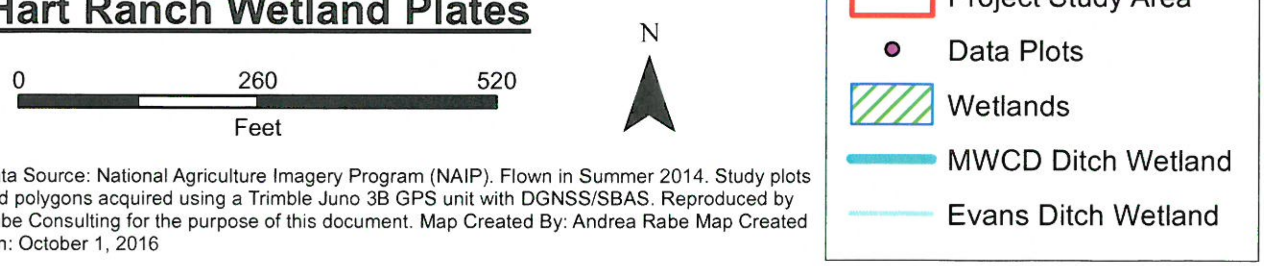
N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



Hart Ranch Wetland Plates



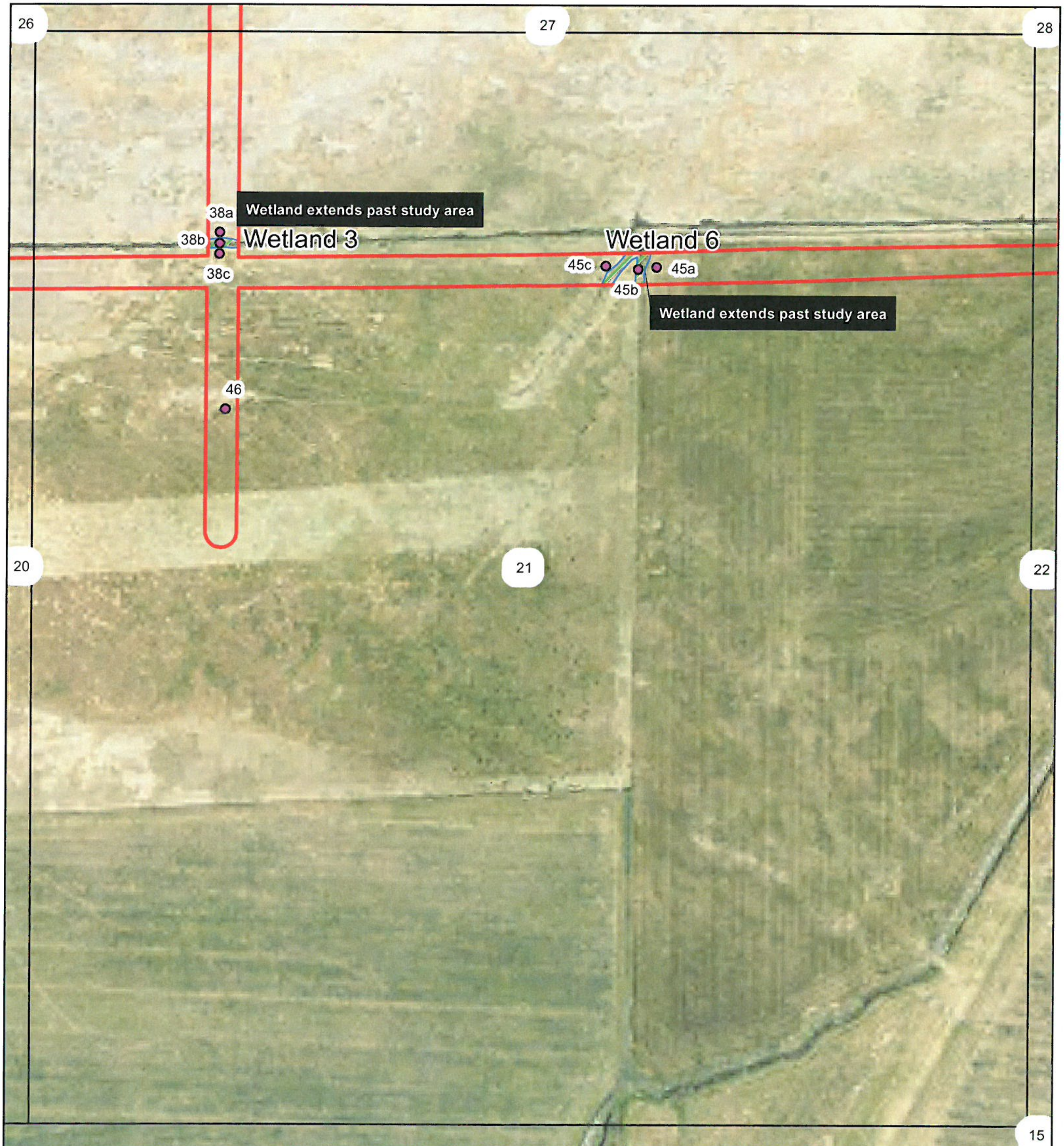
Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Hart Ranch Wetland Plates

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

	Project Study Area
	Data Plots
	Wetlands
	MWCD Ditch Wetland
	Evans Ditch Wetland



Rabe Consulting

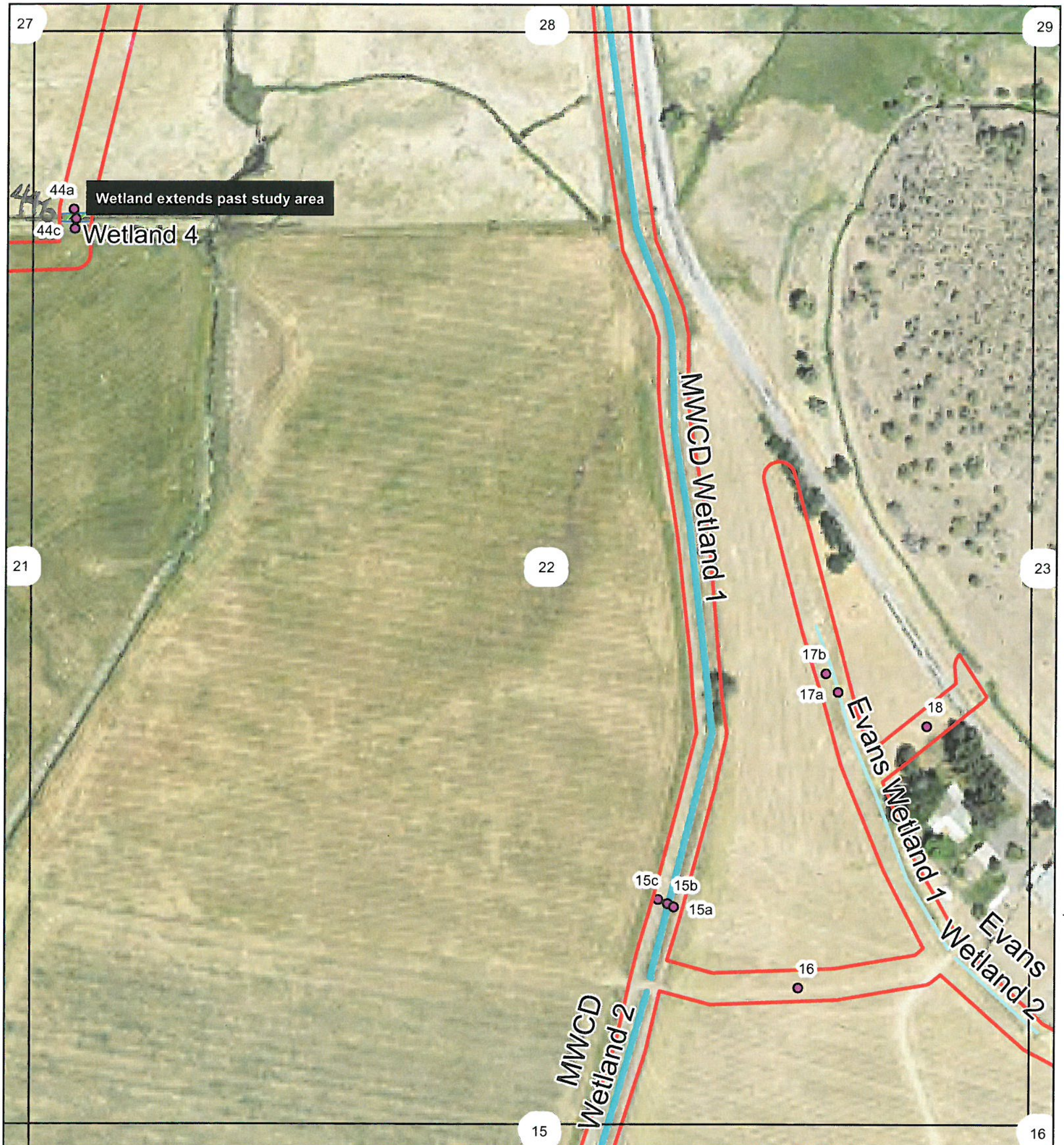
Hart Ranch Wetland Plates

0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



Hart Ranch Wetland Plates

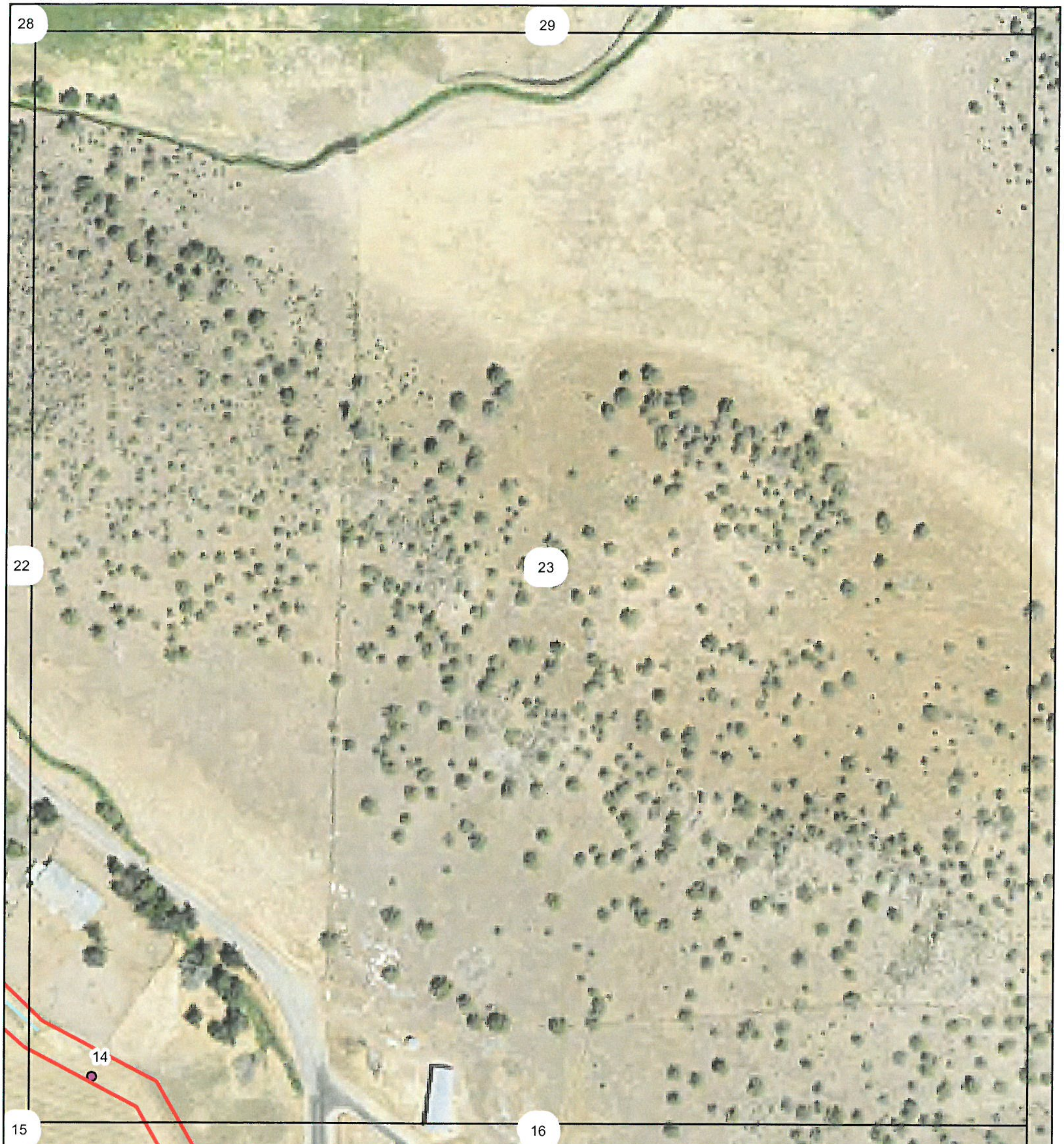
0 260 520
Feet

N

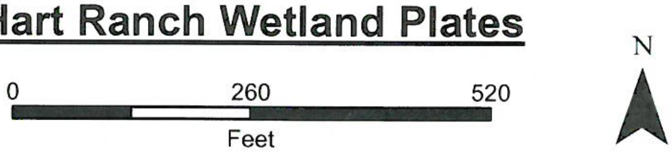
Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



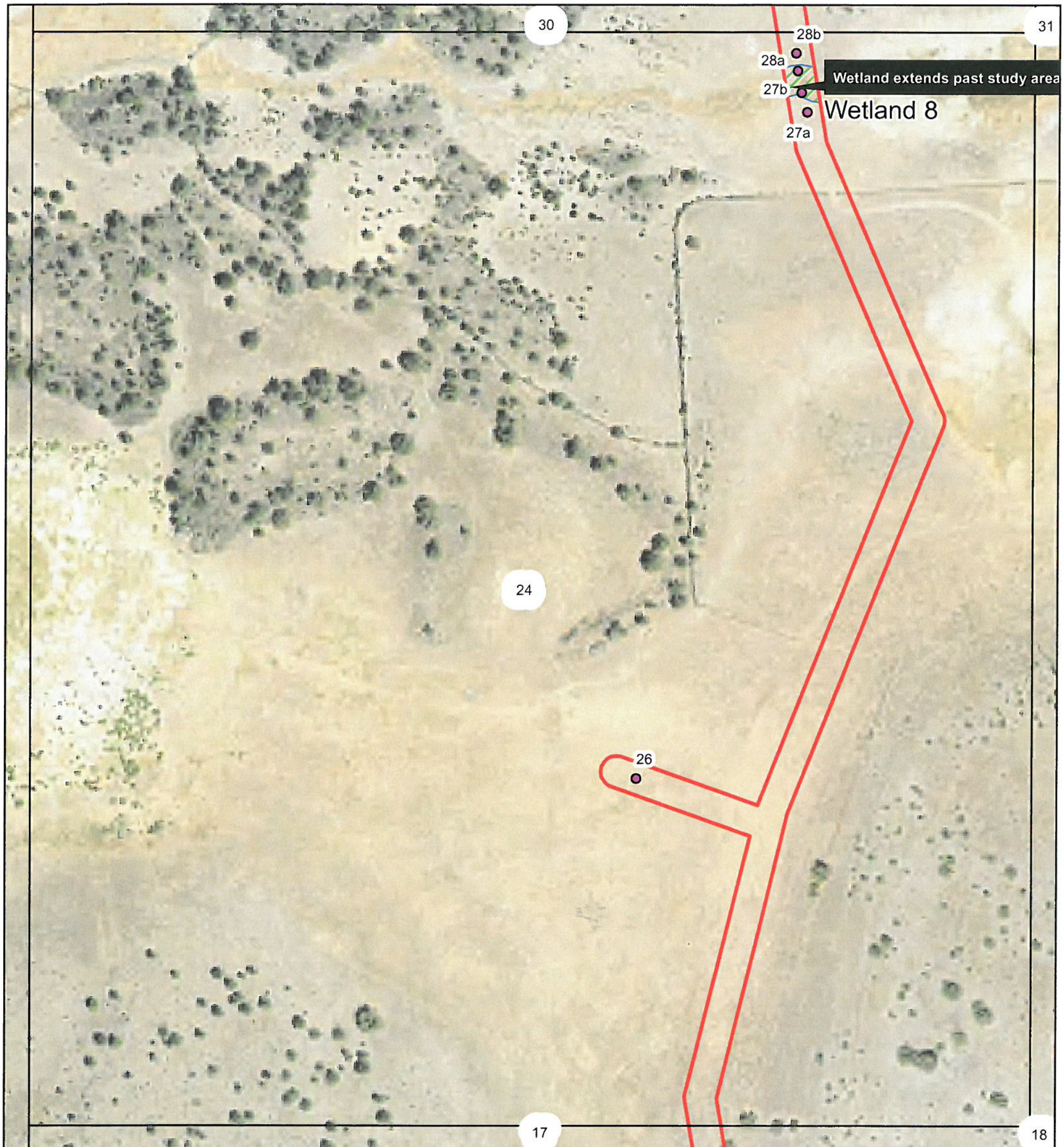
Hart Ranch Wetland Plates



Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland

Rabe Consulting



Hart Ranch Wetland Plates

0 260 520

Feet

N

Project Study Area

Data Plots

Wetlands

MWCD Ditch Wetland

Evans Ditch Wetland

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Hart Ranch Wetland Plates

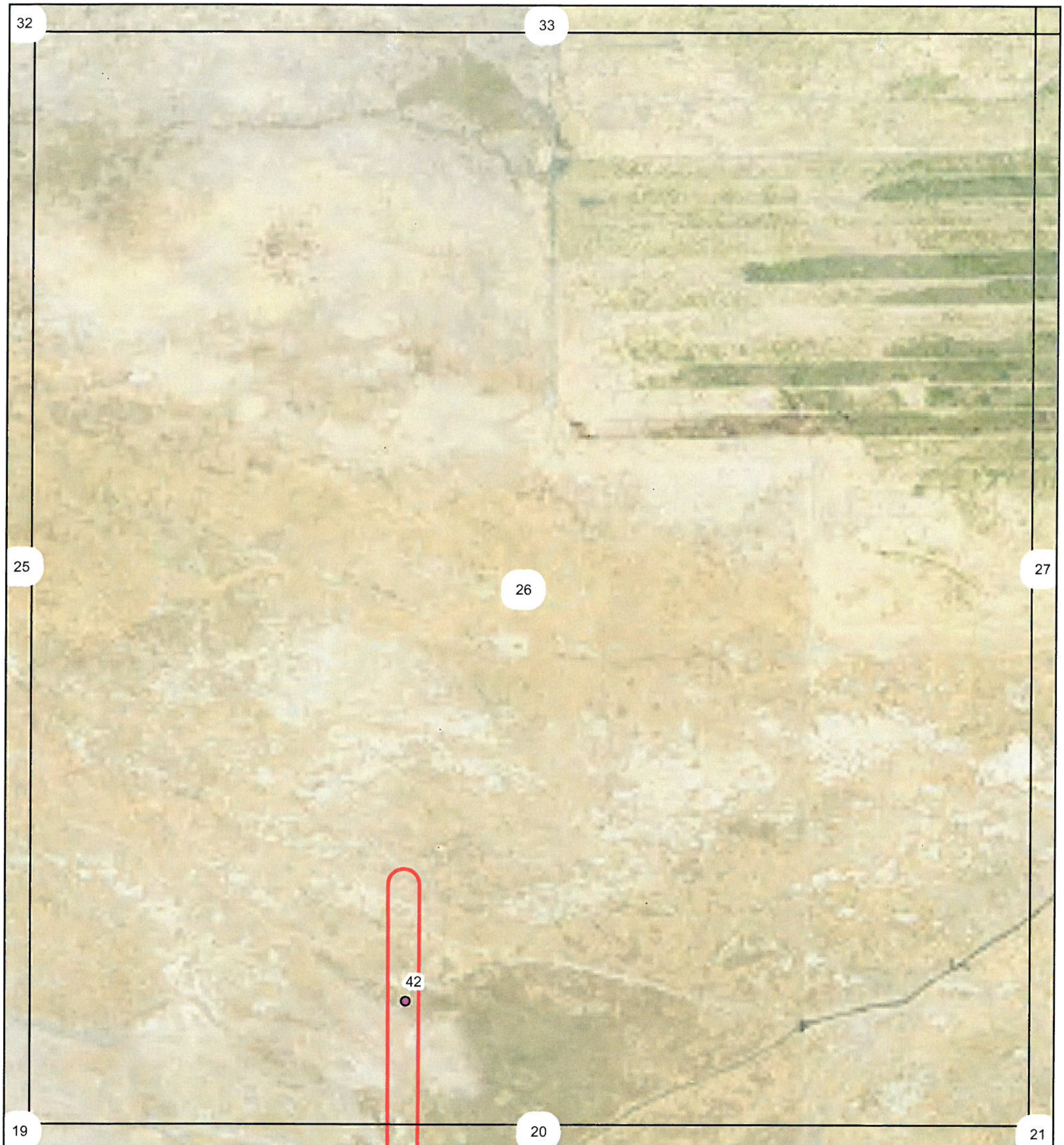
0 260 520
Feet

N

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting



Hart Ranch Wetland Plates

0 260 520
Feet

N

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting

Hart Ranch Wetland Plates

0 260 520

Feet

N

Project Study Area

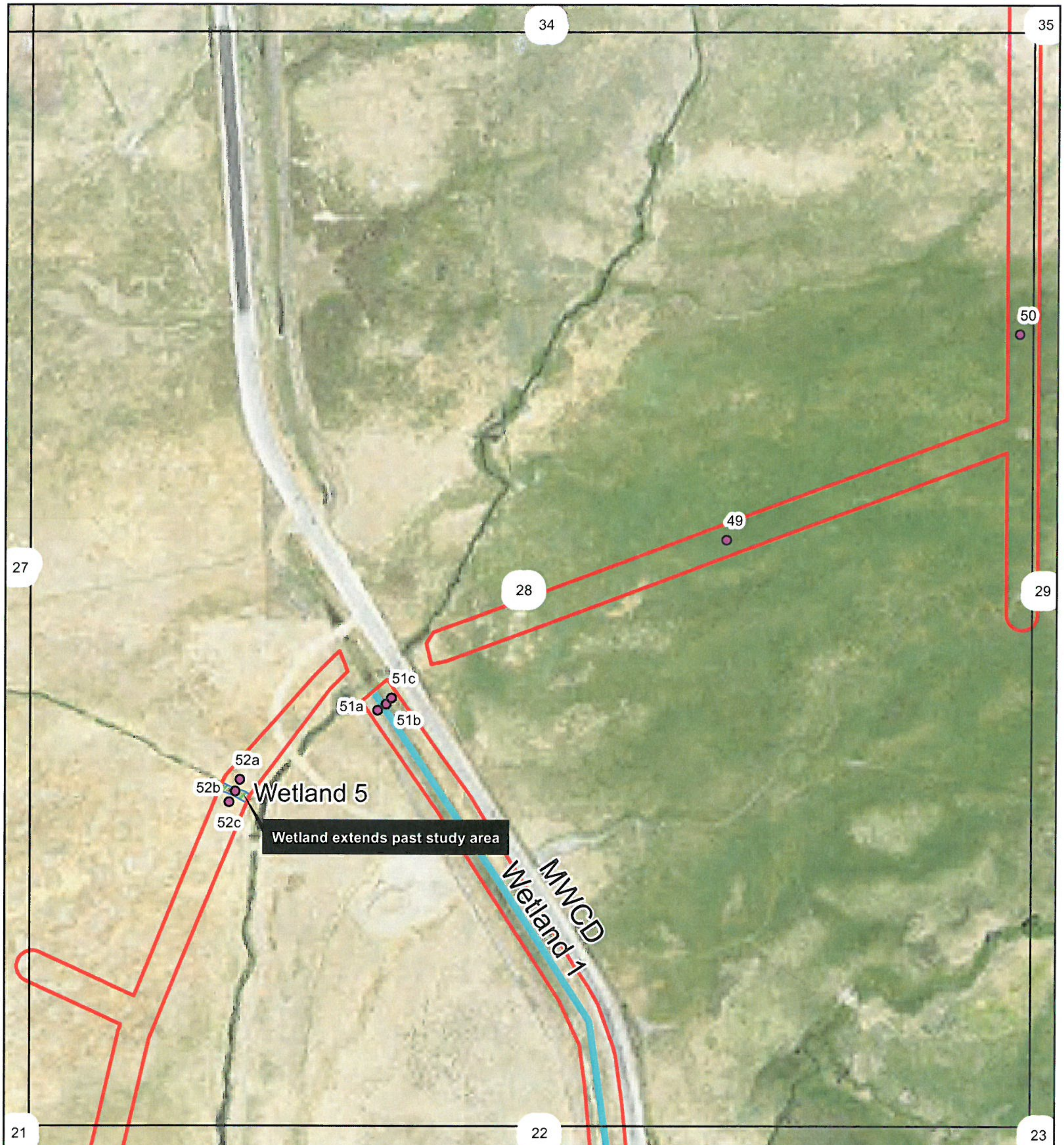
Data Plots

Wetlands

MWCD Ditch Wetland

Evans Ditch Wetland

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016



Rabe Consulting

Hart Ranch Wetland Plates

0 260 520
Feet

N

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

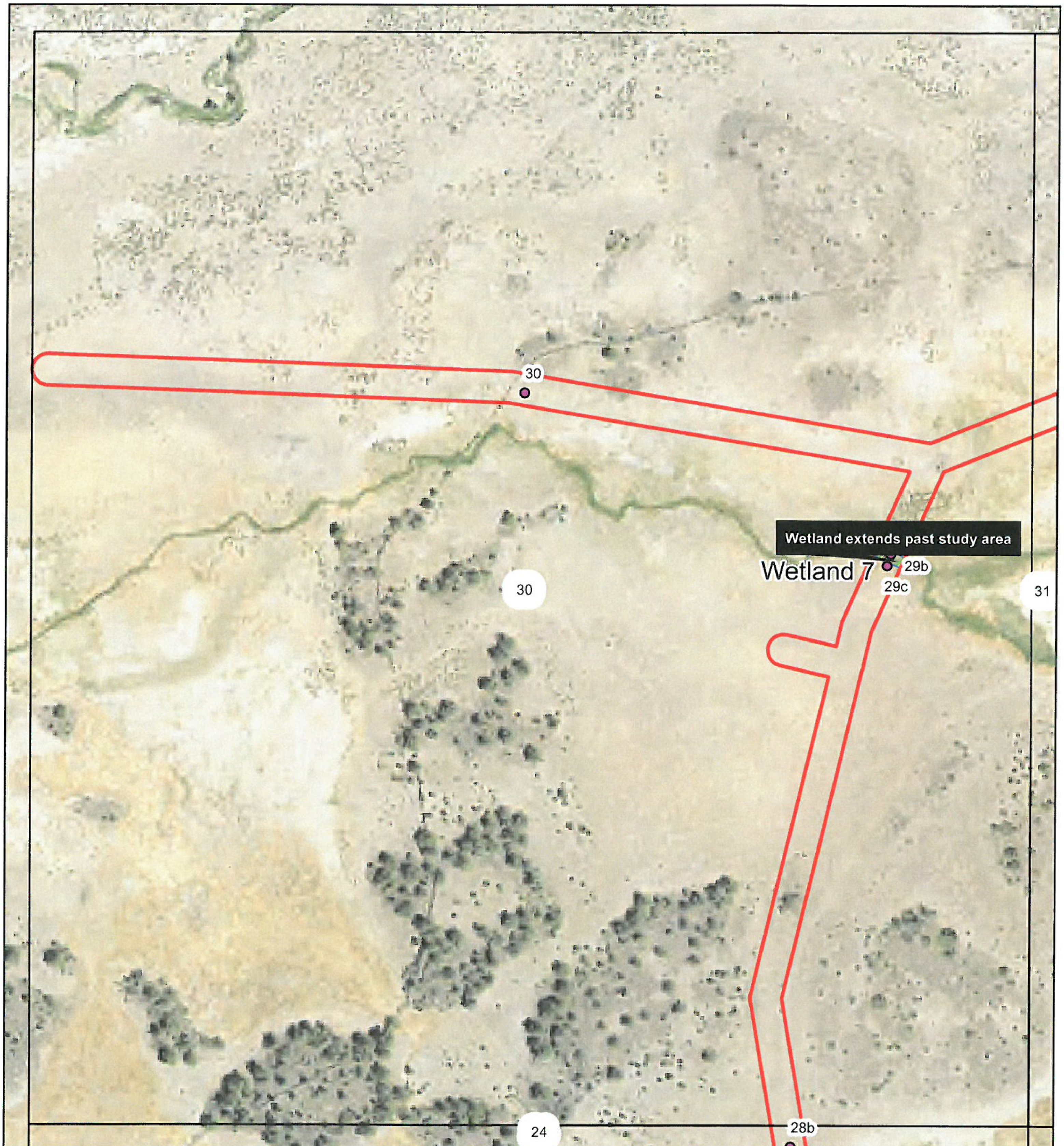
Hart Ranch Wetland Plates

0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland



Hart Ranch Wetland Plates

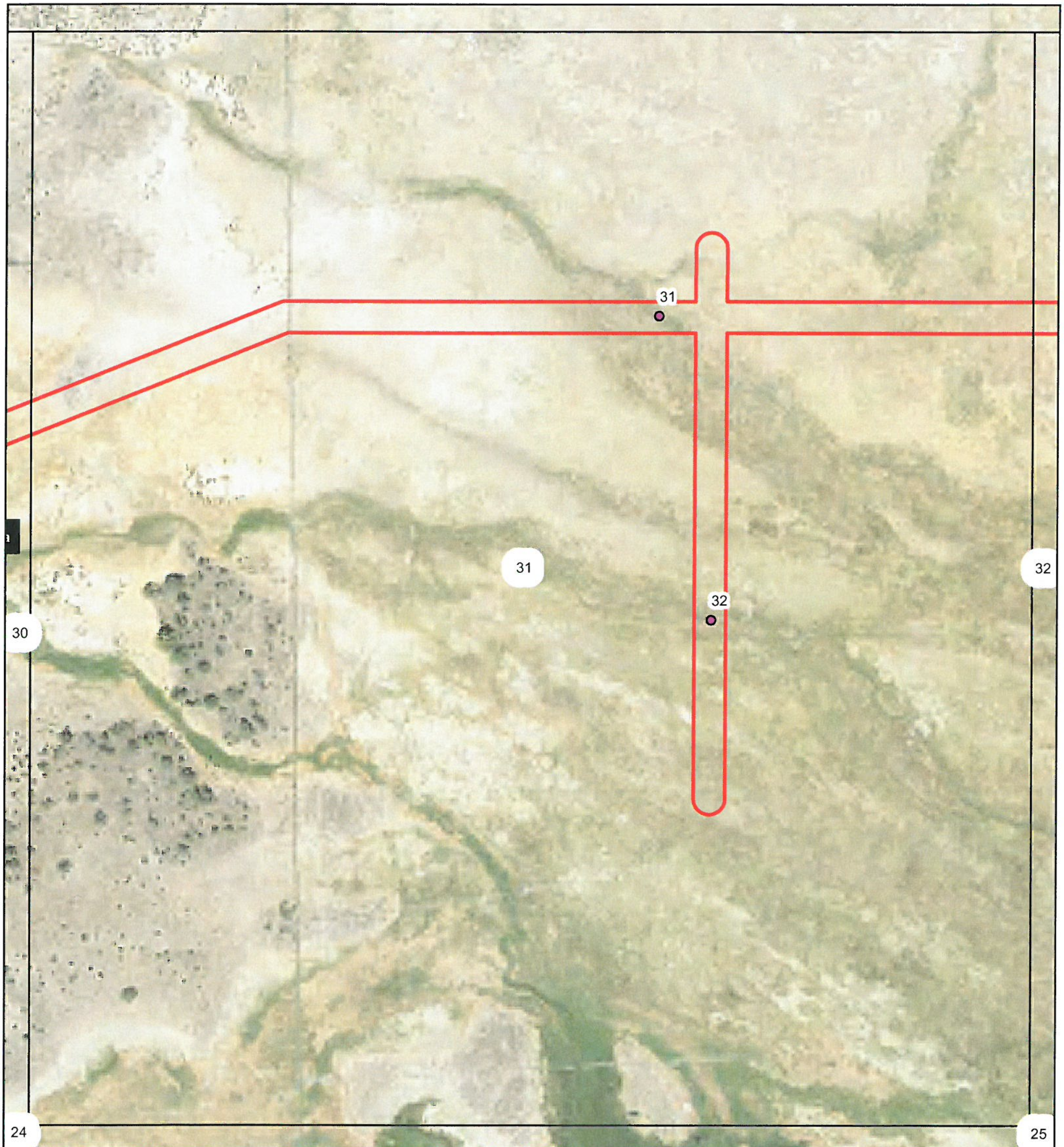
0 260 520
Feet

N

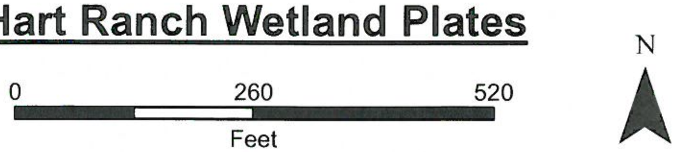
Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016



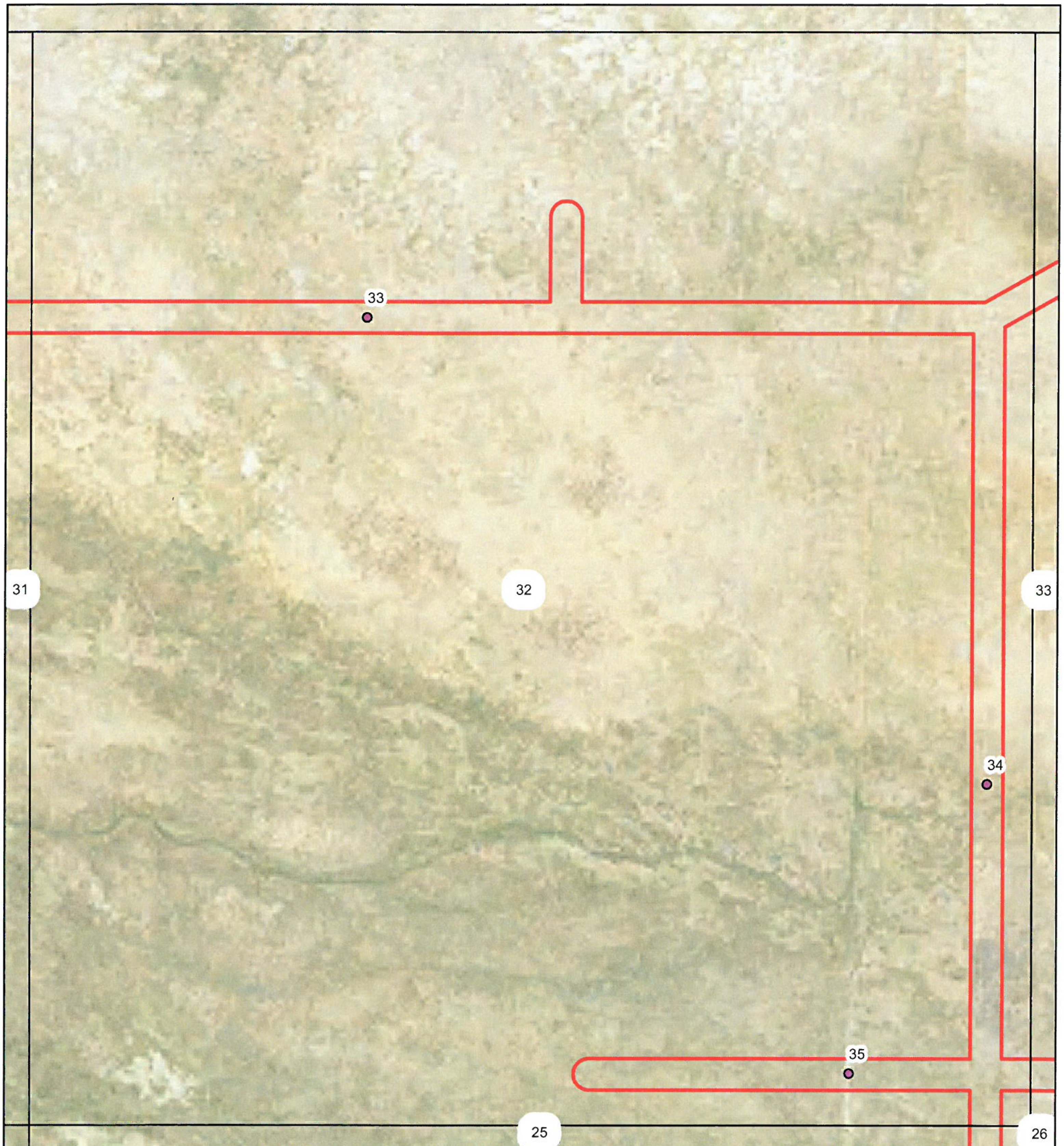
Hart Ranch Wetland Plates



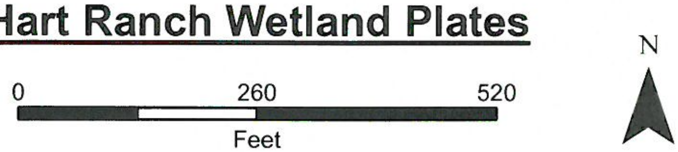
	Project Study Area
	Data Plots
	Wetlands
	MWCD Ditch Wetland
	Evans Ditch Wetland

Rabe Consulting

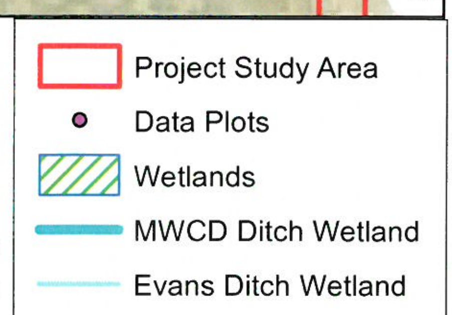
Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

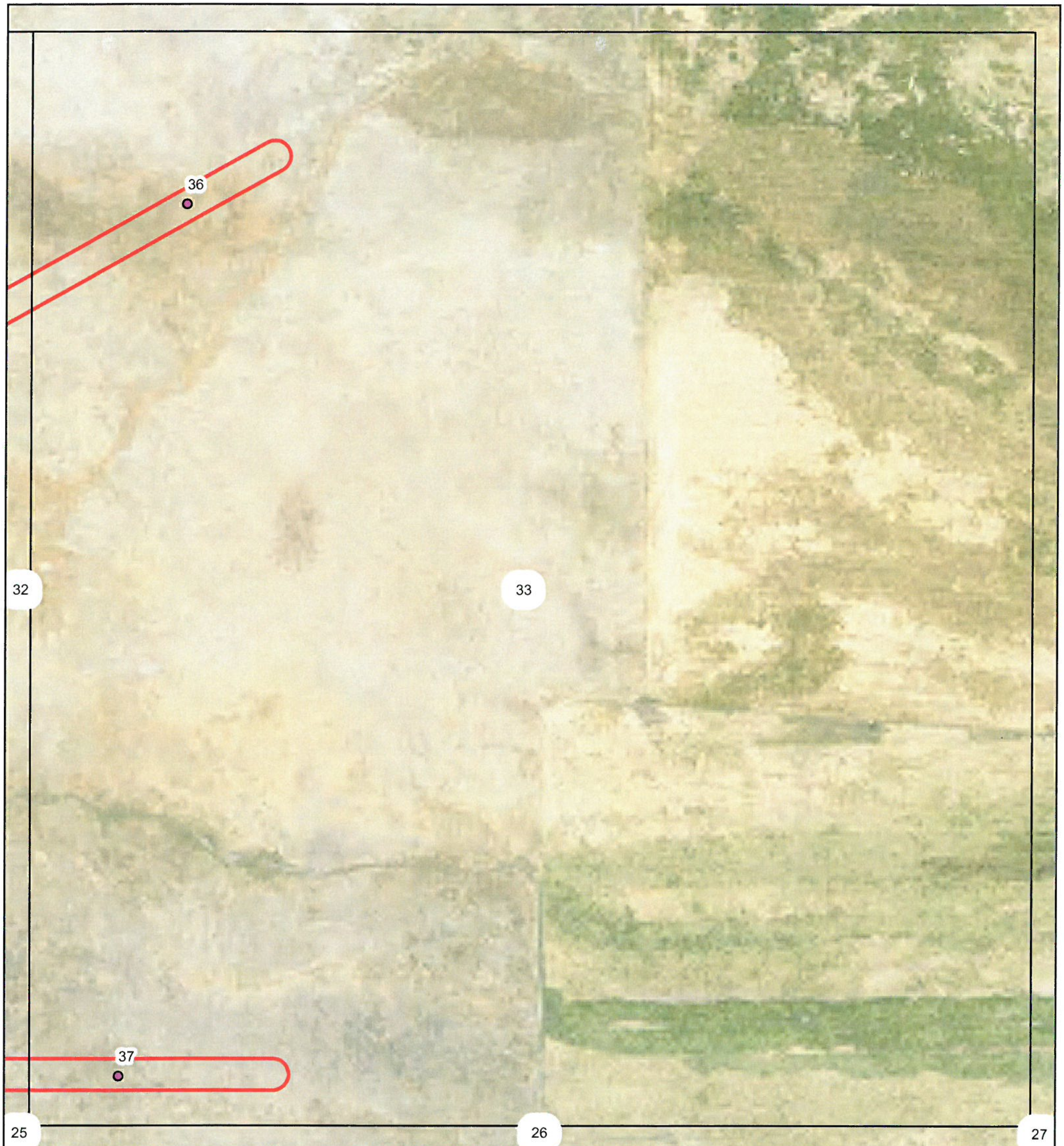


Hart Ranch Wetland Plates



Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016





Hart Ranch Wetland Plates

0 260 520

Feet

N

Project Study Area

Data Plots

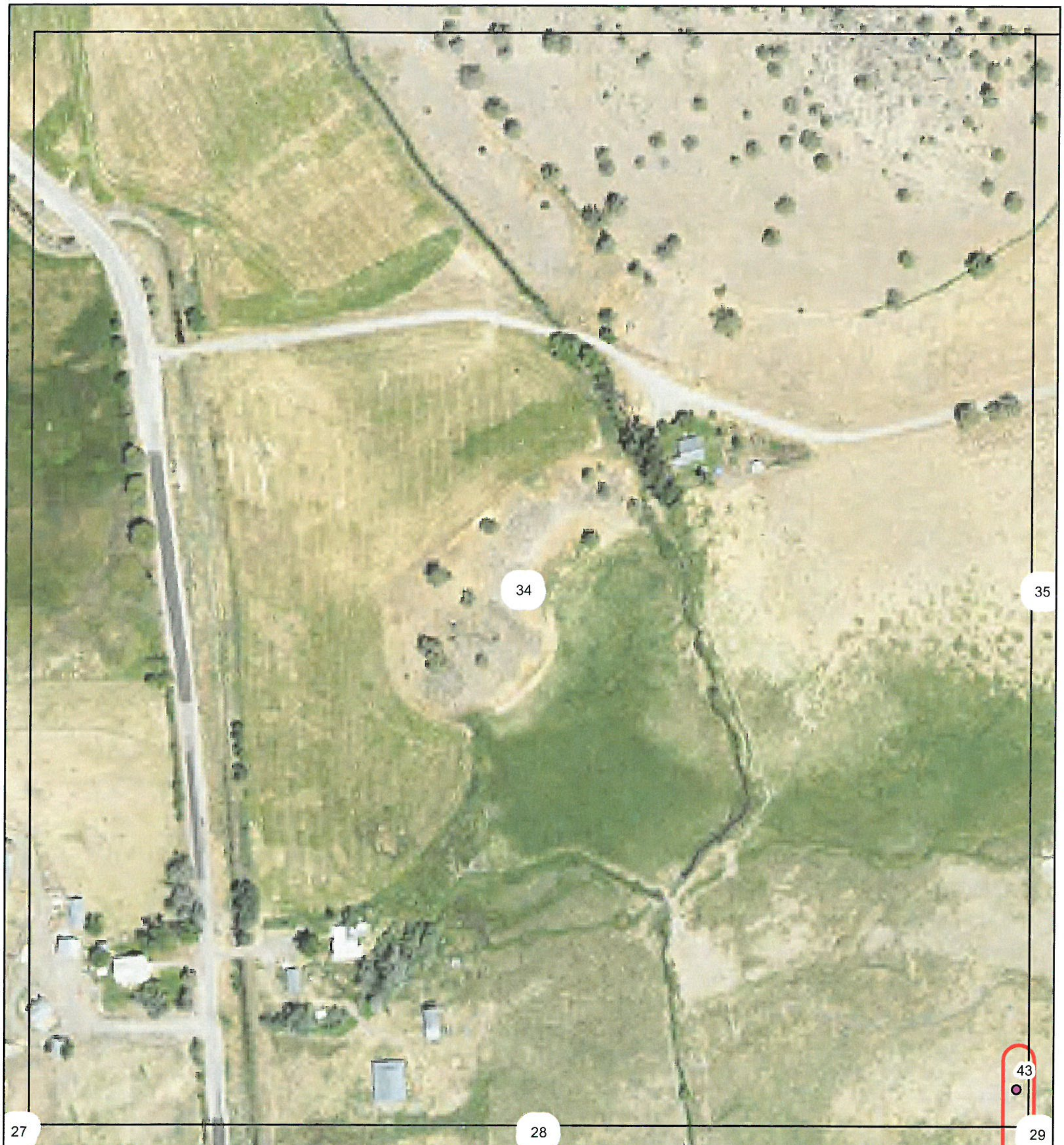
Wetlands

MWCD Ditch Wetland

Evans Ditch Wetland

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016



Hart Ranch Wetland Plates

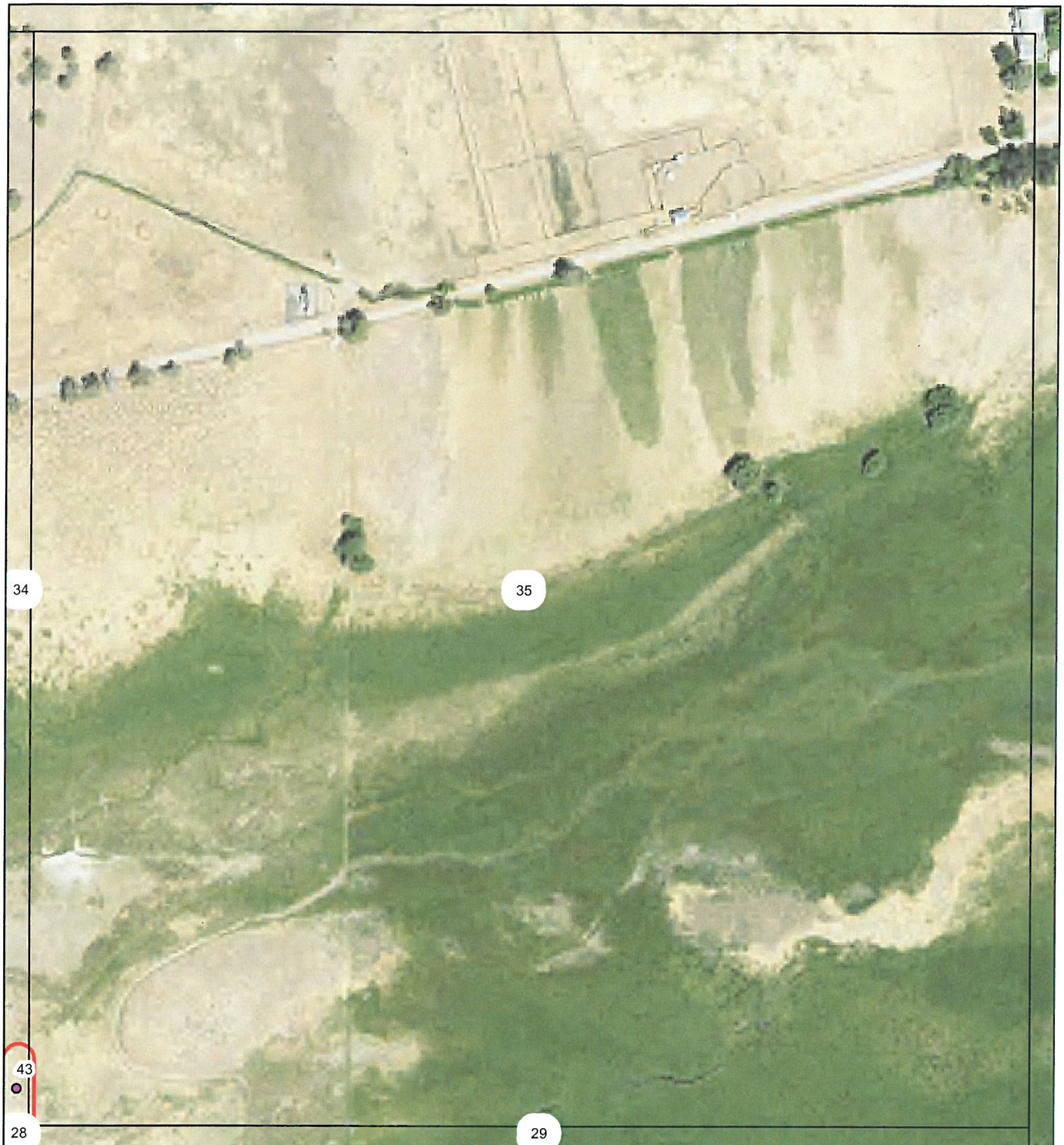
0 260 520
Feet

N

Project Study Area
Data Plots
Wetlands
MWCD Ditch Wetland
Evans Ditch Wetland

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016



Hart Ranch Wetland Plates

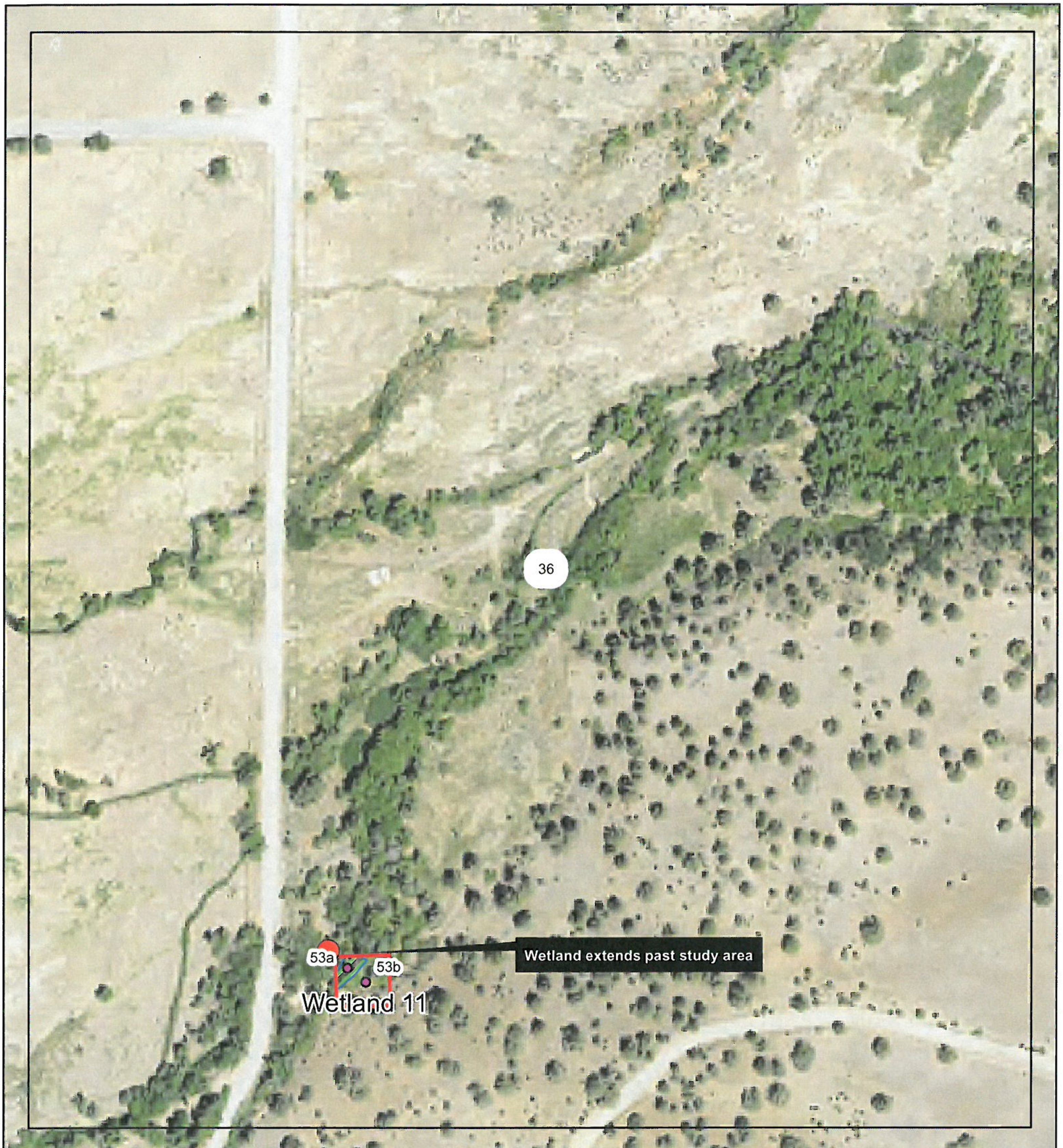
0 260 520
Feet

N

Rabe Consulting

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland



Hart Ranch Wetland Plates

0 260 520
Feet

N

Data Source: National Agriculture Imagery Program (NAIP). Flown in Summer 2014. Study plots and polygons acquired using a Trimble Juno 3B GPS unit with DGNSS/SBAS. Reproduced by Rabe Consulting for the purpose of this document. Map Created By: Andrea Rabe Map Created On: October 1, 2016

Rabe Consulting

- Project Study Area
- Data Plots
- Wetlands
- MWCD Ditch Wetland
- Evans Ditch Wetland

Appendix B Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 1a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.389933 Long: 41.662149 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: ditchbank on sagebrush hillside

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: 1m²)			
1. Centaurea solstitialis	60	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	40		
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: 1 (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	100	x 5 = ~~500~~ 300
Column Totals:	100 (A)	300 (B)

Prevalence Index = B/A = 5

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: 1a

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
0-11	2.5YR6/2	100					loam	
11-18	2.5YR6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 16
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.389965 Long: 41.662116 Datum: NAD83
Soil Map Unit Name: 180 NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
in ditch

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.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 100 Open water			

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]
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 X No ___

Remarks:
Problematic
① yes
② a (in channel w/ abrupt edge)
④ sparse & patchy - riparian along ditch

SOIL

Sampling Point: 1b

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
0-6	2.5YR6/3	100					loam	
6-18	2.5YR6/1	90	5YR4/6			PL	sand	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X	No ___	Depth (inches):	18 in
Water Table Present?	Yes X	No ___	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes Y	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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 1C
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.390016 Long: 41.662082 Datum: NAD 83
Soil Map Unit Name: 180 NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology NO 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:

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: $1 m^2$)			
1. Centaurea solstitialis	40	y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	40		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 60			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	40	x 5 = 200
Column Totals:	40 (A)	200 (B)

Prevalence Index = B/A = 5.0

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: 1C

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	2.5YR6/3	100					loam	
12-18	2.5YR 6/2	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 2a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.385570 Long: 41.660054 Datum: NAD83
Soil Map Unit Name: 18D Louie loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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		
Hydric Soil Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Wetland Hydrology Present? Yes ___ No X		

Remarks:
ditch bank

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: 1m2+)			
1. Centaurea solstitialis	30	Y	UPL
2. Leymus cinereus	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	50		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 50			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (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	20	x 3 = 60
FACU species	___	x 4 = ___
UPL species	30	x 5 = 150
Column Totals:	50 (A)	210 (B)

Prevalence Index = B/A = 4.2

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: 2a

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
0-11	2.5YR 6/3	100					loam	
11-18	2.5YR 6/2	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 2b
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.385485 Long: 41.6600917 Datum: NAD 83
Soil Map Unit Name: 18D NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: ditch

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: 1m2)			
1.			
2.			
3.			
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]
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 X No ___

Remarks: Problematic ① yes ② a-channel abrupt edge ④ sparse/patchy - riparian along ditch open water

SOIL

Sampling Point: 2b

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
0-5	2.5YR 6/3	100					loam	
5-18	2.5YR 6/1	95	5YR 4/6				sand	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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 X No ___ Depth (inches): 18in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 2C
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): MLRA 22B Lat: -122.385452 Long: 41.600123 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 Hydric Soil Present? Yes ___ No X Wetland Hydrology Present? Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:
upland ditchbank

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: 1m2)			
1. Centaurea solstitialis	30	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	30		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 70			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	30	x 5 =	150
Column Totals:	30 (A)		150 (B)

Prevalence Index = B/A = 5.0

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: 2C

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
0-10	2.5YR 6/3	100					loam	
10-18	2.5YR 6/2	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 3a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.394134 Long: 41.665390 Datum: NAD83
Soil Map Unit Name: 18D Wuieloam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m²)			
1. Centaurea solstitialis	30	Y	UPL
2. Bromus tectorum	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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: 3a

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
0-10	2.5YR 6/2	100					loam	
10-18	2.5YR 6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 3b
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.394187 Long: 41.665398 Datum: NAD 83
Soil Map Unit Name: 18D Louie loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology NO 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:
ditch

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: 1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks:
no veg - problematic
1 yes
2 a-channel abrupt edge
4 sparse/patchy riparian
open water

3b

SOIL Sampling Point:

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
0-5	2.5YR 6/3	100					loam	
5-18	2.5YR 6/1	95	5YR 4/6	5			sand	

[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)
- X 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:
Soils in Oct 2016 (dry ditch) excavated topsoil. then sandy layer in ditch bottom

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 20 in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 3c
Investigator(s): Andrea Kabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.394131 Long: 41.665427 Datum: NAD83
Soil Map Unit Name: 18D Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
Upland ditch bank

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: 1m2)			
1. Centaurea solstitialis	20	Y	UPL
2. Bromus tectorum	40	Y	UPL
3. Leymus cinereus	20	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
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: 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	20	x 3 = 60
FACU species		x 4 =
UPL species	60	x 5 = 300
Column Totals:	80 (A)	360 (B)

Prevalence Index = B/A = 4.5

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:

Sampling Point: 3c

SOIL

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
0-10	2.5YR 6/2	100					loam	
10-18	2.5YR 6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: 4a

Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W sect 1, 2+3

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR): MLRA 22B Lat: -122.395236 Long: 41.666266 Datum: NAD 83

Soil Map Unit Name: 186 Mary loam 9-15% NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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:

Upland dirt and bank

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: 1m²)			
1. Bromus tectorum	20	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	20		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 80			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (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	20	x 5 = 100
Column Totals:	20 (A)	100 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 4a

SOIL

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 % [1]	Type [1]	Loc [2]	Texture	Remarks
0-10	7.5YR3/3	100					loam	
10-18	7.5YR3/4	100					loam	

[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:
no indicators

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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 46
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): MLRA 22B Lat: 122.395786 Long: 41.666296 Datum: NAD83
Soil Map Unit Name: 186 mary loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
excavated ditch

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: 1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks:
open water problematic → abrupt edge ① 4a ② a channel abrupt edge ④ sparse/patchy riparian

Sampling Point: 4b

SOIL

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
0-5	10 YR 3/3	100					loam	
5-18	10YR3/1	95	7.5YR4/6	5			sandyloam	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___	Depth (inches):	20 in
Water Table Present?	Yes X No ___	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 4c
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.395129 Long: 41.666313 Datum: NAD 83
Soil Map Unit Name: 186 marty loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

upland ditchbank

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: 1m²)			
1. Centaurea solstitialis	50	Y	UPL
2. Bromus tectorum	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	70		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 30			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	70	x 5 =	350
Column Totals:	70 (A)		350 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 4c

SOIL

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
0-6	7.5YR 3/4	100					loam	
6-18	7.5YR 3/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 5a
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.398103 Long: 41.670857 Datum: NAD 83
Soil Map Unit Name: 187 many stony loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank

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: 1m2)			
1. Centaurea solstitialis	40	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	40		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 60			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	40	x 5 = 200
Column Totals:	40 (A)	200 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 5a

SOIL

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	10YR3/3	100					gravel ~~sandy~~ loam	
12-18	10YR3/4	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 5b
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: 122.398056 Long: 41.670819 Datum: NAD83
Soil Map Unit Name: 187 Mary stony loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch

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: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 1m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
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]
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 X No ___

Remarks:
open water no veg
1 yes 2 a channel abrupt edge 4 sparse veg/riparian

Sampling Point: Sb

SOIL

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
0-10	10YR 5/4	95	5YR 4/6	5		PL	Sandy clay	
10-18	10YR 4/4	100					Clay loam	

[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)
- X 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:
soil checked in Oct. ditch dry excavated ditch

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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 X No ___ Depth (inches): 20.in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: 5C

Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1, 2+3

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): MLRA 22B Lat: -122.398029 Long: 41.670795 Datum: NAD83

Soil Map Unit Name: 187 Many Stony Loam NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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:

upland ditchbank

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: 1m²)			
1. Centaurea solstitialis	50	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	50		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 50			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (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	50	x 5 = 250
Column Totals:	50 (A)	250 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 5C

SOIL

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
0-10	10YR3/3	100					gravel loam	
10-18	10YR3/4	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: 6a

Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1,2+3

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): MLRA 22B Lat: -122.395873 Long: 41.675436 Datum: NAD 83

Soil Map Unit Name: 180 Louie Loam NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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		
Hydric Soil Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Wetland Hydrology Present? Yes ___ No X		

Remarks:

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: 1m²)			
1. Festuca idahoensis	20	Y	FACU
2. Pseudoregneria spicata	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	30		
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:	2	(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	20	x 4 =	80
UPL species	30	x 5 =	150
Column Totals:	50 (A)		230 (B)

Prevalence Index = B/A = 4.6

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]
___ 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:

Sampling Point: 6a

SOIL

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
0-10	2.5YR 6/2	100					loam	
10-18	2.5YR 6/3	100					loam	

[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:
no indicators

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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 66
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122395814 Long: 41.675421 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: ditch

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: 1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks: mostly open water problematic ① yes ② a-abrupt edge change ③ sparse veg - riparian

Sampling Point: 6b

SOIL

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
0-7	2.5YR 6/3	100					loam	
7-18	2.5YR 6/1	90	5YR 4/6				sand	

[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)
X 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:

excavated ditch

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

X Surface Water (A1)
X High Water Table (A2)
X 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 X No ___ Depth (inches): 20 in
Water Table Present? Yes X No ___ Depth (inches): ___________
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 6C
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.395758 Long: 41.67541101 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

upland ditchbank

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: 1m²)			
1. Festuca idahoensis	30	Y	FACU
2. Bromus tectorum	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		
% Bare Ground in Herb Stratum 50			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	30	x 4 =	120
UPL species	20	x 5 =	100
Column Totals:	50 (A)		220 (B)

Prevalence Index = B/A = 4.4

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: 6a

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
0-10	2.5YR 6/2	100					loam	
10-18	2.5YR [illegible]3	100					loam	

[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:

no indicator

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 7a
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.393937 Long: 41.6787692 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank

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: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 1 m²)	Absolute % Cover	Dominant Species?	Indicator Status
1. Centaurea solstitialis	30	Y	UPL
2. Pseudoroegneria spicata	40	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	70		

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	70	x 5 = 350
Column Totals:	70 (A)	350 (B)

Prevalence Index = B/A = 5

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:

Sampling Point 7a

SOIL

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
0-9	2.5YR6/4	100					loam	
9-18	2.5YR6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 76
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.393900 Long: 41.678717 Datum: NAD 83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch

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: 1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks:
Problematic water
no veg
② channel w/ abrupt edge
④ sparse veg riparian

Sampling Point: 7b

SOIL

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
0-6	25YR6/3						Loam	
6-18	2.5YR6/1	80	5YR4/6	20		PL	Sand	

[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)
- X 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:

look at soil in Oct. No ditch water.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 20in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 7C
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.393862 Long: 41.678696 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology NO 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:

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: 1m2)			
1. Bromus tectorum	20	Y	UPL
2. Pseudoregneria spicata	60	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	80	x 5 =	400
Column Totals:	80 (A)		400 (B)

Prevalence Index = B/A = 5

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:

Sampling Point 7c

SOIL

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
0-9	2.5 YR 6/2	100					loam	
9-18	2.5 YR 6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 8a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 3
Subregion (LRR): MLRA 22B Lat: -122.39100 Long: 41.6793781 Datum: NAD83
Soil Map Unit Name: 180 Louie Loan NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank

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 m²)			
1. Pseudoregneria spicata	60	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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:

SOIL

Sampling Point: 8a

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
0-10	2.5YR 6/2	100					loam	
10-18	2.5YR 6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 86
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.390094 Long: 41.679326 Datum: NAD 83
Soil Map Unit Name: 180 Lowe loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch

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: 1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks:
no veg open water. Problematic: ① yes ② a-channel w/ abrupt edge ④ sparse veg riparian

Sampling Point: 8b

SOIL

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
0-6	2.5YR 6/3	100					loam	
6-18	2.5YR 6/1	90	5YR 4/6			PL	sandy loam	

[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)
- X 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:
excavated ditch. Looked at soil in Oct when ditch dry

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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 X No ___ Depth (inches): 18in
Water Table Present? Yes X No ___ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 8c
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122390092 Long: 41.679281 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m²)			
1. Pseudoroegneria spicata	40	Y	UPL
2. Festuca idahoensis	20	Y	FACU
3. Bromus tectorum	40	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 0			

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	20	x 4 = 80
UPL species	80	x 5 = 400
Column Totals:	100 (A)	480 (B)

Prevalence Index = B/A = 4.8

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:

Sampling Point: 8C

SOIL

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
0-10	10YR3/3	100					loam	
10-18	2,5YR6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 9a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.388713 Long: 41.679043 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: NA
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank

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: 1m2)			
1. Centaurea solstitialis	40	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	40		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 60			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	40	x 5 = 200
Column Totals:	40 (A)	200 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 9a

SOIL

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
0-11	2.5YR6/2	100					loam	
11-18	2.5YR6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 9b
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122388712 Long: 41.679073 Datum: NAD 83
Soil Map Unit Name: 180 NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch

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: 1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks:
no veg open water
Problematic: 1) yes 2) a-channel w/abrupt edge 4) sparse veg riparian

SOIL

Sampling Point: 9b

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
0-5	2.5YR 6/3	100					loam	
5-18	2.5YR 6/1	90	5YR 4/6	10		PL	Sandy loam	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 20 in
Water Table Present? Yes X No ___ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 9C
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.38879 Long: 41.679144 Datum: NAD83
Soil Map Unit Name: 180 Lowie loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank

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: 1m²)			
1. Centaurea solstitialis	40%	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 60			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	40	x 5 =	200
Column Totals:	40 (A)		200 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 9c

SOIL

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
0-10	2.5YR6/6	100					loam	
10-18	2.5YR4/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 10a
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.381116 Long: 41.680026 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditchbank

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: 1m2)			
1. Centaurea solstitialis	60	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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: 10a

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
0-11	2.5YR 6/2	100					loam	
11-18	2.5YR 6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 106
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.381049 Long: 41.680216 Datum: NAD 83
Soil Map Unit Name: 180 Cowelcam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: ditch

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: ~1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks: no veg open water Problematic" ① yes ② bar channel w/ abrupt edge ③ sparse veg riparian

Sampling Point: 10b

SOIL

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
0-6	2.5YR6/2	100					Loam	
6-18	2.5YR6/1	90	5YR4/6	10		PL	Sand	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 18in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 10C
Investigator(s): Andrea Kabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.380996 Long: 41.680401 Datum: NAD83
Soil Map Unit Name: 180 Louie loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology NO 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:

ditchbank

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: 1m²)			
1. Centaurea solstitialis	30	Y	UPL
2. Pseudroegneria spicata	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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: 10C

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
0-10	2.5 YR 6/3	100					loam	
10-18	2.5 YR 6/3	100					loam	

[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:

no indicators

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 ___

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

Remarks:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 11a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: 42.376897 Long: 121.6818611 Datum: NAD 83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank

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: 1m2)			
1. Elymus elymoides	60	Y	FACU
2. Bromus tectorum	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	60	x 4 = 240
UPL species	20	x 5 = 100
Column Totals:	80 (A)	340 (B)

Prevalence Index = B/A = 4.25

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: 11a

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
0-18	2.5YR 4/2	100					clay loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 11b
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.376821 Long: 41.681824 Datum: NAD 83
Soil Map Unit Name: 189 Medford clay loam cool NWI classification: PEML
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___
Hydric Soil Present?	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks:
ditch

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: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 1m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
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]
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 X No ___

Remarks:
no veg openwater problematic yes a-channel w/abrupt edge sparse veg riparian

SOIL

Sampling Point: 11b

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
0-18 in	25YR4/2	90	5YR4/6	10		M	sandy loam	

[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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 22in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 11C
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: 122376765 Long: 41.681805 Datum: NAD 83
Soil Map Unit Name: 189 medford Clay loam cool NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank

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: 1m²)			
1. Elymus elymoides	60	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	60	x 4 = 240
UPL species		x 5 =
Column Totals:	60 (A)	240 (B)

Prevalence Index = B/A = 4

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: 11c

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
0-18	2.5YR4/2	100					clay loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 12a
Investigator(s): Andrea Kabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.369928 Long: 41.6837765 Datum: NAD83
Soil Map Unit Name: 189 medford clayloam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: Evans ditch

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: 1m2)			
1.			
2.			
3.			
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]
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 X No ___

Remarks: no veg open water problematic (1) yes (2) a-channel abrupt edge (4) sparse veg riparian

Sampling Point: 12a

SOIL

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
0-18	2.5YR 4/2	85	5YR4/6	15		m	Clay loam	

[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:
Checked soil in pit when ditch was dry

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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 X No ___ Depth (inches): 18 in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 12
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.369860 Long: 41.683777 Datum: NAD 83
Soil Map Unit Name: 189 Medford Clay Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m²)			
1. Centaurea solstitialis	20	Y	UPL
2. Elytrigia repens	10	N	NI
3. Elymus elymoides	40	Y	FACU
4. Poa secunda	10	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum ~~30~~ 20			

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	50	x 4 = 200
UPL species	20	x 5 = 100
Column Totals:	70 (A)	300 (B)

Prevalence Index = B/A = 4.2

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: 12b

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
0-18	2.5YR4/2	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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 13a
Investigator(s): Andrea Kabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.374608 Long: 41.656615 Datum: NAD 83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

ditchbank

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: 1m2)			
1. Centaurea solstitialis	60	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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: 13a

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
0-18	2.5Y 4/2	100					clay loam	

[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:
no indicators

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:
no indicatoss

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: 13b

Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): MLRA 22B Lat: -122.374659 Long: 41.686634 Datum: NAD83

Soil Map Unit Name: 189 medford clay loam cod NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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:

ditch

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: 1m2)			
1.			
2.			
3.			
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]
- 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 X No ___

Remarks:

Problematic: openwater no veg

① yes ② a-channel abrupt edge ③ sparse veg - riparian

Sampling Point: 13b

SOIL

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
0-18	25YR4/2	90	5YR4/6	10		M	Clay loam	

[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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X	No ___	Depth (inches): 18in
Water Table Present?	Yes X	No ___	Depth (inches): ______
Saturation Present? (includes capillary fringe)	Yes X	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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: 13C

Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3

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

Subregion (LRR): MLRA 22B Lat: 122.374554 Long: 41.686600 Datum: NAD83

Soil Map Unit Name: 189 medford clay loam, cool NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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:

ditchbank

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: 1m2)			
1. Centaurea solstitialis	50	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	50		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 50			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (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	50	x 5 = 250
Column Totals:	50 (A)	250 (B)

Prevalence Index = B/A = 5

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: 13C

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
0-16	2.5YR4/2	100					Clay loam	
16-16	10YR3/3	100					Clay loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 14
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.370993 Long: 41.688780 Datum: NAD 83
Soil Map Unit Name: 180 Lorie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
Piped ditch. ag field

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: 1m²)			
1. Medicago sativa	90	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 10			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(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	90	x 5 = 450
Column Totals:	90 (A)	450 (B)

Prevalence Index = B/A = 5.0

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:

Sampling Point: 14

SOIL

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
0-11	2.5YR 6/2	100					loam	
11-18	2.5YR 6/3	100					loam	

[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:
no indicators

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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 15a
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.373471 Long: 41.689558 Datum: NAD83
Soil Map Unit Name: 199 medford clay loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: ditch bank next to alfalfa field

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: 1m²)			
1. Centaurea solstitialis	30	Y	UPL
2. Lactuca serriola	30	Y	UPL
3. Elymus elymoides	10	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	70		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 30			

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	10	x 4 =	40
UPL species	60	x 5 =	300
Column Totals:	70 (A)		340 (B)

Prevalence Index = B/A = 4.6

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]
___ 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: 15a

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
0-18	2.5YR 4/2	100					Clay loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 15b
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: 122.373439 Long: 41.689543 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___ Hydric Soil Present? Yes X No ___ Wetland Hydrology Present? Yes X No ___	Is the Sampled Area within a Wetland? Yes X No ___

Remarks:
ditch

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: 1m2)			
1. Schoenoplectus acutus	10	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 90			

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	10	x 1 = 10
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	10 (A)	10 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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:
mostly open water
6" band of riparian

SOIL

Sampling Point: 15b

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
0-18	2.5YR4/2	90	5YR4/6	10		M	clay loam	

[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:
Check when ditch dry in Oct

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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 X	No ___	Depth (inches): 24 in
Water Table Present?	Yes X	No ___	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes X	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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 1SC
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.373527 Long: 41.689577 Datum: NAD 83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank

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: 1m²)			
1. Centaurea solstitialis	40	Y	UPL
2. Lactuca serriola	40	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	80	x 5 = 400
Column Totals:	80 (A)	400 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 15C

SOIL

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 %	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5YR4/2	100					loam	

[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:
no indicators

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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 16
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.372713 Long: 41.689187 Datum: NAD83
Soil Map Unit Name: 189 Medford clay loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m²)			
1. Medicago sativa	80	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	80	x 5 =	400
Column Totals:	80 (A)		400 (B)

Prevalence Index = B/A = 5

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 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
0-18	2.5YR4/2	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 17a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.372477 Long: 41.690480 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___		
Hydric Soil Present? Yes X No ___	Is the Sampled Area within a Wetland?	Yes X No ___
Wetland Hydrology Present? Yes X No ___		

Remarks: ditch

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: 1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks: no veg open water Problematic: 1) yes 2) a-channel abrupt edge 4) sparse veg riparian

SOIL

Sampling Point: 17a

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
0-10	2.5YR6/2	100					Loam	
10-16	2.5YR6/3	90	5YR4/6	10		PL	loam/sand	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 3 in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 17b
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 3
Subregion (LRR): MLRA 22B Lat: -122.372518 Long: 41.690561 Datum: NAD83
Soil Map Unit Name: 180 Louie loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank/alfalfa field

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: 1m²)			
1. Pseudoroegneria spicata	80	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	80	x 5 = 400
Column Totals:	80 (A)	400 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 17 6

SOIL

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
0-10	2.5YR6/2	100					loam	
10-18	2.5YR6/3	100					loam	

[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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 18
Investigator(s): Andrea Kabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.37954 Long: 41.69328 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ag field

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: 1m²)			
1. medicago sativa	100	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	100	x 5 = 500
Column Totals:	100 (A)	500 (B)

Prevalence Index = B/A = 5

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: 18

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 %	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5YR 6/3	100					Clay loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 19a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.369850 Long: 41.687333 Datum: NAD83
Soil Map Unit Name: 180 Louie loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology NO 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:
ditch

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: 1m2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
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: ___ (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]
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 X No ___

Remarks:
no veg/open water
Problematic
1 yes
2 a-channel abrupt edge
4 sparse veg-riparian

Sampling Point: 19a

SOIL

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
0-6	2.5YR2/2	100					loam	
6-18	2.5YR6/3	90	5YR4/6	10		PL	sandy loam	

[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)
- X 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:
~~excavated ditch~~ Checked when ditch dry in Oct

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 6in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 196
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.369851 Long: 41.6872665 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ag field/ditchbank

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: 1m2)			
1. medicago sativa	90	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 10			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	90	x 5 = 450
Column Totals:	90 (A)	450 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 19b

SOIL

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
0-11	2.5YR4/2	100					loam	
11-18	2.5YR6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 20a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: 122.370015 Long: 41.676132 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
pasture

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: 1m²)			
1. Elymus elymoides	50	Y	FACU
2. Bromus tectorum	20	Y	UPL
3. Poa secunda	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	70		
~~Woody Vine Stratum~~ (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 30			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	50	x 4 = 200
UPL species	20	x 5 = 100
Column Totals:	70 (A)	300 (B)

Prevalence Index = B/A = 4.2

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:

Sampling Point: 20a

SOIL

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
0-18	2.5YR 4/2	100					clay loam	

[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:
no indicators

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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 206
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122369959 Long: 41.676078 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam, cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___		
Hydric Soil Present? Yes X No ___	Is the Sampled Area within a Wetland?	Yes X No ___
Wetland Hydrology Present? Yes X No ___		

Remarks: ditch

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: 1m2)			
1.			
2.			
3.			
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]
- 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 X No ___

Remarks: noveg/openwater Problematic 1 yes 2 a-channel abrupt edge 4 sparse veg-ripairian

206

Sampling Point:

SOIL

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 %[1]	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	2.5YR 4/2	90	5YR 4/6	10			M clay loam	

[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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 6in

Water Table Present? Yes X No ___ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 20C
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.370058 Long: 41.676178 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

pasture

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: 1m2)			
1. Elymus elymoides	60	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	60	x 5 =	300
Column Totals:	60 (A)		300 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 20C

SOIL

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
0-18	2.5YR4/2	100					Clay loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 21a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122389187 Long: 41.6925015 Datum: NAD 83
Soil Map Unit Name: 153 gazell silt loam NWI classification: NA
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
upland pasture / ditch bank

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: 1m²)			
1. Centaurea solstitialis	40	y	UPL
2. Sysimbrium altissimum	20	y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 21a

SOIL

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
0-6	10YR4/2	100					loam	
6-12	10YR6/2	100					loam	
12-18	10YR8/1	100					silt loam	

[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:

alkaline

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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 216
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.389202 Long: 41.692420 Datum: NAD 83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch

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: 1m²)			
1. Spreonoplectus acutus	60	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

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	60	x 1 = 60
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	60 (A)	60 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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: 21b

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
0-8	10yr6/2	100					loam	
8-18	10YR8/1	100					silt loam	

[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)
- X 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:
excavated ditch alkaline soils ~ no redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 8in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 21C
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.389179 Long: 41.692354 Datum: NAD83
Soil Map Unit Name: 153 Gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditchbank sagebrush

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: 1m²)			
1. Centaurea solstitialis	30	Y	UPL
2. Sysimbrium altissimum	10	Y	UPL
3. Pseudoregneria spicata	40	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 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	80	x 5 = 400
Column Totals:	80 (A)	400 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 21C

SOIL

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
0-6	10YR4/2	100					loam	
6-11	10YR 6/2	100					loam	
11-18	10YR8/1	100					Silt loam	

[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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 22
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 10
Subregion (LRR): MLRA 22B Lat: 122.398037 Long: 41.689317 Datum: NAD83
Soil Map Unit Name: 180 loveloam NWI classification: n/a
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m²)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Centaurea solstitialis	10	Y	UPL
2. Pseudoroegneria spicata	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum 60			

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: 2 (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	40	x 5 = 200
Column Totals:	40 (A)	200 (B)

Prevalence Index = B/A = 5

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: 22

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 %	Type[1]	Loc[2]	Texture	Remarks
0-11	2.5YR6/2	100					loam	
11-18	2.5YR6/3	100					loam	

[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:
no indicators

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 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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 03
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 10
Subregion (LRR): MLRA 22B Lat: 122398891 Long: 41.690658 Datum: NAD83
Soil Map Unit Name: 180 Louie Loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ , Soil ___ , or Hydrology NO 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:

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: m^2)			
1. Artemesia tridentata	20	Y	UPL
2. Chrysothamnus nauseosus	20	Y	UPL
3.			
4.			
5.			
= Total Cover	40		
Herb Stratum (Plot size: $1m^2$)			
1. Bromus tectorum	10	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	10		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 50			

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	50	x 5 = 250
Column Totals:	50 (A)	250 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 23

SOIL

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
0-10	2.5YR 6/2	100					loam	
10-18	2.5YR 6/3	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 24
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 12
Subregion (LRR): MLRA 22B Lat: -122.40463 Long: 41.690955 Datum: NAD83
Soil Map Unit Name: 188 mary rock outcrop NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
Sagebrush hillside

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: 1m²)			
1. Artemesia tridentata	10	Y	UPL
2.			
3.			
4.			
5.			
= Total Cover	10		
Herb Stratum (Plot size: 1m²)			
1. Bromus tectorum	20	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	20		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 70			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	30	x 5 = 150
Column Totals:	30 (A)	150 (B)

Prevalence Index = B/A = 5.0

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: 24

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 %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR3/3	100					gravel/loam	
10-18	10YR 3/4	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 25
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 10
Subregion (LRR): MLRA 22B Lat: 122.402202 Long: 41.692663 Datum: NAD 83
Soil Map Unit Name: 180 Louie loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:
Sagebrush hillside.

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: 1m²)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m²)			
1. Bromus tectorum	30%	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	30		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 70

Remarks:

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	30	x 5 = 150
Column Totals:	30 (A)	150 (B)

Prevalence Index = B/A = 5.0

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

Sampling Point: 25

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-11	2.5YR6/2	100					loam	
11-18	2.5YR6/3	100					loam	

[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:
no indicators

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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 26
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): MLRA 22B Lat: 122.402776 Long: 41.695034 Datum: NAD83
Soil Map Unit Name: 177 Lithic Haploxeralfs rock outcrop NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: Rocky flat

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: 1m²)			
1. Bromus tectorum	10	Y	UPL
2. Pseudoroegneria spicata	50	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 26

SOIL

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
0-8	10YR3/4	100					gravel/loam	
8+						too rocky to dig		

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: 27a

Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3

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

Subregion (LRR): MLRA 22B Lat: -122.401771 Long: 41.697949 Datum: NAD83

Soil Map Unit Name: 172 lithic haploxerolls rockoutcrop NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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:

Shelf above drainage

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: 1m2)			
1. Bromus tectorum	20	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 80			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (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	20	x 5 = 100
Column Totals:	20 (A)	100 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 27a

SOIL

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
0-9	10YR 3/4	100					gravel loam	
9+							too rocky to dig	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 27b
Investigator(s): Andrea Kabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.401804 Long: 41.668035 Datum: NAD 83
Soil Map Unit Name: 177 Lithic Haploxerolls Rock Outcrop NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___
Hydric Soil Present?	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: draw ~ dry, spring flows only

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: 1m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks: no veg dry rocky draw Problematic ① yes ② a-dry drainage ③ temporal shift riparian-rocky

Sampling Point: 276

SOIL

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
0-8	10YR3/4	100					gravel loam	
8-18						too rocky to dig		

[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)
- X 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:
vegetated sand/gravel within floodplain
→ drainage patterns

① yes
② yes
③ a/b
④ b3

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X 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)
- X 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)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X 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:
seasonally wet drainage

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 28a
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.401826 Long: 41.698131 Datum: NAD 83
Soil Map Unit Name: 177 lithic haploxerolls rock outcrop NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
draw

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: 1m²)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 100			

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]
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 X No ___

Remarks:
no veg
dry rocky draw
Problematic:
1 yes
2a - dry drainage
4 temporal shift
riparian - rocky

Sampling Point: 28a

SOIL

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
0-8	10YR3/4	100					gravel/loam	
SHB							too rocky to dig	

[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)
- X 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: Problematic
D yes 2 yes 3 a/b 4 b3 rocky drainage

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X 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)
- X 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)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X 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:

Seasonal drainage

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 286
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: 122.401836 Long: 41.658207 Datum: NAD 83
Soil Map Unit Name: 177 Whichaploxeroll outcrop NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

shelf above draw

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: 1m²)			
1. Chrysothamnus nauseosus	30	Y	UPL
2.			
3.			
4.			
5.			
= Total Cover	30		
Herb Stratum (Plot size: 1m²)			
1. Bromus tectorum	20	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	30		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 60			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	50	x 5 = 250
Column Totals:	50 (A)	250 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 28b

SOIL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR3/4	100					gravel/loam	
9-18						too rocky to dig		

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 29a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.401224 Long: 41.7008456 Datum: NAD83
Soil Map Unit Name: 154 gazelle variant sandy clay loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
above draw

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: 1m2)			
1. Bromus tectorum	30	Y	UPL
2. Sisymbrium altissimum	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	50		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 50			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	50	x 5 = 250
Column Totals:	50 (A)	250 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 29a

SOIL

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	10YR6/2	100					sandy loam	
12-18	10YR4/2	100					sand/ Cemented hardpan	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 29b
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: 122.401211 Long: 417007933 Datum: NAD83
Soil Map Unit Name: 154 gazelle variant sandy clayloam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
draw

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: 1m²)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 100			

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]
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 X No ___

Remarks:
no veg. dry rocky draw
Problematic
1) yes 2) a-channel 4) temporal shift riparian - rocky

SOIL

Sampling Point: 29b

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
0-4	10YR6/2	100					Sandy loam	
4-18	10YR4/2	90	5YR4/6	10			M- cemented sand	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 6 in

Water Table Present? Yes X No ___ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 29c
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): MLRA 22B Lat: 122.401263 Long: 41.7007433 Datum: NAD83
Soil Map Unit Name: 154 gazelle variant sandy clay loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: bank above draw

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: 1m²)			
1. Artemesia tridentata	10	Y	UPL
2.			
3.			
4.			
5.			
= Total Cover	10		
Herb Stratum (Plot size: 1m²)			
1. Bromus tectorum	20	Y	UPL
2. Sisymbrium altissimum	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	40		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 50			

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	50	x 5 = 250
Column Totals:	50 (A)	250 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 29C

SOIL

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 6/2	100					sandy loam	
12-18	10YR 4/2	100					cement sand	

[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:
no indicators

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 ____

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

Remarks:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 30
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.403383 Long: 41.701508 Datum: NAD83
Soil Map Unit Name: 154 gazelle variant sandy/clay loam NWI classification: n/a
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
dry ditch

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: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 1m²)	Absolute % Cover	Dominant Species?	Indicator Status
1. Bromus tectorum	20	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 80

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	20	x 5 =	100
Column Totals:	20 (A)		100 (B)

Prevalence Index = B/A = 5

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: 3D

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
0-11	10YR6/2	100					Sandy loam	
11-18	10YR4/2	100					cemented sand	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 31
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): MLRA 22B Lat: -122.396759 Long: 41.701807 Datum: NAD83
Soil Map Unit Name: 154 gazelle variant sandy clay loam NWI classification: PEMA
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___ No X	
Hydric Soil Present? Yes ___ No X		
Wetland Hydrology Present? Yes ___ No X		

Remarks:

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: 1m2)			
1. Distichlis spicata	40	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 60			

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	40	x 2 =	80
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	40 (A)		80 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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: 31

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 6/2	100					Sandy loam	
12-18	10YR 4/2	100					cemented loam	

[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:

no indicators

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:

marginally irrigated, rocky

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 32
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.3964?1 Long: 41.70047169 Datum: NAD 83
Soil Map Unit Name: 154 gazelle variant sandy loam NWI classification: PEMA
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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 m2)			
1. Centaurea solstitialis	60	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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: 32

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
0-11	10YR6/2	100					Sandy loam	
11-18	10YR4/2	100					cemented sand	

[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:
no indicators

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:
marginally flood irrigated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 33
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 4
Subregion (LRR): MLRA 22B Lat: -122.393225 Long: 41.701779 Datum: NAD83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: $1m^2$)			
1. alkali blue grass			
2. basin wildrye			
3. alkali sacaton			
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:

SOIL

Sampling Point: 33

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
0-6	10YR4/2	100					loam	
6-12	10YR7/2	100					Clay loam	
12-18	10YR8/4	100					clay loam	

[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: marginally flood irrigated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 34
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.389019 Long: 41.699722 Datum: NAD83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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		
Hydric Soil Present? Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X	
Wetland Hydrology Present? Yes ___ No X		

Remarks:

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: 1m²)			
1. Poa juncifolia	20	Y	UPL
2. Sporobolus airoides	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	40		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 60			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ~~0~~ (A)
Total Number of Dominant Species Across All Strata: 2 (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	40	x 5 = 200
Column Totals:	40 (A)	200 (B)

Prevalence Index = B/A = 5

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: 34

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
0-7	10YR4/2	100					loam	
7-11	10YR7/2	100					Clay loam	
11-18	10YR5/1	100					clay loam	

[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:
no indicatos

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:
flood irrigated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 35
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): ≤2
Subregion (LRR): MLRA 22B Lat: -122.389826 Long: 41.698464 Datum: NAD83
Soil Map Unit Name: 154 Gazelle variant sandy loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m²)			
1. Poa pratensis	50	Y	FAC
2. Pseudoroegneria spicata	20	Y	UPL
3. Poa juncifolia	10	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 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	50	x 3 = 150
FACU species		x 4 =
UPL species	30	x 5 = 150
Column Totals:	80 (A)	300 (B)

Prevalence Index = B/A = 3.75

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: 3S

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
0-6	10YR4/2	100					loam	
6-18	10YR4/2	100					Cemented Sand	

[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:

flood irrigated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 36
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.387835 Long: 41.702248 Datum: NAD83
Soil Map Unit Name: 154 gazelle variant sandy clay loam NWI classification: PEMA
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:

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: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 1m2)	Absolute % Cover	Dominant Species?	Indicator Status
1. Poa juncifolia	30	Y	UPL
2. Elytrigia repens	60	Y	NI
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	90		

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	30	x 5 =	150
Column Totals:	30 (A)		150 (B)

Prevalence Index = B/A = 5

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: 36

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
0-11	10YR6/2	100					Sandy loam	
11-18	10YR4/2	100					Cemented Sand	

[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:

no indicators

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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 37
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.383253 Long: 41.698447 Datum: NAD83
Soil Map Unit Name: 154 gazelle variant silty clay loam NWI classification: PEMA
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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		
Hydric Soil Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Wetland Hydrology Present? Yes ___ No X		

Remarks:

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: 1m²)			
1. Poa juncifolia	20	Y	FAC
2. Poa pratensis	20	Y	UPL
3. Elytrigia repens	50	Y	NI
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 10			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (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	20	x 3 = 60
FACU species	___	x 4 = ___
UPL species	20	x 5 = 100
Column Totals:	40 (A)	160 (B)

Prevalence Index = B/A = 4.0

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: 37

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
0-13	10YR6/2	100					sandy loam	
13-18	10YR6/4	100					cemented sand	

[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:

no indicators

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:

FID 100

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 38a
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.381912 Long: 41.692538 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam com NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m2)			
1. Poa juncifolia	40	Y	UPL
2. Elymus elymoides	40	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	40	x 4 = 160
UPL species	40	x 5 = 200
Column Totals:	80 (A)	360 (B)

Prevalence Index = B/A = 4.5

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:

Sampling Point:

SOIL

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
0-18	10YR3/2	100					clay loam	

[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:

no indicators

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:

no indicators

FID 101

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 38b
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.381913 Long: 41.692489 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

ditch

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: 1m2)			
1. Schoenoplectus acutus	50	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		
% Bare Ground in Herb Stratum 50			

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	50	x 1 = 50
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	50 (A)	50 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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:

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
0–18	10YR3/2	90 D	5YR4/6	10		M	Sandy Loam	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 3in
Water Table Present? Yes X No ___ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): ______

Wetland Hydrology Present? Yes X No ___

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

Remarks:

FID 102

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 38c
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.381915 Long: 41.692445 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam Cool NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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		
Hydric Soil Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Wetland Hydrology Present? Yes ___ No X		

Remarks:

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: 1m²)			
1. Elymus elymoides	60	Y	UPL
2. Poa sp	20		
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= 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: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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:

Sampling Point:

SOIL

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
0-18	10YR3/2	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 39
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: 122.389089 Long: 41.696035 Datum: NAD 83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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		
Hydric Soil Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Wetland Hydrology Present? Yes ___ No X		

Remarks:

Pasture

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: 1m2)			
1. Pseudoroegneria spicata	20	Y	UPL
2. Elytrigia repens	40	Y	NI
3. Poa pratensis	40	Y	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 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (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	40	x 3 = 120
FACU species		x 4 =
UPL species	20	x 5 = 100
Column Totals:	60 (A)	220 (B)

Prevalence Index = B/A = 3.6

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]
___ 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: 39

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
0-18	10YR3/2	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 40
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): MLRA 22B Lat: 122.389174 Long: 41.693850 Datum: NAD 83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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		
Hydric Soil Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Wetland Hydrology Present? Yes ___ No X		

Remarks:

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: 1m²)			
1. Elymus elymoides	80	Y	FACU
2. Poa pratensis	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (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	20	x 3 = 60
FACU species	80	x 4 = 320
UPL species		x 5 =
Column Totals:	100 (A)	380 (B)

Prevalence Index = B/A = 3.8

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: 4D

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
0-18	10YR3/2	100					loam	

[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:
no indicators

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 ___

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

Remarks:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: 42

Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): MLRA 22B Lat: 122.384620 Long: 41.693987 Datum: NAD 83

Soil Map Unit Name: 153 Gazelle Silt loam NWI classification: PEMC

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m²)			
1. Pseudoroegneria spicata	40	Y	UPL
2. Elymus elymoides	30	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		
% Bare Ground in Herb Stratum 70			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (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	30	x 4 = 120
UPL species	40	x 5 = 200
Column Totals:	70 (A)	320 (B)

Prevalence Index = B/A = 3.1

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: 42

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
0-18	10YR3/2	100					loam	

[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:

no indicators

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:

some irrigation

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 43
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.371339 Long: 41.698299 Datum: NAD83
Soil Map Unit Name: 154 gazelle variant sandy clay loam NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___ No X
Hydric Soil Present? Yes ___ No X		
Wetland Hydrology Present? Yes ___ No X		

Remarks:

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: 1m2)			
1. Poa pratensis	40	Y	FAC
2. Elytrigia repens	30	Y	NI
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	7?		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 30			

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	40	x 3 = 120
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	40 (A)	120 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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: 43

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
0-6	10YR 4/2	100					Loam	
6-18	10YR 4/2	100					Cemented	Sand

[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:

no indicators

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:

flood irrigated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 41
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): MLRA 22B Lat: -122.381883 Long: 41.693855 Datum: NAD83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

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: 1m²)			
1. Pseudoregneria spicata	30	Y	UPL
2. Poa pratensis	40	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 30			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (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	40	x 3 = 120
FACU species		x 4 =
UPL species	30	x 5 = 150
Column Totals:	70 (A)	270 (B)

Prevalence Index = B/A = 3.6

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]
___ 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: 41

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
0-18	10YR3/2	100					loam	

[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:

no indicators

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** ___

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

Remarks:

marginally irrigated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 44a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.376921 Long: 41.692611 Datum: NAD83
Soil Map Unit Name: 189 medford clayloam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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		
Hydric Soil Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Wetland Hydrology Present? Yes ___ No X		

Remarks:
pasture

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: 1m2)			
1. Elymus elymoides	80	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		
% Bare Ground in Herb Stratum 10			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	80	x 4 = 320
UPL species		x 5 =
Column Totals:	80 (A)	320 (B)

Prevalence Index = B/A = 4

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: 44a

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
0-16	2.5YR4/2	100					Clay loam	

[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:
no indicators

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 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 44b
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.371908 Long: 41.692569 Datum: NAD 83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch

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 m²)			
1.			
2.			
3.			
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]
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 X No ___

Remarks:
no veg / open water
Problematic: ① yes ② a-channel w/ abrupt edge ④ sparse veg riparian

Sampling Point: 446

SOIL

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
0-18in	2.5YR4/2	90	5YR4/6	10		M	sandy loam	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 3in
Water Table Present? Yes X No ___ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 44C
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2 + 3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.376916 Long: 41.692526 Datum: NAD 83
Soil Map Unit Name: 189 medford clay warm cool NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
alfalfa field

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: 1m²)			
1. medicago sativa	90	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 10			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	90	x 5 = 450
Column Totals:	90 (A)	450 (B)

Prevalence Index = B/A = 5

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: 44C

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
0-18	2.5YR 4/2	100					Clay loam	

[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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 45a
Investigator(s): Andrea Kabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.379367 Long: 41.692377 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
alfalfa field

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: 1m²)			
1. Medicago sativa	80	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(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	80	x 5 = 400
Column Totals:	80 (A)	400 (B)

Prevalence Index = B/A = 5

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:

Sampling Point 45a

SOIL

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
0-18	2.5YR 4/2	100					loam	

[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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 45b
Investigator(s): Andrea Kabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.379475 Long: 41.692369 Datum: NAD83
Soil Map Unit Name: 189 NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: ditch

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: 1m2)			
1.			
2.			
3.			
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]
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 X No ___

Remarks: no veg / open water Problematic; (1) yes (2) a- channel abrupt edge (4) sparse veg riparian

SOIL

Sampling Point: 45b

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
0-6	2.5YR4/2	90	5YR4/6	10		M	sandy loam	
6-18	2.5YR4/2	100					Clay loam	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 6 in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 45c
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.379665 Long: 41.692384 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam (col) NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
alfalfa field

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: 1m²)			
1. Medicago sativa	90	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 10			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	90	x 5 = 450
Column Totals:	90 (A)	450 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 45C

SOIL

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
0-18	2.5 4RY/2	100					claylaom	

[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:
no indicators

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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 46
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.381578 Long: 41.6917654 Datum: NAD 83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
alfalfa field

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: 1m²)			
1. Medicago sativa	80	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	80	x 5 =	400
Column Totals:	80 (A)		400 (B)

Prevalence Index = B/A = 4

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: 46

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
0-18	2.5YR 4/2	100					Clay loam	

[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:
no indicators

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:
no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 47a
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.386645 Long: 41.692531 Datum: NAD83
Soil Map Unit Name: 189 medford clay loam cool NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
pasture

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: 1m²)			
1. Pseudoroegneria spicata	20	Y	UPL
2. Bromus tectorum	40	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	60	x 5 = 300
Column Totals:	60 (A)	300 (B)

Prevalence Index = B/A = 5

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:

Sampling Point: 47a

SOIL

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
0-18	2.5YR4/2	100					clay loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 47b
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.386651 Long: 41.692449 Datum: NAD83
Soil Map Unit Name: 189 NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: ditch

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: 1m2)			
1.			
2.			
3.			
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]
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 X No ___

Remarks: no veg open water Problematic ① yes ② a channel w/abrupt edges ③ sparse veg riparian

Sampling Point: 476

SOIL

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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5YR4/2	90	5YR4/6	10		M	Sandy loam	
8-18	2.5YR4/2	100					clay loam	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 6in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 47c
Investigator(s): Andrea Kabe Section, Township, Range: T. 45N, R5W sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.386647 Long: 41.692374 Datum: NAD83
Soil Map Unit Name: 189 NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:
Pasture

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: 1m²)			
1. Centaurea solstitialis	20%	Y	UPL
2. Elymus elymoides	20%	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 60			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	20	x 4 = 80
UPL species	20	x 5 = 100
Column Totals:	40 (A)	180 (B)

Prevalence Index = B/A = 4.5

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: 47C

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
0-18	2.5YR 4/2	100					clay loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 48
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): MLRA 22B Lat: -122.386647 Long: 41.691355 Datum: NAD 83
Soil Map Unit Name: 187 medford clay loam cool NWI classification: PEMC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes X No ___	

Remarks:

irrigated pasture

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: 1m2)			
1. Elymus elymoides	50	Y	FACU
2. Poa pratensis	20	Y	FAC
3. ~~Jun~~ Juncus articus littoralis	20	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 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	20	x 2 = 40
FAC species	10	x 3 = 30
FACU species	50	x 4 = 200
UPL species		x 5 =
Column Totals:	80 (A)	270 (B)

Prevalence Index = B/A = 3.4

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: S3

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
0-18	2.5YR4/2	100					Clay loam	

[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:

no indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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 f Depth (inches): ___
Water Table Present? Yes ___ No f Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 10

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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 49
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): MLRA 22B Lat: 122.393078 Long: 41.695922 Datum: NAD 83
Soil Map Unit Name: 153 Gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:

irrigated pasture

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: 1m²)			
1. Distichlis spicata	30	Y	FACW
2. Elytrigia repens	30	Y	NI
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

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	30	x 2 = 60
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	30 (A)	60 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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: 49

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
0-6	10YR4/2	100					loam	
6-13	10YR6/2	100					loam	
13-18	10YR8/1	100					Silt loam	

[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:

no indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
X 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 X No ___ Depth (inches): 8in

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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 50
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MLRA 22B Lat: -122.371360 Long: 41.168299 Datum: NAD83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes X No ___	

Remarks:
Irrigated pasture

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: 1m²)			
1. Juncus arcticus	20	Y	FACW
2. Poa pratenses	50	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	70		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 30			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (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	20	x 2 = 40
FAC species	50	x 3 = 150
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	70 (A)	190 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
X 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: 50

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
0-6	10YR 4/2	100					loam	
6-12	10YR 6/2	100					loam	
12-18	10YR 5/1	100					silt loam	

[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:

no indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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 X No ___ Depth (inches): 8 in

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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: S1a

Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1, 2+3

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

Subregion (LRR): MLRA 22B Lat: 122.37511 Long: 41.69594 Datum: NAD83

Soil Map Unit Name: 153 gazelle [illegible] NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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: ditch bank

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: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 1m²)	Absolute % Cover	Dominant Species?	Indicator Status
1. Centaurea solstitialis	30	Y	UPL
2. Festuca idahoensis	30	Y	FACU
3. Pseudoroegneria spicata	20	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 20

Remarks:

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	30	x 4 =	120
UPL species	50	x 5 =	250
Column Totals:	80 (A)		370 (B)

Prevalence Index = B/A = 4.4

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

SOIL

Sampling Point: S19

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
0-11	10YR6/2	100					loam	
11-18	10YR6/1	100					loam	

[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:

alkaline

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: S16
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): MLRA 22B Lat: -122.375059 Long: 41.695221 Datum: NAD83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/a
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___ Hydric Soil Present? Yes X No ___ Wetland Hydrology Present? Yes X No ___	Is the Sampled Area within a Wetland? Yes X No ___

Remarks:
ditch

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: 1m2)			
1.			
2.			
3.			
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 X No ___

Remarks:
no veg open water
Problematic 1 yes 2 a-channel w/ abrupt edge 4 sparse veg - riparian

SOIL

Sampling Point: 51b

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 - 10	10YR 6/2	80	10Y 4/1	20			loam	
10 - 18	10YR 6/1	100					loam	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 X No ___ Depth (inches): 6 in
Water Table Present? Yes X No ___ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: S1c
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): MLRA 22B Lat: 122.375027 Long: 41.695247 Datum: NAD83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:

ditchbank

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: 1m²)			
1. Leymus cinereus	40	Y	FAC
2. Pseudoroegneria spicata	20	Y	UPL
3. Bromus tectorum	20	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	80		
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: 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	40	x 3 = 120
FACU species		x 4 =
UPL species	40	x 5 = 200
Column Totals:	80 (A)	320 (B)

Prevalence Index = B/A = 4.0

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: 51C

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
0-10	10YR6/2	100					loam	
10-18	10YR6/1	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 52a
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): MLRA 22B Lat: 122.379913 Long: 41.694895 Datum: NAD 83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: dry pasture

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: 1m²)			
1. Elymus elymoides	60	Y	FACU
2. Bromus tectorum	10	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover	~~8~~		
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	60	x 4 = 240
UPL species	10	x 5 = 50
Column Totals:	70 (A)	290 (B)

Prevalence Index = B/A = 4.1

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: 529

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
0-11	10YR6/2	100					loam	
11-18	10YR6/1	100					loam	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016

Applicant/Owner: Hart Ranch State: CA Sampling Point: 52

Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): MLRA 22B Lat: -122.375941 Long: 41.694844 Datum: NAD83

Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/A

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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology NO 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:

ditch

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: 1m2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 0			

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]
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 X No ___

Remarks:

no veg/open water

Problematic 1 yes 2 a channel w/ abrupt edge 4 sparse veg

Sampling Point: 52b

SOIL

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
0-10	10YR6/2	60	10YR4/1	40			loam	
10-18	10YR6/1						loam	

[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)
- X 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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 X No ~~X~~ Depth (inches): 3 in
Water Table Present? Yes X No ___ Depth (inches): ________
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): ________

Wetland Hydrology Present? Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: S2C
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): MLRA 22B Lat: -122.375978 Long: 41.694797 Datum: NAD83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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:
ditch bank / dry pasture

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: 1m²)			
1. Elymus glymoides	60	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	60	x 4 = 240
UPL species		x 5 =
Column Totals:	60 (A)	240 (B)

Prevalence Index = B/A = 4

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: S2C

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 %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR6/2	100					100m	
11-18	10YR6/1	100					100m	

[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:

no indicators

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:

no indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: 53a
Investigator(s): Andrea Rabe Section, Township, Range: T. 45N, R5W Sect 1, 2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 10
Subregion (LRR): MLRA 22B Lat: 122.369174 Long: 41.722705 Datum: NAD83
Soil Map Unit Name: 153 gazelle silt loam NWI classification: PSSC
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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 ___ Hydric Soil Present? Yes X No ___ Wetland Hydrology Present? Yes X No ___	Is the Sampled Area within a Wetland? Yes X No ___

Remarks:
river

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: 10m²)			
1. Salix geyeriana	80	Y	FACW
2.			
3.			
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= 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: 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	80	x 2 = 160
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	80 (A)	160 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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: 53a

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
0-11	10YR 6/2	90	10YR 4/1	10			Sandy loam	
11-18	10YR 4/1	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)
X 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)

X Surface Water (A1)
X High Water Table (A2)
X 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 X No ___ Depth (inches): 6in
Water Table Present? Yes X No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X 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: Hart Ranch City/County: Siskiyou Co. Sampling Date: 8/23/2016
Applicant/Owner: Hart Ranch State: CA Sampling Point: S3b
Investigator(s): Andrea Rabe Section, Township, Range: T.45N, R5W Sect 1,2+3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 10
Subregion (LRR): MLRA 22B Lat: -122.369068 Long: 41.722643 Datum: NAD83
Soil Map Unit Name: 153 NWI classification: N/A
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 NO significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology NO 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: upslope of river, abrupt slope no wetland past OHW

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: 1m²)			
1. Chrysothamnus nauseosus	20	y	UPL
2.			
3.			
4.			
5.			
= Total Cover	20		
Herb Stratum (Plot size: 1m²)			
1. Bromus tectorum	10	y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	10		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 70			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (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	30	x 5 = 150
Column Totals:	30 (A)	150 (B)

Prevalence Index = B/A = 5.0

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: S4b

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
0-11	10YR6/2	100					loam	
11-18	10YR6/1	100					loam	

[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:
no indicators

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:
no indicators

Appendix C Ground-Level Color Photographs

Photo 1 Plot 22 facing east

Photo 2 Plot 26 facing north

Photo 3 Plot 21a facing north

Photo 4 Plot 21c

Photo 5 Plot 32 facing north

Photo 6 Plot 29c

Photo 7 Plot 28b

Photo 8 Plot 21c facing south

Photo 9 Plot 47a

Photo 10 Plot 47b in October 2016

Photo 11 Plot 1a

Photo 12 west of Plot 21a, facing north

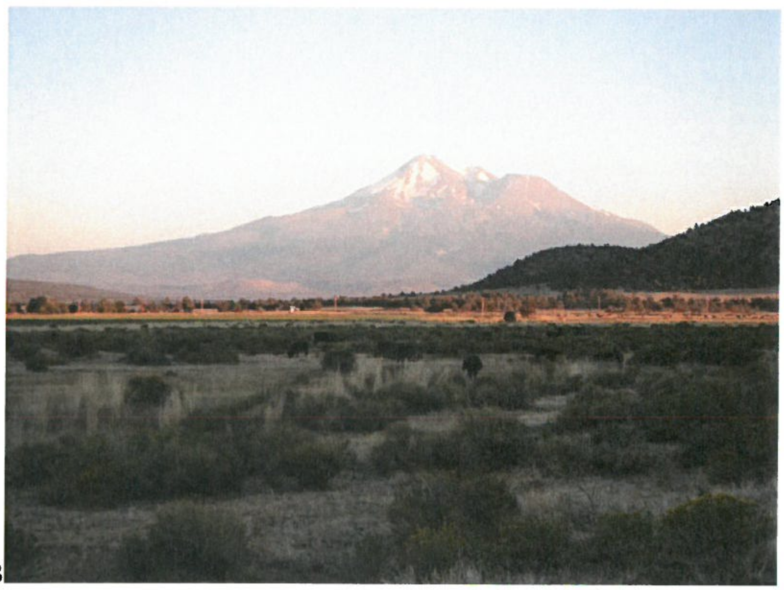
Photo 13 Plot 8a

Photo 14 Plot 6a

Photo 15 Plot 21b

Photo 16 Plot 38b

Photo 17 Plot 47c



3

Photo 18 Plot 47c facing southeast

Photo 19 Plot 25 facing north

Photo 20 Plot 41

Photo 21 Plot 2c

Photo 22 Plot 2a

Photo 23 West of Plot 28b

Photo 24 Plot 53b

Photo 25 Plot 53b upslope of Shasta River

Photo 26 Plot 53a Shasta River

Photo 27 Plot 53a, upstream Shasta River

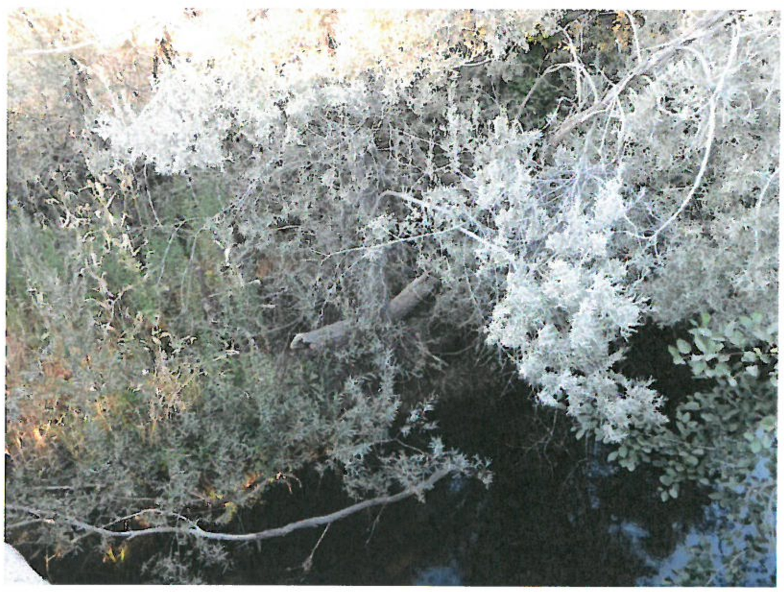


Photo 28 Plot 53a, downstream Shasta River

Photo 29 Plot 42

Photo 30 Plot 22 facing west/ northwest

Photo 31 Plot 51b facing plot 51a

Photo 32 From plot 51c, facing southwest

Photo 33 Plot 40

Photo 34 Intentionally left blank

Photo 35 Plot 15b facing east

Photo 36 Plot 15a

Photo 37 Plot 15a facing north

Photo 38 Plot 17b, facing west

Photo 39 Plot 52a facing west

Photo 40 Plot 52a

Photo 41 Plot 5c facing northeast

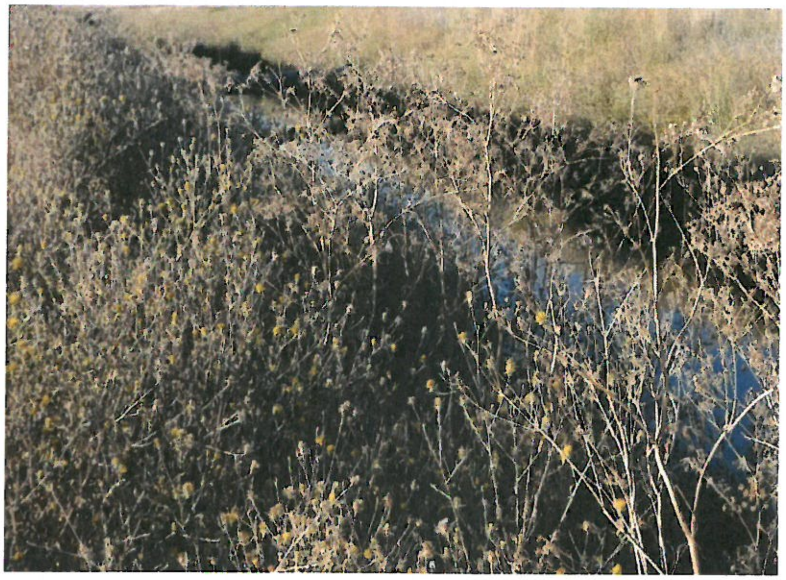


Photo 42 Plot 9c facing northeast

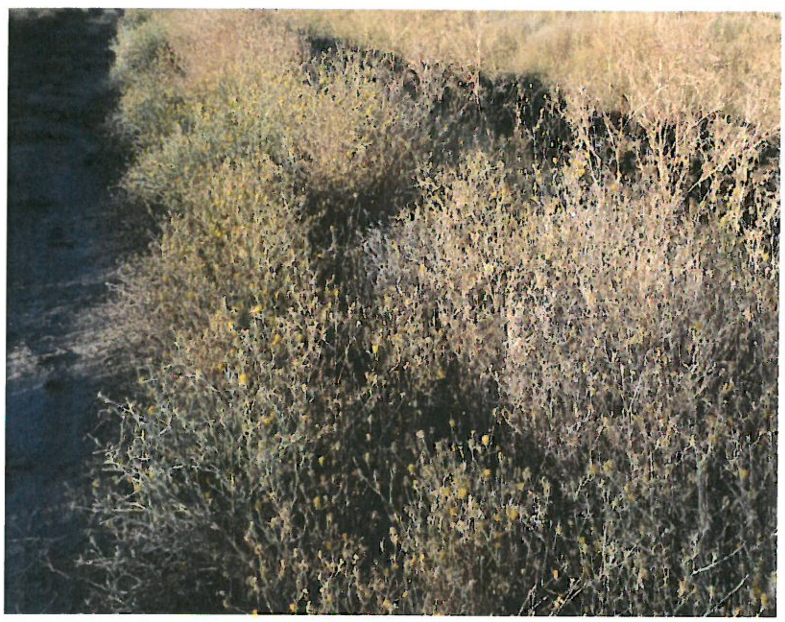


Photo 43 Plot 1a facing northwest

Photo 44 Eastern ditch bank at south end of MWCD Wetland 2

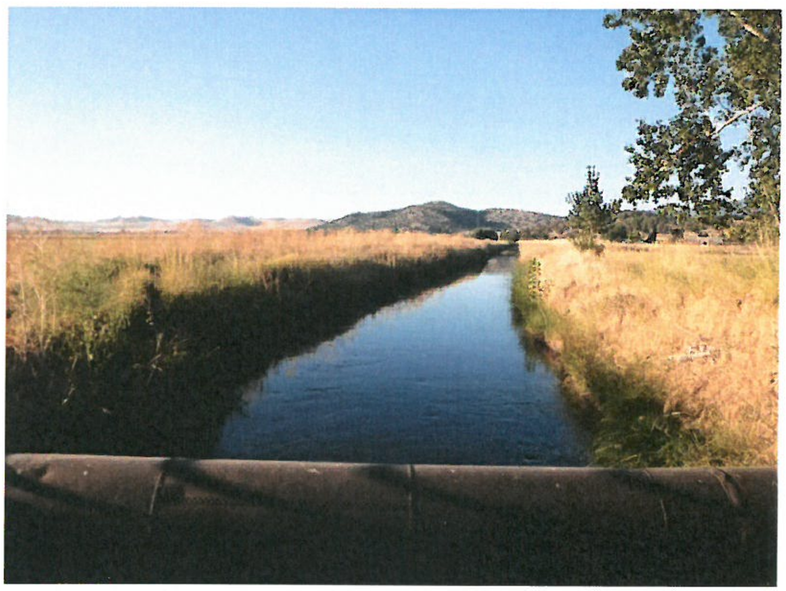


Photo 45 Facing north from south end of MWCD Wetland 2

Photo 46 Facing south from north end of Evans wetland 4

Photo 47 Plot 12b

Photo 48 Facing north from south end of Evans wetland 3

Photo 49 Plot 49

Appendix D References

Environmental Laboratory. (1987). *Technical report Y-87-1* (Corps of Engineers Wetland Delineation Manual). Vicksburg, Mississippi: U.S. Army Corps of Engineers Waterways Experiment Station.

Munsell Color Services. (2005). *Munsell soil color charts: Revised washable edition*. New Windsor, New York: Division of Gretag Macbeth, LLC.

Reed, P.B. (1988). National list of plant species that occur in wetlands: Pacific Northwest (Region 9). U.S.D.I. Fish and Wildlife Service. Biological Report 88 (26.9). 89pp.

Reed, P.B., Peters, D., Goudzwaard, J., Lines, I., & Weinmann, F. (1994). 1993 Supplement to list of plant species that occur in wetlands: Northwest (Region 9). U.S.D.I. Fish and Wildlife Service. Supplement to Biological Report 88 (26.9) May 1988.

U.S. Army Corps of Engineers. (1992). *Clarification and interpretation memorandum of the 1987 manual*. Washington, DC: U.S. Government. 4pp.

U.S. Army Corps of Engineers. (2008). Regional Supplemental to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Costal Region (Version 2.0.) Technical Report ERDC/EL TR-10-3. Vicksburg, Mississippi: U.S. Army Corps of Engineers Research and Development Center.

APPENDIX G

Cultural Resources Survey for the Hart Ranch. 2016
Native-X, Inc.
November, 2016

Cultural Resource Survey for the Hart Ranch, 2016

Siskiyou County, California

2016

Prepared by:

John W. Jones (M.A., R.P.A.)
Native-X, Inc. Archaeological Services
Reno, Nevada

Prepared for:

Rabe Consulting
Klamath Falls, Oregon

November 22, 2016

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

A cultural resource survey was conducted in Siskiyou County, California by Native-X, Inc. Archaeological Services in September, 2016. A linear survey of approximately 9.65 miles was conducted on private property (Hart Ranch) located near the Little Shasta River, in Little Shasta Valley (Figure 1 attached). The linear survey was completed in relation to the Hart Ranch Flow Enhancement Project. The overall project objectives are to (1) enhance flow in the Little Shasta River during critical coho salmon migration periods; (2) ensure long-term operation and maintenance of irrigation infrastructure for the Hart Ranch and the Montague Water Conservation District (MWCD); and (3) improve fish passage in the Little Shasta River. By improving agricultural water infrastructure, water management opportunities, and fish passage in the Little Shasta River, the project intends to improve water quality and coho salmon habitat in the Little Shasta River with a resultant permanent instream dedication of up to 1.5 cfs and permissive dedication of their remaining 22.7 cfs water right by the Hart Ranch while maintaining viable agricultural lands.

More specifically, the Hart Ranch Flow Enhancement Project consists of the following elements, the locations of which are identified in Figure 2 (attached).

1) Stockwater Improvement: This project component is located on the Hart Ranch along Harry Cash Road south of the Little Shasta River. This component of the project consists of (1) retrofitting of an existing groundwater well a new pump and motor; (2) installation of two new water storage tanks approximately 10,000 gallons in size; (3) installation of approximately 22,556 linear feet of underground PVC pipe connection to 20 stockwater troughs; (4) installation of approximately 7,500 linear feet of riparian grazing management fencing; and (5) riparian planting along the Little Shasta River for a distance of approximately 14,500 linear feet; and (6) approximately 14,850 linear feet of cross fencing in existing pastures.

2) Hart Ranch Main Pipeline Replacement: This component of the project includes replacement of the existing main canal earthen ditch and failing pipeline with approximately 7,280 linear feet of underground PVC pipe with risers, valves, flow meter, and connection to existing groundwater wells, for improved water management opportunities and flood irrigation of the eastern portion of the Ranch.

3) Montague Water Conservation District Canal Improvements: This component of the project is located along the Montague Water Conservation District (MWCD) main canal which bisects the Hart Ranch. The project's southern terminus is at Hart Road and is along the canal north.

4) Fish Passage Improvements: This component of the project includes (1) removal of the existing concrete dam, fish screen and old fish ladder walls along the Little Shasta River; (2) construction of approximately 105 linear feet of roughened channel with large boulder clusters and buttresses at a 2.5 - 3 percent grade, that provides fish passage opportunities; (3) modification of the agricultural diversion for the Hart Ranch; (4) construction of a new cast-in-place concrete diversion structure with fish screen and fish return bypass that meets current NOAA and CDFW fish protection criteria; and (5) revegetation of the site.

Native-X surveyed approximately 9.65 miles of proposed linear enhancements (pipeline routes) trough locations, stockwater feature locations, and the diversion structure for a total of about 77 acres. Survey and site recording was completed by John W. Jones (M.A., R.P.A.) who was assisted by Kyle Crebbin (B.A.). A segment of rock wall fence and a water diversion structure were recorded (HR01 and HR02 respectively). No isolated finds were recorded. Survey was conducted within Township 44N., Range 5W., Sections 1-3 and 11-14, as well as within Township 45N., Range 5W., Sections 25 and 34-

36. The project area is located on the USGS 7.5' Little Shasta (1984) and Solomons Butte (1983) quadrangles (see Figure 2 attached).

ENVIRONMENTAL SETTING

The project area is located in Little Shasta Valley, Sparse riparian vegetation is present along the irrigation ditches and canals within the proposed project area. The riparian vegetation along the irrigation canals consists of bulrush and cattails along with other sedges and rushes in a narrow band a few inches (1-8 inches) wide along the high water line of the canals. The canal banks are steep and do not allow for a riparian bench. The smaller irrigation ditches exhibit mostly grasses with few sedges and rushes (1-3 inches in width) at their ordinary water line. The Little Shasta River exhibits dense shrub and tree growth in the riparian area, with little to no understory. The shrubs include multiple species of willows.

The upland area around Dorris Hill and upslope toward the summit exhibit sparse sagebrush scrub with limited bunch grass cover (less than 25%). The area is rocky and exhibits areas of bare soil. The lower elevation areas below the slopes of Dorris Hill are fields are primarily permit pasture exhibiting pasture grasses or alfalfa fields used for hay production. Ground visibility in the lower areas was very poor to nonexistent. Elevation of the project area generally ranges from 2650 to 2800 feet above mean sea level.

Dense vegetation within the pastureland.


View from the saddle on Dorris Hill. Looking southeast.


Fenced pasture with vegetation and poor ground visibility.

CULTURAL SETTING

The project area lies within Shasta ethnographic territory. The ethnography of the Shasta has been summarized in many archaeological reports for the area including in Dixon 1907, Holt 1946, Kroeber 1976, and Silver 1978. Historically, the Shasta occupied areas in what is now California and Oregon. This includes present-day Siskiyou County in California and in Jackson and Klamath Counties in Oregon. The Shasta were divided primarily into four divisions that basically corresponded to topographic features: Klamath River Basin, Rogue River Valley, Scott Valley, and Shasta Valley close to where the current project is located (Vaughan 2014).

Employees of the Hudson Bay Company passed through the Shasta Valley beginning in the late 1820s. Siskiyou County was formed in 1852, having been originally part of Shasta and Klamath Counties. By the 1850s and 1860s several wagon roads ran through the area with the primary travel route being the Yreka Trail. The Yreka trail passes within a half-mile of the southern end of the project area. Yreka (the town) is the county seat and is approximately 12 air-miles west-northwest of the current project area. Closer is the small town of Montague at 6.8 air-miles west-northwest and the small community of Little Shasta is within a mile to the north. Little Shasta was settled in 1853, likely due to the good soils that occur in the valley. By the 1880s there existed a post office, flour mill, two school houses, two stores, and a church. The church, built in 1878, still stands tall and can be seen in the distance from many parts of the project area.

EXISTING DATA REVIEW AND RESEARCH DESIGN

Existing Data Review

A prefield records search was completed by the Northeast Center of the California Historical Resources Information System in Chico, California on September 12, 2016. Results of the records search indicate that no previous cultural resource surveys have occurred within the current project area. Additionally, it was discovered that no sites have been recorded within the project area. However, three previous surveys have and one geoarchaeological overview have been completed within a mile and three sites have been recorded also within a mile. Previous surveys and previously recorded sites within a mile are listed below.

Previously archaeological investigations include:

Jensen, Peter (Jensen & Associates)
1997 *Archaeological Inventory Survey: Proposed Butler Subdivision and Development Project Area, 4208 Harry Cash Road, Little Shasta Valley, Siskiyou County, California*. NEIC Report 001587

Meyer, Jack (Far Western Anthropological Research Group)
2013 *A Geoarchaeological Overview and Assessment of Northeast California; Cultural Resources Inventory of Caltrans District 2 Rural Conventional Highways: Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, and Trinity Counties.* NEIC Report 012349

Whiteman, Erik and Melinda Salisbury (Humboldt State University Foundation…)
2008 *A Cultural Resources Investigation of the Little Shasta Fish Passage and Screening Project located in Siskiyou County, California.* NEIC Report 010199

Wood, Heather (Natural Resources Conservation Service)
2012 *Field Office Report of Cultural Resources Ground Survey Findings: Project #12FY47-0011.* NEIC Report 012906

Table 1. Previously Recorded Sites within a Mile

Site/Resource Number	Site/Resource Description
CA-SIS-2253	Lithic Scatter
CA-SIS-2254	Historic Rock Wall
Unknown	Yreka Trail

Research Design

The research design for this project was simple and straight forward. Survey a 20-meter wide corridor along the total length of the proposed linear project area (9.65 miles) and survey a small water diversion structure for a total of approximately 77 acres.

FIELD INVENTORY

The project area was given complete survey coverage on September 30, 2016. Pedestrian transects, oriented by GPS and compass, as well as canal feature, were walked 20 meters or less apart until the entire project length, 20 meters wide, was covered (9.65 miles, 77 acres total). A small area less than ¼ acre was also viewed while recording a water diversion structure on the Little Shasta River. Survey areas are shown on Figure 2 (attached).

Overall, ground visibility ranged from good to totally nonexistent. Grass cover in some areas was too dense to view mineral soil. When located, areas exhibiting mineral soil like rodent backdirt mounds, ground disturbances due to ranching, and roadbeds were surveyed more intensely. Much of the linear survey area was along an existing canal and thus heavily disturbed. Other disturbances include fencing, flood irrigation, cultivation, vehicle use, and extensive use as pasture.

FINDINGS

Two sites were located and recorded during the course of the survey. Site HR01 is a segment of historic rock wall fence and site HR02 is a water diversion structure located on the Little Shasta River, at the origin of the Montague Water Conservation District “Main Ditch” (MWCD). The rock wall fence (HR01) remains unevaluated to the National Register of Historic Places (NRHP) because it continues for an unknown distance beyond the project area and is thus not fully recorded. The water diversion structure (HR02) is recommended not eligible for the NRHP. Sites are shown on Figure 2 (attached). Site records are included as Appendix A.

Site HR01 (Historic Rock Wall Fence)

The site consists of an extensive rock wall fence that is still used to define the edges of pastures located just north of Dorris Hill. No major breaches except for the gate was observed. Another segment of the wall continues outside of the current project area to the northwest. This wall, unlike many others in the region, is not mentioned on the USGS topographic map. Constructed of large bounders/stones (three to eight courses), it currently ranges from about two to five feet in height and is one and one-half to two feet wide. No posts or wire were noted except at the gate. The wall is likely historic but has continued to be used and maintained through the modern era. Other rock walls with post and wire fencing on top were observed on the ranch, also still in use.

View of rock wall fence delineating a pasture.

National Register of Historic Places Evaluation Recommendation

This site has not been fully recorded. It continues for unknown distances outside of the current project area and thus remains unevaluated to the NRHP.

Site HR02 (Historic Water Diversion Structure)

The site consists of a mostly concrete diversion structure located on the Little Shasta River about 1.3 air-miles northeast of the small community of Little Shasta, in Siskiyou County. The structure diverts water into a ditch (the Montague Water Company Ditch aka the Haight/Hart Ditch) which flows southeast past the Little Shasta Cemetery and south into Little Shasta Valley. The structure appears to be mostly historic in nature but has been maintained and modified in the modern era. The only historic documentation found relating to the structure and ditch is a letter dated October 5, 1938 from the State of California Department of Natural Resources, Division of Fish and Game to Mr. George M. Haight and Ray Hart. The letter states that a survey had been completed and a fish screen located on the ditch was found to be nonfunctional and needed to be replaced. The description of a proposed replacement matches that which currently exists at the site. The ditch, diversion, and fish screen were obviously all present prior to the 1938 letter. Exactly when the current configuration was constructed is unknown. Concrete construction methods suggest the use of both plank forms (older) and plywood forms (newer). Circular and square rebar and hexagonal nuts versus square nuts also suggest different time periods. There is also a modern solar panel, junction box, and flow meter (gauging station). The feature appears to have been in relatively continuous use with maintenance and modifications occurring as needed since its original construction. Site integrity has been seriously compromised.

View of headgate, retaining wall, and plastic-covered plank check dam.

Current description also includes: There is a plank check dam with slots in concrete retaining walls on either side of the small river channel is present and allows for the raising and lowering of the water level and to divert it through a metal headgate, through the fish screen, and into the ditch. The concrete feature and retaining walls are substantial. The older concrete work utilized milled lumber forms and can be seen most easily in the concrete holding the headgate and its adjacent retaining walls. Two smaller wall segments have shifted either due to water flow or when the feature was being modified. The newer concrete work utilized plywood forms. This is especially evident along the curved concrete wall used to help divert the water into the overflow/fish return pipe. A curved segment of circular rebar set vertically in the wall may be an anchor point and/or may indicate that the particular segment was actually pre-cast in a different location and mechanically lowered into its current position. Also present is a parallel steel bar fish screen, an undershot water wheel used to mechanically clean the fish screen and allow the flow of water through the system into the ditch, and additional concrete to anchor them and to direct water flow. No historic artifacts were found in conjunction with the diversion feature.

View of undershot water wheel with attached fish screen cleaning mechanism, overflow area leading to fish return pipe, and the modern gauging station.

National Register of Historic Places Evaluation Recommendation

The site is recommended as not eligible to the NRHP due to poor integrity. While the structure fulfills a historic function and has historic concrete elements, it has been heavily modified in the modern era with both modern concrete and modern mechanical components. The modern gauging station is also an intrusive element; even though it is an equivalent of a historic function. Too much of the structure has changed (with modern equivalents, but has changed none-the-less). As such, the structure has greatly diminished values of workmanship, design, feeling, and materials. Additionally, the structure would be a non-contributing component of any larger, associated irrigation system that may be eligible.

SUMMARY AND RECOMMENDATIONS

The Hart Ranch project area was given complete survey coverage on September 30, 2016 by Native-X, Inc. Archaeological Services. Pedestrian transects, oriented by GPS and compass, as well as canal feature, were walked 20 meters or less apart until the entire project length, 20 meters wide, was covered (approximately 9.65 miles, 77 acres total). A small area less than ¼ acre was also viewed while recording a water diversion structure on the Little Shasta River.

Two sites were located and recorded during the course of the survey. Site HR01 is a segment of historic rock wall fence and site HR02 is a water diversion structure located on the Little Shasta River, at the origin of the Montague Water Conservation District "Main Ditch" (MWCD). The rock wall fence (HR01) remains unevaluated to the National Register of Historic Places (NRHP) because it continues for an unknown distance beyond the project area and is thus not fully recorded. The water diversion structure (HR02) is recommended not eligible for the NRHP.

Recommendation Summary

Site HR01: The project calls for the installation of a pipe through this rock wall fence. Since the proposed route is through the existing wire gate and will not disturb the linear rock feature, there will be no affect to the site. This practice is recommended.

Site HR02: The project proposal includes the removal of this historic water diversion structure and to create a new one a short distance upstream that will fulfill the same function. This will allow for better fish passage along the Little Shasta River. The site is recommended as not eligible to the NRHP due to poor integrity. While the structure fulfills a historic function and has historic concrete elements, it has been heavily modified in the modern era with both modern concrete and modern mechanical components. The modern gauging station is also an intrusive element; even though it is an equivalent of a historic function. Too much of the structure has changed (with modern equivalents, but has changed none-the-less). As such, the structure has greatly diminished values of workmanship, design, feeling, and materials. Additionally, the structure would be a non-contributing component of any larger, associated irrigation system that may be eligible.

It is recommended that the proposed work as defined will not affect any significant historic properties pursuant to 36 CFR Part 800.4 (d)(1). This report satisfies the cultural resource requirements for this project under CEQA. If during project implementation unrecorded cultural material is observed, it is recommended that project activities cease in the area of the find and that a qualified archaeologist be contacted to assess its significance.

REFERENCES CITED

Dixon, Roland B.
1907 The Shasta. *Bulletin of the American Museum of Natural History* 17(5):381-489, New York.

Holt, C.
1946 Shasta Ethnography. *University of California Anthropological Records 3(4):299-349,* Berkeley.

Kroeber, A. L.
1976 *Handbook of the Indians of California.* Dover Publications, Inc., New York. (Reprint from original 1925 publication.)

Silver, Shirley
1978 Shastan Peoples. In *California,* edited by R. F. Heizer, pp 180-189. Handbook of North American Indians, Volume 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

Vaughan, Trudy
2014 *Archaeological Reconnaissance for the Shasta River Riparian Protection and Enhancement Project by the Shasta Valley Resource Conservation District at Hidden Valley Ranch, Siskiyou County, California.* Report on file with the Northeast Information Center, Chico. NEIC Report Number 012342.

ATTACHED FIGURES

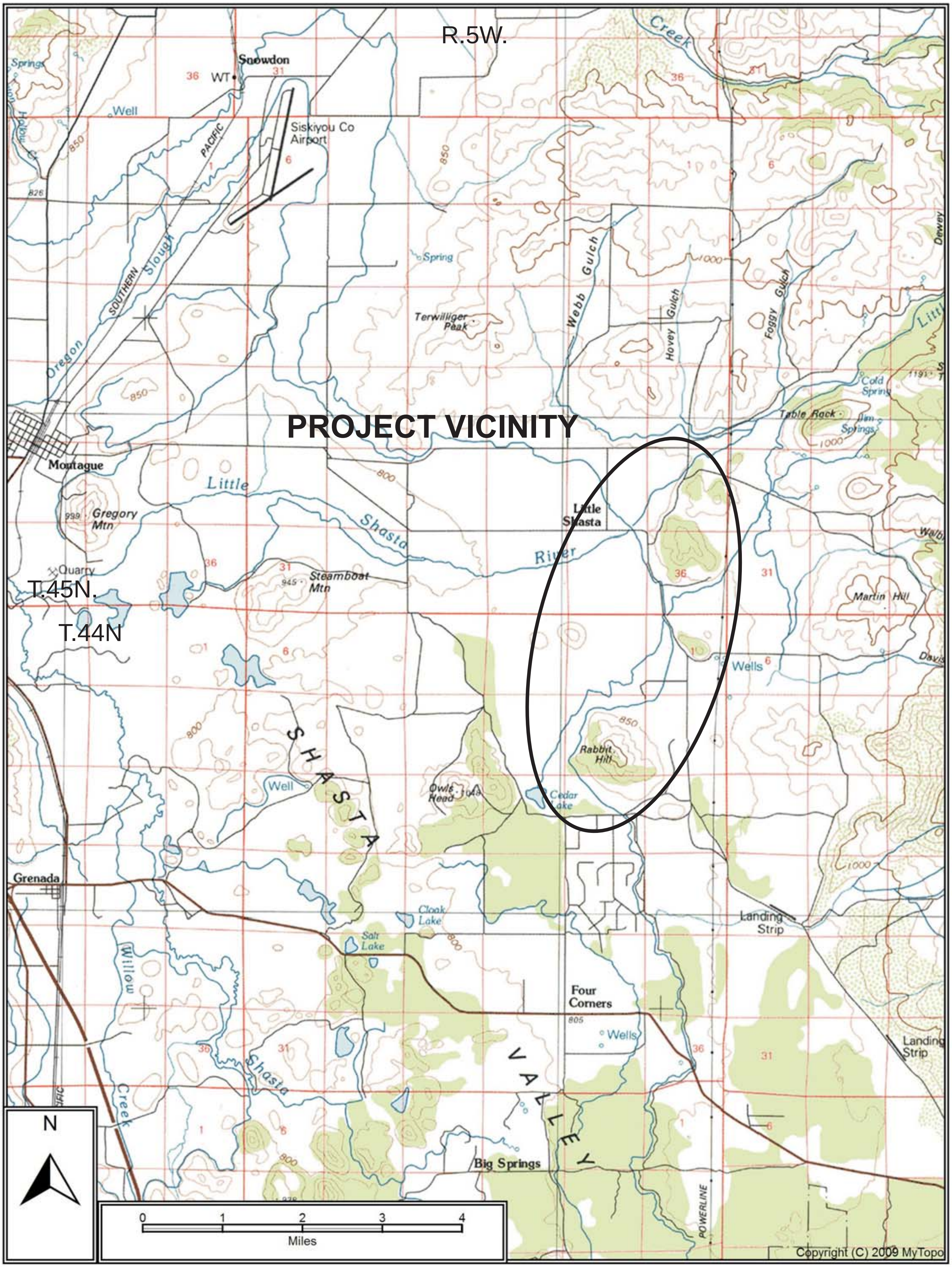


Figure 1. Project Vicinity Map, Hart Ranch 2016. Based on USGS 1:100,000 Yreka 1979 quadrangle.

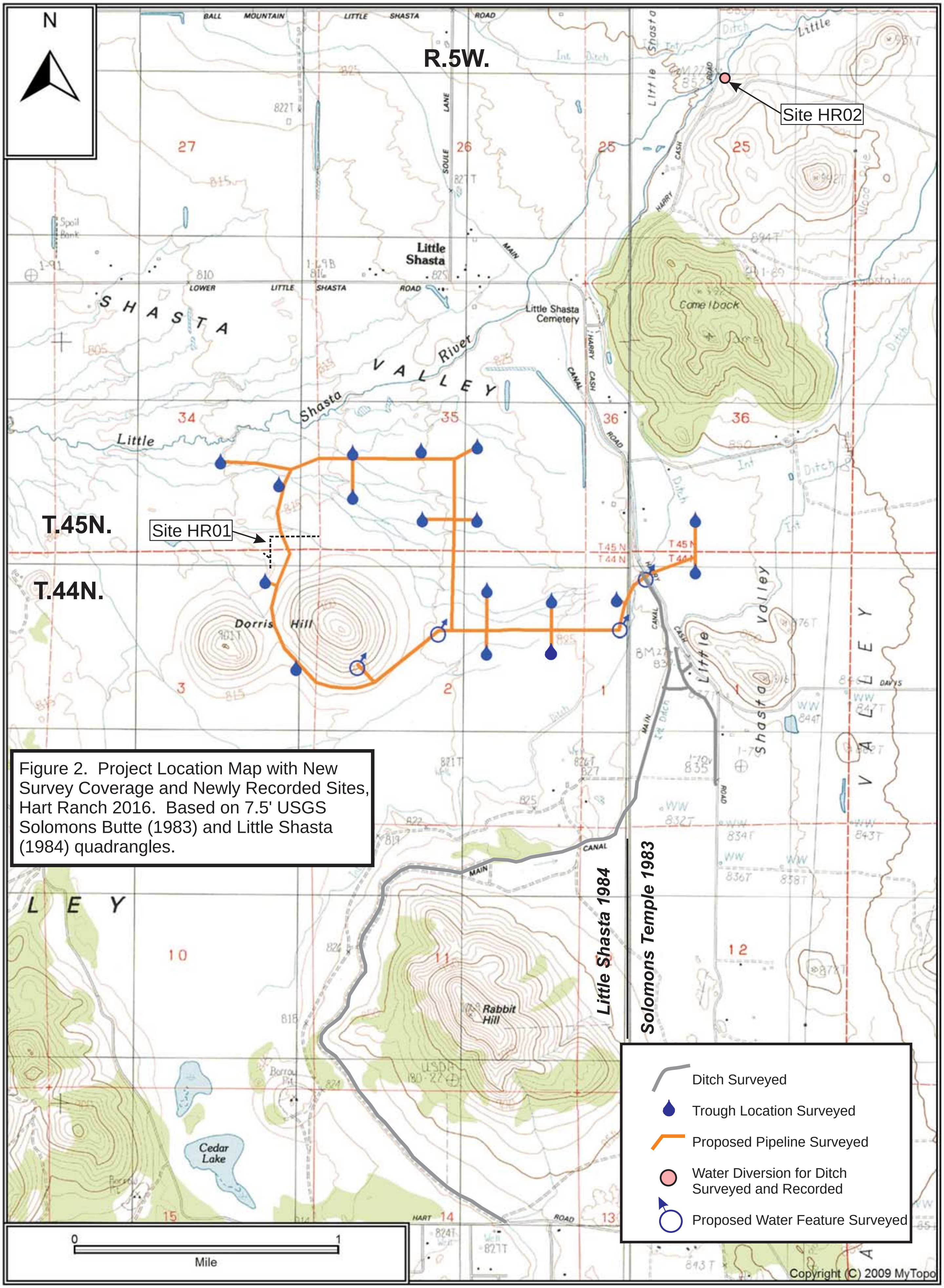


Figure 2. Project Location Map with New Survey Coverage and Newly Recorded Sites, Hart Ranch 2016. Based on 7.5' USGS Solomons Butte (1983) and Little Shasta (1984) quadrangles.

APPENDIX A

Site Records for Newly Recorded Sites

State of California — The Resources Agency **DEPARTMENT OF PARKS AND RECREATION** **PRIMARY RECORD**		**Primary #** **HRI #** **Trinomial** **NRHP Status Code**	
	Other Listings **Review Code**	**Reviewer**	**Date**

Page 1 **of** 1 ***Resource Name or #:** HR01

P1. Other Identifier: None

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County:** Siskiyou

***b. USGS 7.5' Quad:** Little Shasta, CA **Date:** 1984

SE 1/4 of SE 1/4 of SE 1/4 of Section 34, T.45N., R.5W. M.D. **BM.**
SW 1/4 of SE 1/4 of SE 1/4 of Section 34, T.45N., R.5W
NW 1/4 of NE 1/4 of NE 1/4 of Section 3, T.44N., R.5W

c. Address: NA

d. UTM: Zone: 10; 549789 mE x 4616375 mN (NAD83) (GPS) (At Gate)

e. Other Locational Data: Elevation: 2675 feet

From the intersection of Soule Lane and Lower Little Shasta Road in the community of Little Shasta, travel east then south on Lower Little Shasta Road. In 0.6 miles, the road turns into Harry Cash Road (near Little Shasta Cemetery). Continue south on Harry Cash Road for approximately 0.85 miles. Turn right and go west on the Hart Ranch access road for 0.5 miles to the ranch buildings. From here, travel northwest across the ranch pastures for just over 1.5 miles (skirting Dorris Hill on its eastern flank). Roads in this area are subject to change. The segment of wall recorded herein is located north of the Dorris Hill saddle about 0.35 miles.

***P3a. Description:** The site consists of an extensive rock wall fence that is still used to define the edges of pastures located just north of Dorris Hill. No major breaches except for the gate was observed. Another segment of the wall continues outside of the current project area to the northwest. This wall, unlike many others in the region, is not mentioned on the USGS topographic map. Constructed of large bounders/stones (three to eight courses), it currently ranges from about two to five feet in height and is one and one-half to two feet wide. No posts or wire were noted except at the gate. The wall is likely historic but has continued to be used and maintained through the modern era. Other rock walls with post and wire fencing on top were observed on the ranch, also still in use.

The site has not been fully recorded (it continues for unknown distances outside of the current project area) and thus remains unevaluated to the NRHP.

***P3b. Resource Attributes:** AH11 (rock wall fence)

***P4. Resources Present:** ☐Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other

P5a. Photo or Drawing: See attached photos

P5b. Description of Photo: See attached

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:** Hart Ranch

***P8. Recorded by:** John W. Jones (M.A., R.P.A.), Native-X, Inc.

***P9. Date Recorded:** September 30, 2016

***P10. Survey Type:** Reconnaissance

***P11. Report Citation:** Cultural Resource Survey for the Hart Ranch, 2016, Siskiyou County, California

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☒ Photograph Record ☐ Other (List):

***Resource No.: HR01**

Site HR01. Roll Hart-01, Frame 01. View of post and wire gate in the rock wall fence. View is to the north. 549792 mE x 4616364. 9/30/2016

Site HR01. Roll Hart-01, Frame 02. Rock wall in distance west of gate after it turns south. View is at 256 degrees. 549792 mE x 4616364 mN. 9/30/2016

***Resource No.: HR01**

Site HR01. Roll Hart-01, Frame 03. Rock wall as it goes east from the gate.
Note how has it has deteriorated (fallen rocks) and the cows in the pasture beyond.
View is at 98 degrees. 549792 mE x 4616364 mN. 9/30/2016

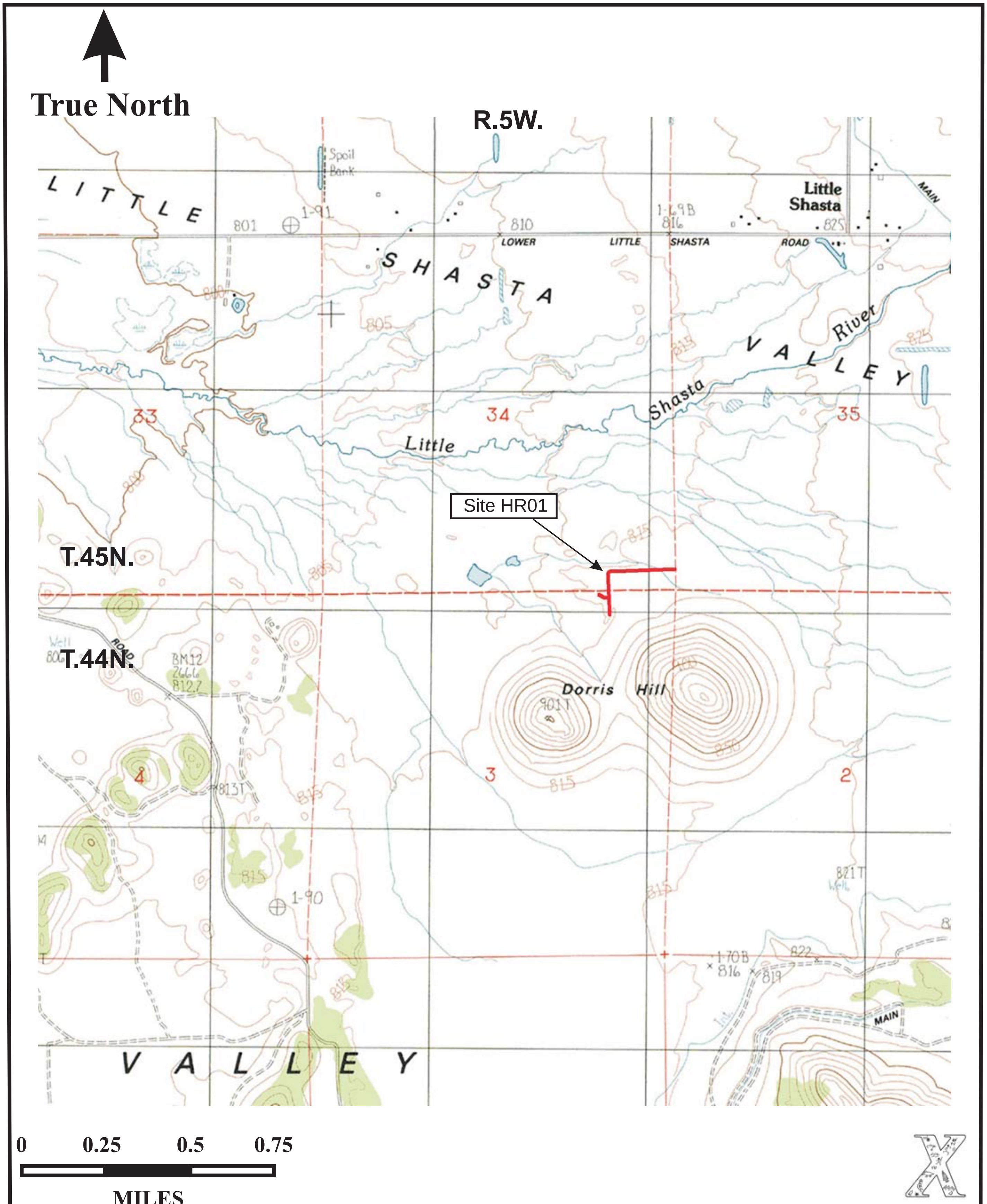
Site HR01. Roll Hart-01, Frame 04. Closeup of rock wall. Shows construction.
View 350 degrees. 549818 mE x 4616377 mN. 9/30/2016

State of California --- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HR#
Trinomial

Resource Name or #: HR01

Map Name: Little Shasta, CA   Scale: 1:24,000   Date of Map: 1984



State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** HR02

P1. Other Identifier: None

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County:** Siskiyou

***b. USGS 7.5' Quad:** Solomons Temple, CA **Date:** 1983
SW 1/4 of NW 1/4 of NE 1/4 of Section 25, T.45N., R.5W. M.D. **BM.**
c. Address: NA
d. UTM: Zone: 10; 552448 mE x 4619169 mN (NAD83) (GPS) (At Solar Panel).
e. Other Locational Data: Elevation: 2815 feet
From the intersection of Soule Lane and Lower Little Shasta Road in the community of Little Shasta, travel east then south on Lower Little Shasta Road. In 0.6 miles, the road turns into Harry Cash Road (near Little Shasta Cemetery). Turn left at the cemetery and follow Harry Cash Road northeast for approximately 1.1 miles to where it crosses Little Shasta River. The site is visible to the right (east) of the road just prior to reaching the river. The site is about 40 meters east of the road.

***P3a. Description:** The site consists of a mostly concrete diversion structure located on the Little Shasta River about 1.3 air-miles northeast of the small community of Little Shasta, in Siskiyou County. The structure diverts water into a ditch (the Montague Water Company Ditch aka the Haight/Hart Ditch) which flows southeast past the Little Shasta Cemetery and south into Little Shasta Valley. The structure appears to be mostly historic in nature but has been maintained and modified in the modern era. The only historic documentation found relating to the structure and ditch is a letter dated October 5, 1938 from the State of California Department of Natural Resources, Division of Fish and Game to Mr. George M. Haight and Ray Hart. The letter states that a survey had been completed and a fish screen located on the ditch was found to be nonfunctional and needed to be replaced. The description of a proposed replacement matches that which currently exists at the site. The ditch, diversion, and fish screen were obviously all present prior to the 1938 letter. Exactly when the current configuration was constructed is unknown. Concrete construction methods suggest the use of both plank forms (older) and plywood forms (newer). Circular and square rebar and hexagonal nuts versus square nuts also suggest different time periods. There is also a modern solar panel, junction box, and flow meter (gauging station). The feature appears to have been in relatively continuous use with maintenance and modifications occurring as needed since its original construction. Site integrity has been seriously compromised.

Current description also includes: There is a plank check dam with slots in concrete retaining walls on either side of the small river channel is present and allows for the raising and lowering of the water level and to divert it through a metal headgate, through the fish screen, and into the ditch. The concrete feature and retaining walls are substantial. The older concrete work utilized milled lumber forms and can be seen most easily in the concrete holding the headgate and its adjacent retaining walls. Two smaller wall segments have shifted either due to water flow or when the feature was being modified. The newer concrete work utilized plywood forms. This is especially evident along the curved concrete wall used to help divert the water into the overflow/fish return pipe. A curved segment of circular rebar set vertically in the wall may be an anchor point and/or may indicate that the particular segment was actually pre-cast in a different location and mechanically lowered into its current position. Also present is a parallel steel bar fish screen, an undershot water wheel used to mechanically clean the fish screen and allow the flow of water through the system into the ditch, and additional concrete to anchor them and to direct water flow. No historic artifacts were found in conjunction with the diversion feature.

The site is recommended as not eligible to the NRHP due to poor integrity. While the structure fulfills a historic function and has historic concrete elements, it has been heavily modified in the modern era with both modern concrete and modern mechanical components. The modern gauging station is also an intrusive element; even though it is an equivalent of a historic function. Too much of the structure has changed (with modern equivalents, but has changed none-the-less). As such, the structure has greatly diminished values of workmanship, design, feeling, and materials. Additionally, the structure would be a non-contributing component of any larger, associated irrigation system that may be eligible.

***P3b. Resource Attributes:** AH6 (water diversion), AH8 (water conveyance)
***P4. Resources Present:** ☐Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other
P5a. Photo or Drawing: See attached photos
P5b. Description of Photo: See attached
***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
***P7. Owner and Address:** Private
***P8. Recorded by:** John W. Jones (M.A., R.P.A.), Native-X, Inc.
***P9. Date Recorded:** September 30, 2016
***P10. Survey Type:** Reconnaissance
***P11. Report Citation:** Cultural Resource Survey for the Hart Ranch, 2016, Siskiyou County, California

***Attachments:** ☐NONE ☒Location Map ☒Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☒ Photograph Record ☐ Other (List):

DIVISION OF FISH AND GAME,
Department of Natural Resources,
State of California,
Ferry Building,
SAN FRANCISCO, CALIF.

Keep this

SAN FRANCISCO, CALIF.
OCT 5
5:30PM
1938

GOLDEN
INTERNA
EXPOS
193

UNITED STATES 3 C

Mr. Ray Hart

Montague, Calif.

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Game
FERRY BUILDING
SAN FRANCISCO

October 5th, 1938

Mr. George M. Haight
Mr. Ray Hart
Montague, Calif.

S-1247

Gentlemen -

Recently a survey was made of a ditch taking water from Little Shasta River, and jointly owned or used by yourselves. This survey was for the purpose of replacing a fish screen which had heretofore been installed in this ditch and now not functioning. The work contemplated would be at Commission expense.

It is proposed to install a parallel steel bar screen, with the spacing 1/4" apart, said bars to be cleaned by a device operated by a power wheel set below the bars, and all set within a concrete box which would be about 30' from the head of the ditch. As the construction will be of a very substantial nature it is believed that operation and maintenance expense will be at a minimum and may logically be considered in the future should the necessity arise.

Before we can proceed with this work it will be necessary for you to give your consent by dating and signing one of these copies and returning to this office. We will appreciate your prompt attention to this as it will materially assist us in planning our work.

Should there be other owners or leasers in this ditch, we would like their names and addresses; or, they may also sign one of the copies and return to us.

Yours very truly,
John Spencer
J. Spencer, Chief
Bureau of Hydraulics

Dated: October 27 at 1938
Signed: Geo. M. Haight
" Kate C. Hart

Site HR02. Roll Hart-01, Frame 06. Overview. Shows diversion structure with concrete retaining walls, undershot water wheel (allows for mechanical cleaning of fish screen), fish screen, and headgate. View 64 degrees. 552448 mE x 4619169 mN. 9/30/2016

Site HR02. Roll Hart-01, Frame 07. Overview of south end of diversion structure. Diversion ditch is to right of water wheel. Flow meter and solar panel is at far right. View 160 degrees. 552448 mE x 4619175 mN. 9/30/2016

Site HR02. Roll Hart-01, Frame 08. View of diversion structure with fish screen on right and headgate in background, middle. View 170 degrees. 9/30/2016.

Site HR02. Roll Hart-01, Frame 09. North end of diversion structure showing concrete work, headgate, and wheel. Milled lumber forms were used when this part of the structure was built. View 164 degrees. 9/30/2016.

***Resource No.: HR02**

Site HR02. Roll Hart-01, Frame 13. Closeup showing concrete work and where the fish screen is anchored to it. View 104 degrees. 9/30/2016.

Site HR02. Roll Hart-01, Frame 14. Water wheel mechanism where it connects to fish screen. View 80 degrees. 9/30/2016.

Site HR02. Roll Hart-01, Frame 15. View of overflow channel. Flows into a pipe just below the water surface. This pipe was likely the fish return pipe.
View 318 degrees. 9/30/2016.

Site HR02. Roll Hart-01, Frame 16. Overview. 9/30/2016.

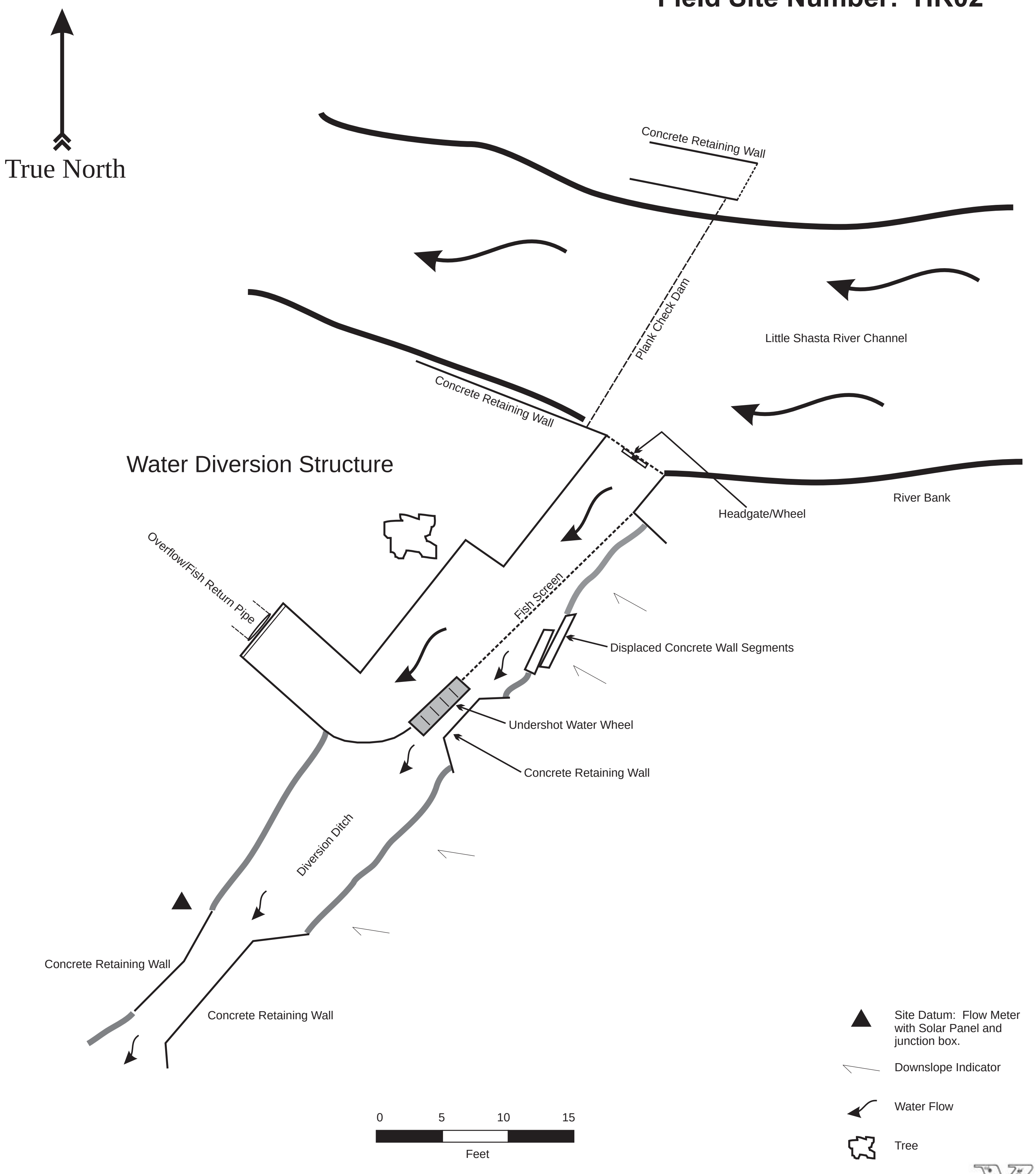
***Resource No.: HR02**

Site HR02. Roll Hart-01, Frame 17. View of flow solar panel with junction box.
Connects to flow meter at surface on right.
Site datum.
9/30/2016

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SITE SKETCH MAP

Primary #
HR#
Trinomial

Field Site Number: HR02



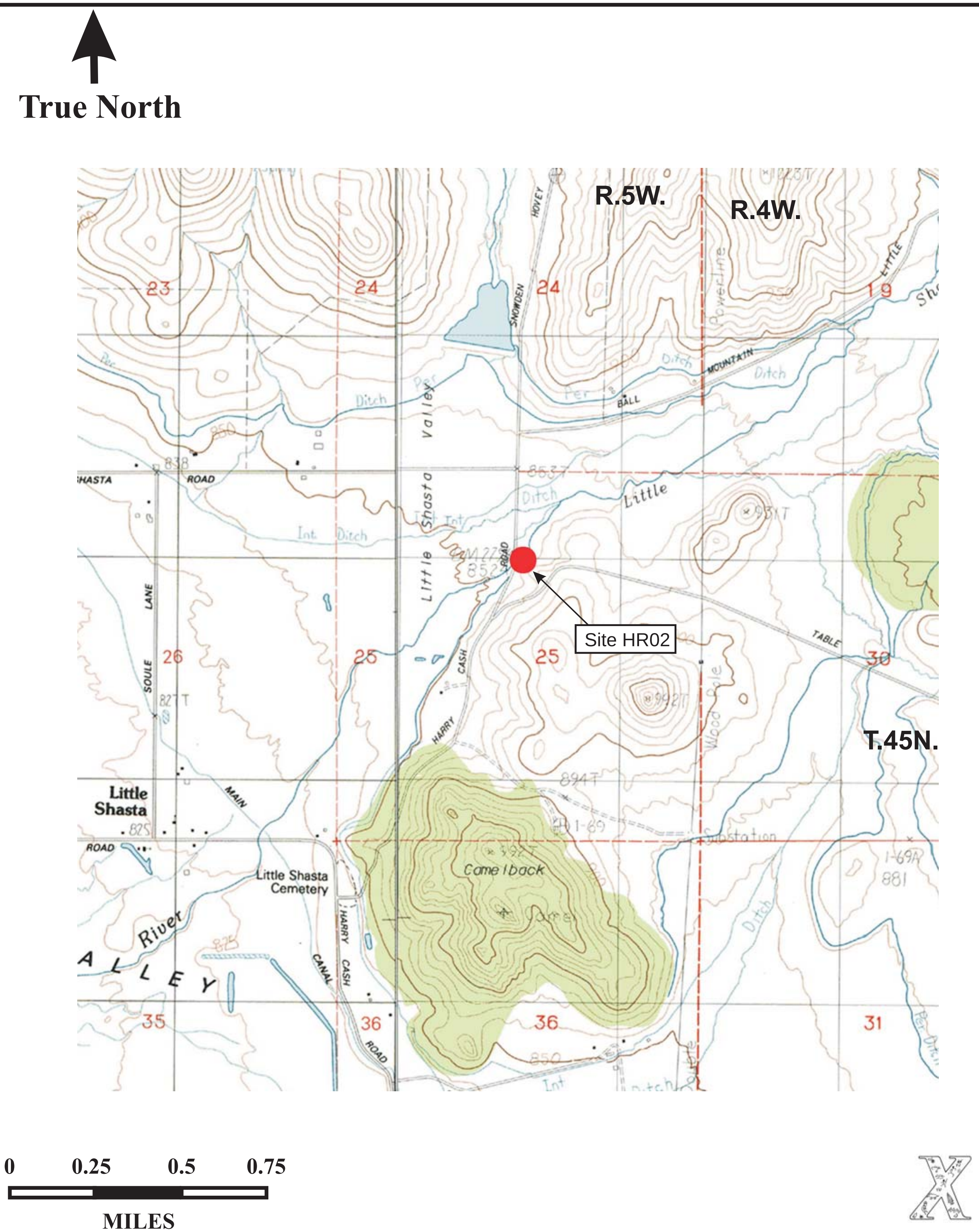
Native-X, Inc. Completed September 30, 2016

State of California --- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HR#
Trinomial

Resource Name or #: HR02

Map Name: Solomons Temple, CA Scale: 1:24,000 Date of Map: 1983



APPENDIX H

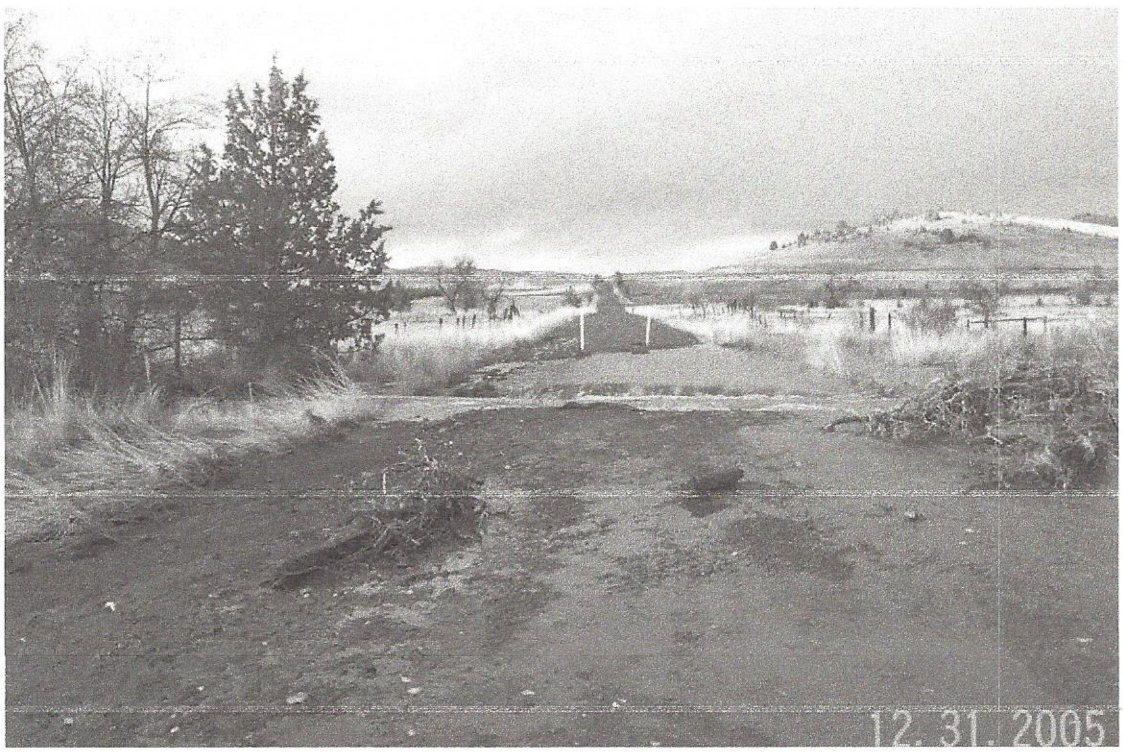
Little Shasta River Fish Passage Project:
Bridge Impact Hydraulic Assessment.
Cascade Stream Solutions
October, 2016

Little Shasta River Fish Passage Project:

Bridge Impact Hydraulic Assessment

October, 2016

DRAFT



Prepared by:
Joey Howard, PE
Cascade Stream Solutions, LLC
295 East Main St,
Ashland, Oregon 97520

Cascade
STREAM SOLUTIONS

1.0 Introduction

Trout Unlimited is proposing to improve fish passage and screening at the Hart water diversion on the Little Shasta River. The existing dam is located about 120 feet upstream of the Harry Cash Bridge crossing the Little Shasta River. The project extends along the creek and floodplain beginning about 20 feet upstream and ending about 200 feet upstream of the bridge. The work includes removing the existing flashboard dam and fish screen, constructing a roughened channel and new fish screen that meets current California Department of Fish and Wildlife and National Marine Fisheries Services standards. Joey Howard, while working at Northwest Hydraulic Consultants, was principal in charge of the design. As principal of Cascade Stream Solutions, he is providing engineering and inspection services implementation.

This document briefly summarizes hydraulic analyses conducted to assess potential projects on the bridge and water surface elevations.

2.0 Topographic Data and Datums

The survey of the existing structures and the local topography is based on surveys completed by North State Land Surveying in association with NHC in April and May of 2009. The surveys are based on the NAVD 1988 vertical datum and NAD 1983 horizontal datum. Elevations referenced in this report are in the NAVD 1988 datum, unless otherwise specified.

3.0 Project Site Watershed Characteristics

The project site watershed is 68 square miles in size and includes the northerly portion of Goosenest Mountain, southerly portion of Willow Creek Mountain, and westerly portion of Ball Mountain. The watershed's elevation ranges from high of 8280 feet at the Peak of Goosenest Mountain to a low of 2810 feet at the Hart diversion.

Mean annual precipitation ranges from 18 inches near the western portion of the watershed to 35 inches at foothill in the middle of the watershed (Siskiyou County, 1974). The spatially averaged mean annual precipitation for the watershed is 29.8 inches.

Flow to the project site is mainly influenced by the porous volcanic soils, and irrigation diversion structures. Significant tributaries to the Little Shasta River upstream of the Hart Diversion include Foggy Gulch, Dewey Gulch, and Dry Creek.

The Little Shasta River generally flows from east to west in the vicinity of the Hart and Musgrave diversions. The main channel is about 30 feet wide and ranges in depth from 2 to 5 feet as it flows through the valley. The valley bottom is about 1000 feet wide and is dissected by multiple flood channels. The valley slopes at about 1.3 percent.

The Little Shasta River has experienced several large flood events since the area was settled in the 1840's. Large floods since 1950 occurred in 1955, 1964, 1981, 1997, and 2005. These flows inundated most of the valley bottom and overtopped Harry Cash Road. During large flood events, the extent of flooding across Harry Cash Road can extend from just south of the mail boxes near Ball Mountain Road to several hundred feet south of the Little Shasta Bridge at Harry Cash Road.

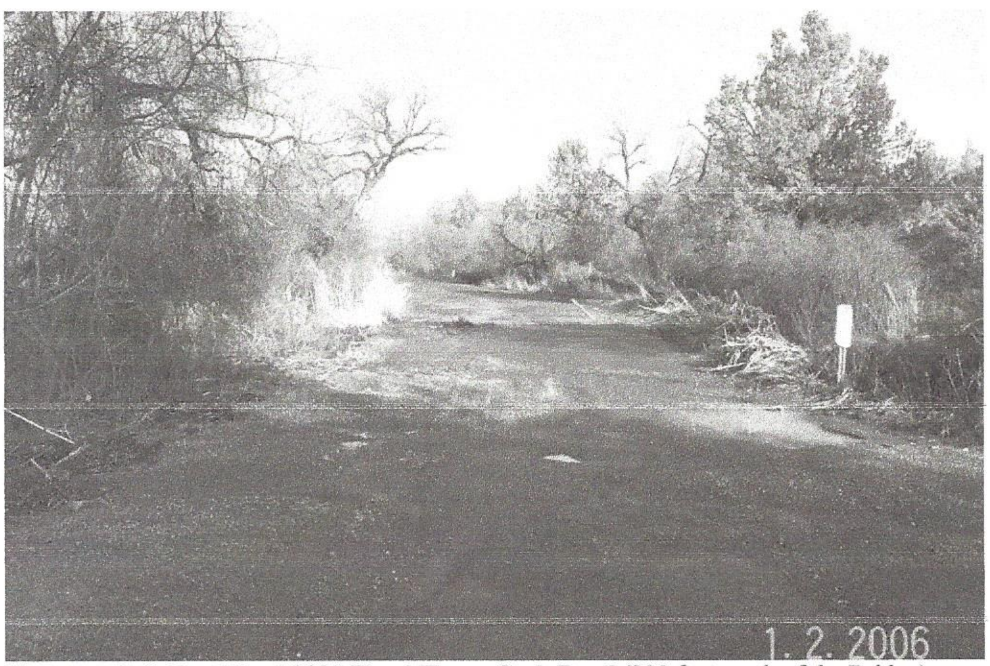
Large floods are generally produced by rain on snow events and have frequently occurred in late December and early January. The largest floods since 1950 have occurred in 1955 and on December 22, 1964. The main channel moved laterally during both these events. The US Army Corps of Engineers assisted local landowners following the 1955 flood event in relocating the main channel to its pre-flood alignment. In 1964, the United States Geologic Survey recorded a peak discharge of 5910 cfs at the Little Shasta River near Montague stream flow gauge. This gauge is located about 4 miles upstream of the Musgrave Diversion. The main channel was returned to its pre-flood location by local landowners and the contractor responsible for the construction of I-5.

The December 2005 flood, although not as large as the 1955 and 1964 floods, overtopped Harry Cash Road and scoured around the Musgrave Ditch culvert crossing at Harry Cash Road. Photograph 1 shows the culvert crossing as viewed from the south. Photograph 2 shows Harry Cash Road from a vantage point about 700 north of the bridge. Photograph 3 shows debris and sediment deposited along Harry Cash Road. This photograph was taken about 200 feet south of the bridge and was taken looking north. County Public Works Department provided these photographs for inclusion in this report.

The influence of high flow events is readily apparent in the terrain. Numerous scour holes and channels are visible near the diversions. Holes within these channels contain cobble. The invert elevations of some of these channels are often within 1 foot of the adjacent river bed. A prominent overflow channel exists about 200 feet north of Hart Diversion (see Figure 2). This channel flows from a gap in the berm along the right bank. The overflow channel has a top width of about 20 feet and depths of 2 to 3 feet.

Photograph 1. 2005 Post Flood Photograph Harry Cash Road (700 ft North of Bridge)

Photograph 2. 2005 Post Flood Harry Cash Road (700 ft North of Bridge)



Photograph 3. Post Flood 2005 Flood Harry Cash Road (200 feet south of the Bridge)

Photographs provided by Siskiyou County Public Works.

4.0 Hydraulic Analysis

NHC and Cascade conducted hydraulic analyses to assess potential impacts at the bridge. As discussed above, flood flows exceed the conveyance capacity of the primary channel and are conveyed across the floodplain as shallow overland flow. To simplify the analysis, we focused on comparing existing and project conditions at the bridge for a range of flows that are near the conveyance capacity of the bridge. This approach allowed us to address the issue with HEC-RAS, a one-dimensional hydraulic model.

Model geometry was developed for existing and project conditions. Existing conditions geometry is based on NHC and North State Land Surveys. Project conditions model geometry is based on the design surface created in Civil 3D and existing conditions survey data.

Manning's n values are estimated to be 0.05 for the channel and 0.065 in the floodplain.

Model runs were conducted using mixed flow, which allow for both subcritical and supercritical flow conditions. The starting water surface elevation were computed using normal depth with an energy slope of 0.005 ft/ft at the downstream end and 0.008 at the upstream end. These slopes were estimated from the longitudinal slope of the primary channel near the downstream and upstream ends.

Hydraulic characteristics were computed for steady state flows of 750, 1000, 1500, and 1700 cfs.

Workmaps for the existing and project conditions are provided in Appendix B.

Existing and project conditions model results are provided in Appendix B. Computed water surface profiles shown in Figure 1. Review of the profiles shows the project conditions channel about 35 feet shorter than the existing conditions. This reduction in channel length is due to the channel realignment. The model results show that there is no change in hydraulic conditions at the bridge. Flow conditions at the bridge are subcritical and are therefore controlled by downstream conditions. The model results show the bridge exerts a strong hydraulic control.

Deposition and scour near the bridge are not anticipated to change significantly due to the project because the project is of limited size, will be constructed to remain stable during extreme flows, and will not change sediment transport potential upstream or downstream of the project area. Sediment that reaches the project reach will be conveyed through the reach.

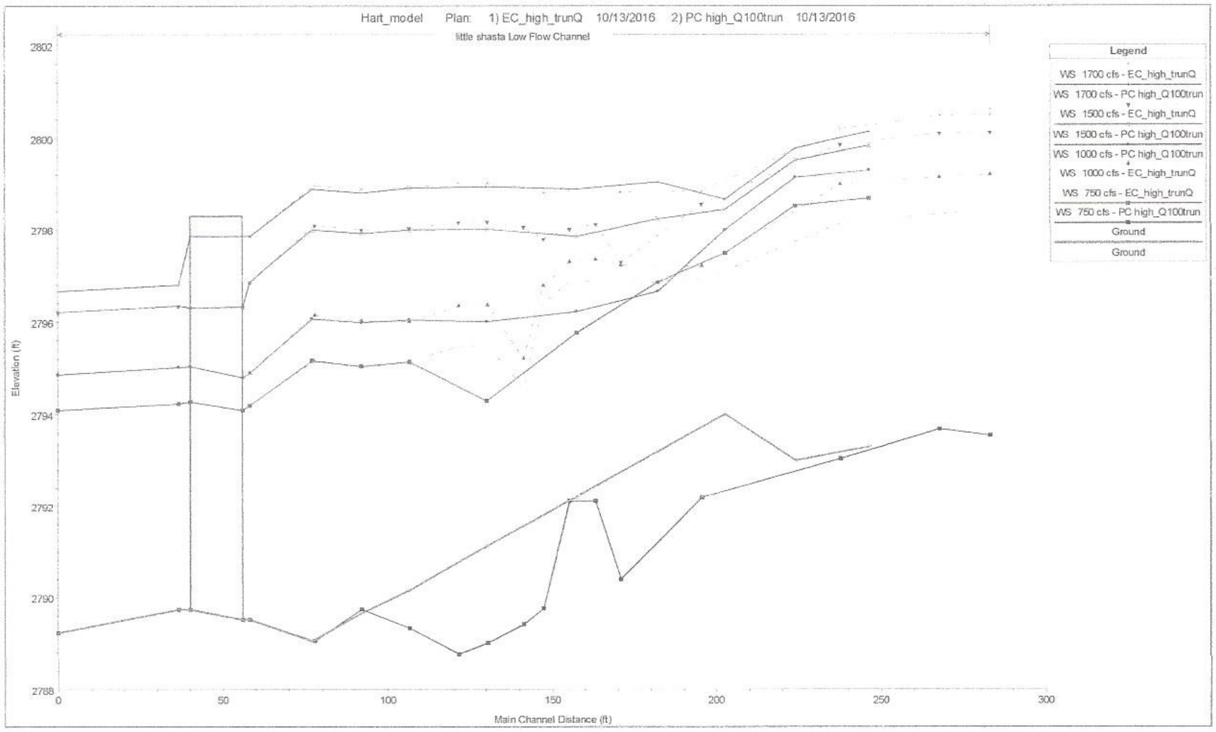


Figure 1. Computed Water Surface Profiles

Appendix A - Hydrology

3.2 Stream Gauge

The USGS operated a stream gauge on the Little Shasta River, Little Shasta River near Montague (No.11516900), from Water Year 1957 to 1978. Table 1 provides the information on the stream gauge.

Table 1. USGS gauge summary

	Little Shasta River near Montague No.11516900
Drainage area	46 mi^2
Gauge Elevation	3280 feet
Period of record	October 1957 to September 1978
Peak Flow	5910 cfs
Date of Peak Flow	12/22/1964

3.3 Flood Flow Estimate

NHC estimated flow at the project site to design stream stabilization features and intake facilities for fish passage. Flood flow estimates are computed for 100-year, 50-year, 10-year and 2-year events using flood flow frequency analysis. Flow frequency analysis conducted with USGS gauge data is transposed to the downstream project site by scaling the Bulletin 17B quantiles by the ratio of the project site and gauge drainage areas as shown in Equation 1. Table 2 shows the flow quantiles at the Little Shasta Gauge near Montague. Table 3 shows the transposed peak flow quantiles at the project site. Table 3 shows the flow frequency curves transposed to project site.

Equation 1. $$Q_{site} = Q_{gauge}*(A_{site}/A_{gauge})^b$$

Where:

Q_{site} is the peak flow at the site,

Q_{gauge} is the peak flow calculated from the gauge record,

A_{gauge} is the area tributary to the gauge,

A_{site} is the area tributary to the site,

b is the area exponent in the Northeast USGS regression equation for the return period of interest.

Table 2. Peak Flow Quantiles at Little Shasta River Stream Gauge near Montague

Return Period, yr	Bulletin 17B Estimate Flow (cfs)
100-year peak flow	4037
50-year peak flow	2656
25-year peak flow	1701
10-year peak flow	889
5-year peak flow	506
2-year peak flow	193

Table 3. Transposed Peak Flows at Project Site

Return Period, yr	Northeast Area Exp	Bulletin 17B Estimate Flow (cfs)
100-year peak flow	0.59	5084
50-year peak flow	0.57	3319
25-year peak flow	0.54	2101
10-year peak flow	0.49	1077
5-year peak flow	0.45	603
2-year peak flow	0.4	226

NHC also estimated the peak flow at the project site with the Siskiyou County Drainage Manual (Siskiyou County 1974). The Siskiyou County Drainage Manual uses precipitation and ratio of peak flow to annual mean flow to estimate peak flows. These relationships were developed specifically for the region to estimate peak flows. The County also used this method to estimate flows at this location. NHC's estimates, as well as the County's estimates of peak flow are listed in Table 4. The small disparity between estimates is likely due to interpretational differences of the graphs listed in the County Hydrology Manual.

The USGS developed regional regression equations to estimate peak flows throughout California (USGS 1977). In this area, the USGS regional regression equations were developed for basins with drainage areas less than 25 square miles and are therefore not likely to produce reliable estimates for basins significantly larger. For comparison purposes, NHC estimated flows using the USGS regional regression equations. These estimates are listed in Table 4.

Table 4. Comparison of Flood Flow Estimation Results

Return Period, yr	Regional Regression Equation Flow (cfs)	Siskiyou Drainage Manual Flow (cfs)	Transposed Bulletin 17B Estimate Flow (cfs)	Values provided by Siskiyou County Estimate Flow (cfs)
100-year peak flow	1507	4900	5084	5400
50-year peak flow	1141	3500	3319	3950
25-year peak flow	820	2600	2101	3000
10-year peak flow	482	1500	1077	1800
5-year peak flow	307	900	603	--
2-year peak flow	119	--	226	--

The Siskiyou Drainage Manual and transposed flow frequency estimates produced similar values for the less frequent flows. Discrepancies between the two estimates increased as the return period decreased. NHC recommends using the higher peak flows estimated by the County for use as design flows.

It is interesting to note that the 100-year peak flow estimate of 5400 cfs was exceeded on December 22, 1964. The peak flow measured at the gauge on this day was 5910 cfs. Figure 5 plots the annual peak flows measured by the USGS at the Little Shasta stream gauge near Montague. It is also interesting to note that the anecdotal record suggests that significant peak flows occur more frequently than the gauge records indicate. Since 1950, significant floods occurred each decade with the exception of 1970. The USGS stream gauge on the Little Shasta River was installed after the 1955 flood and decommissioned prior to the 1981 flood. However, it did record the 1964 flood.

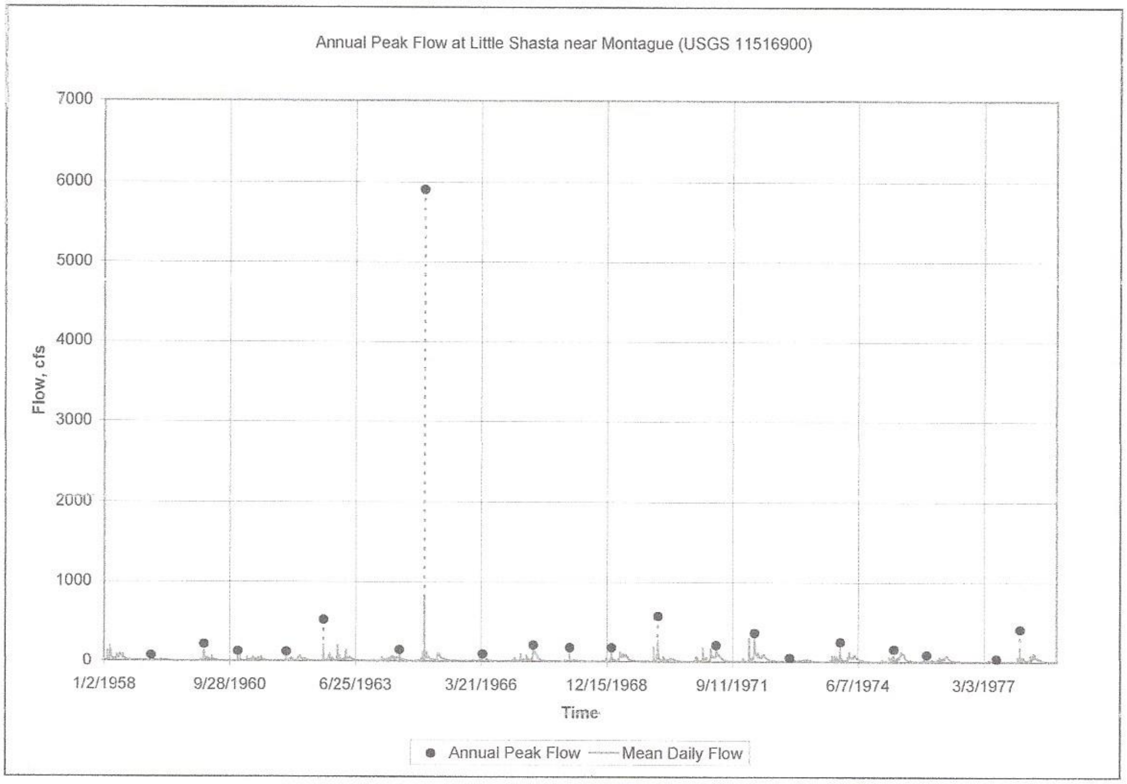
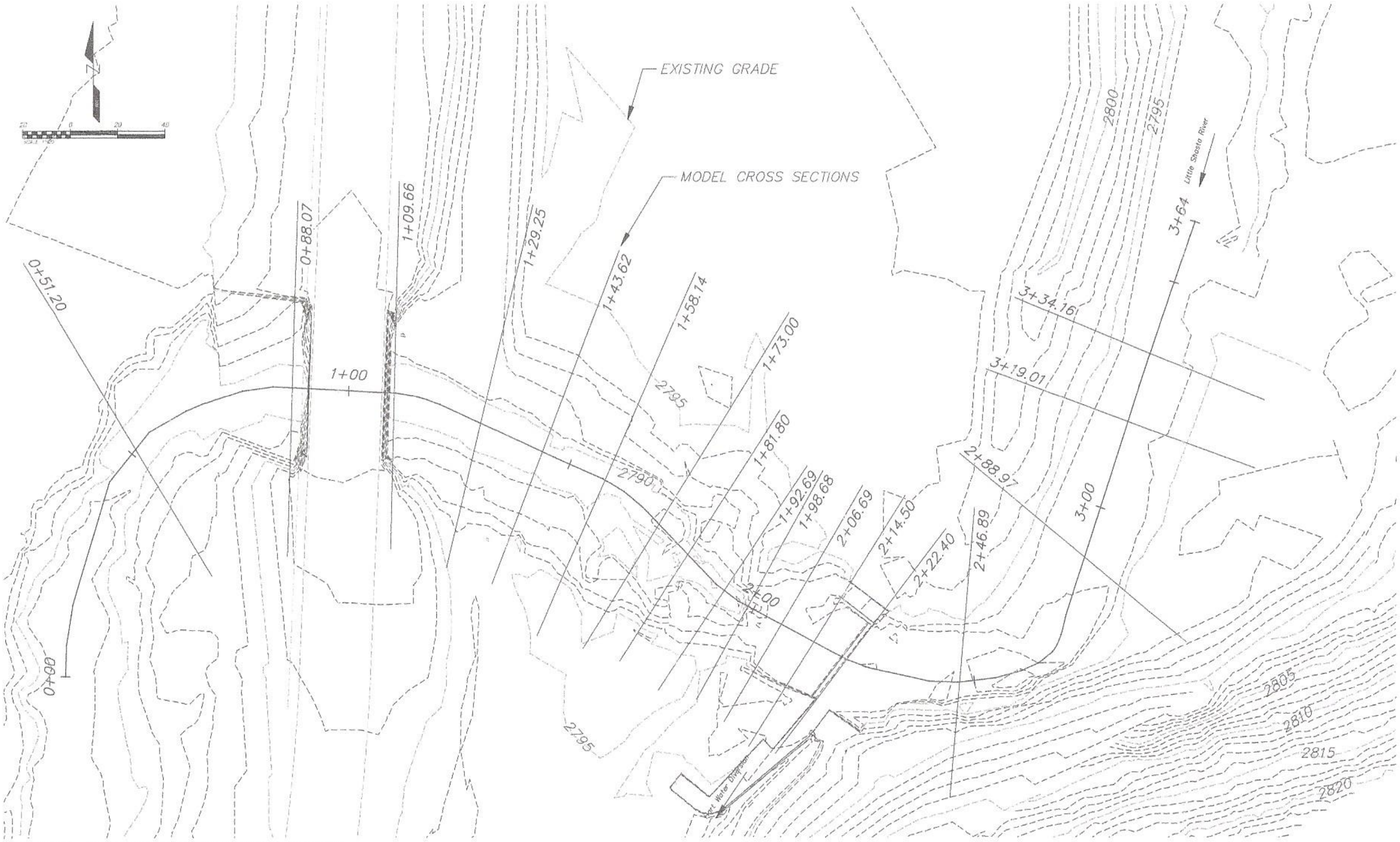


Figure 2. Little Shasta near Montague Gauge Annual Peak Flow

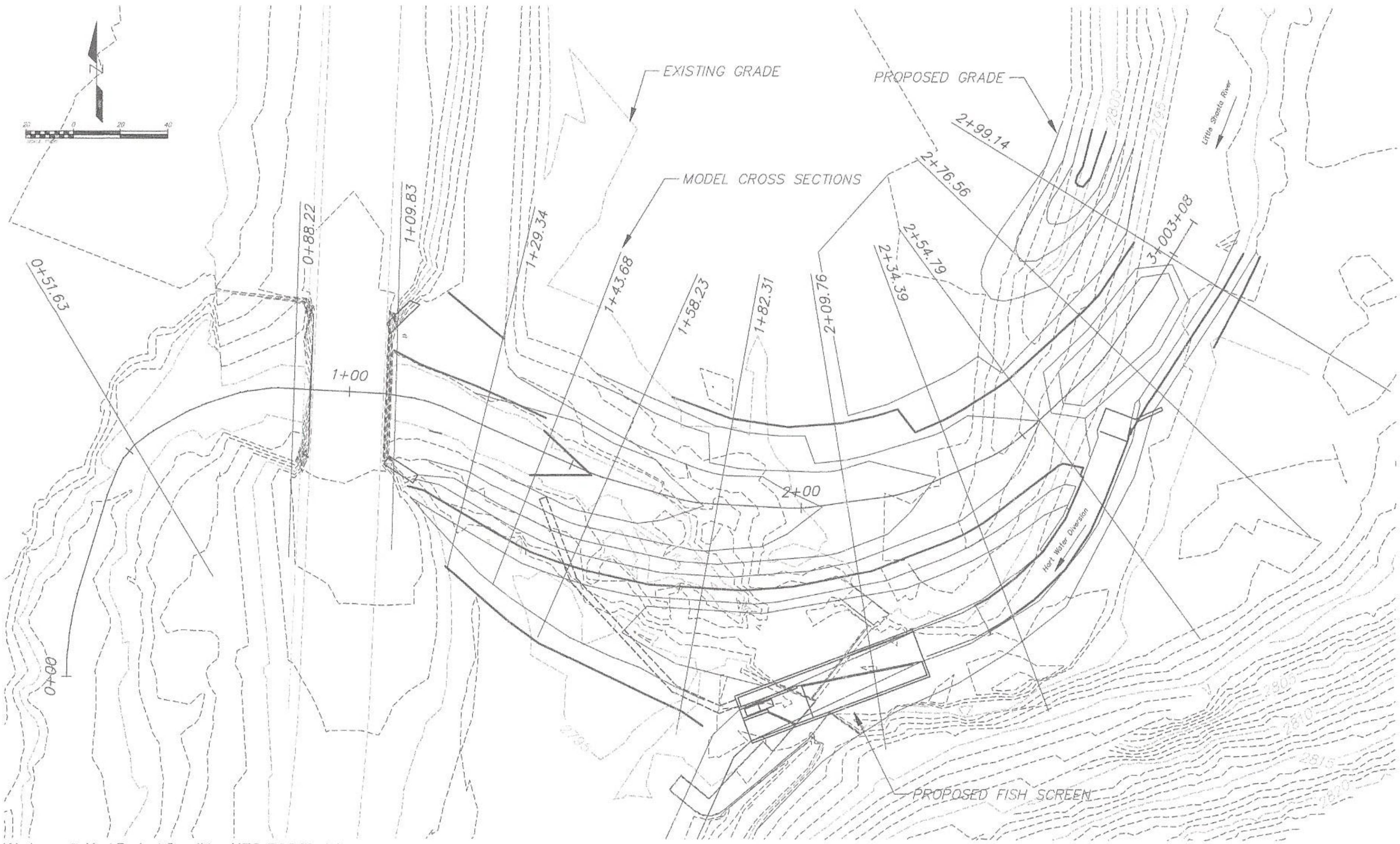
Appendix B – Hydraulic Analysis



Workmap 1. Hart Existing Condition HEC-RAS Model

Little Shasta River Fish Passage Improvement Project
Hart Water Diversion

Cascade Stream Solutions
October 2016



Workmap 2. Hart Project Condition HEC-RAS Model

HEC-RAS River: little shasta Reach: Low Flow Channel

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
Low Flow Channel	334.74	750 cfs	EC_high_trunQ	750.00	2793.54	2798.41	2797.00	2798.84	0.005569	6.19	165.65	47.80	0.50	1.62
Low Flow Channel	334.74	1000 cfs	EC_high_trunQ	1000.00	2793.54	2799.21	2797.54	2799.70	0.005403	6.75	205.16	51.57	0.50	1.83
Low Flow Channel	334.74	1500 cfs	EC_high_trunQ	1500.00	2793.54	2800.14	2798.41	2800.88	0.006836	8.42	256.86	56.57	0.58	2.71
Low Flow Channel	319.58	750 cfs	EC_high_trunQ	750.00	2793.68	2798.33		2798.75	0.005747	6.02	167.56	55.61	0.50	1.57
Low Flow Channel	319.58	1000 cfs	EC_high_trunQ	1000.00	2793.68	2799.14		2799.61	0.005275	6.44	215.54	60.03	0.49	1.70
Low Flow Channel	319.58	1500 cfs	EC_high_trunQ	1500.00	2793.68	2800.11		2800.75	0.005942	7.65	273.89	60.03	0.54	2.26
Low Flow Channel	299	750 cfs	PC high_Q100trun	750.00	2793.30	2798.67	2796.99	2798.86	0.002561	4.03	243.15	74.67	0.33	0.70
Low Flow Channel	299	1000 cfs	PC high_Q100trun	1000.00	2793.30	2799.31	2797.37	2799.55	0.002664	4.49	291.65	76.13	0.35	0.83
Low Flow Channel	299	1500 cfs	PC high_Q100trun	1500.00	2793.30	2799.84	2797.98	2800.23	0.004022	5.89	344.94	86.97	0.43	1.39
Low Flow Channel	289.55	750 cfs	EC_high_trunQ	750.00	2793.03	2798.13	2796.85	2798.58	0.005229	6.02	167.53	55.25	0.49	1.53
Low Flow Channel	289.55	1000 cfs	EC_high_trunQ	1000.00	2793.03	2798.98	2797.39	2799.46	0.004688	6.36	214.31	55.25	0.47	1.62
Low Flow Channel	289.55	1500 cfs	EC_high_trunQ	1500.00	2793.03	2799.86	2798.35	2800.57	0.005839	7.83	263.17	55.25	0.54	2.33
Low Flow Channel	276	750 cfs	PC high_Q100trun	750.00	2793.00	2798.52	2796.89	2798.78	0.003332	4.56	211.23	72.08	0.38	0.90
Low Flow Channel	276	1000 cfs	PC high_Q100trun	1000.00	2793.00	2799.15	2797.35	2799.47	0.003448	5.06	256.71	72.08	0.39	1.06
Low Flow Channel	276	1500 cfs	PC high_Q100trun	1500.00	2793.00	2799.52	2798.23	2800.10	0.005845	6.90	283.44	72.08	0.52	1.93
Low Flow Channel	255	750 cfs	PC high_Q100trun	750.00	2794.00	2797.49	2797.49	2798.56	0.019975	8.60	99.85	48.85	0.88	3.65
Low Flow Channel	255	1000 cfs	PC high_Q100trun	1000.00	2794.00	2797.98	2797.98	2799.23	0.019471	9.41	124.11	48.86	0.89	4.15
Low Flow Channel	255	1500 cfs	PC high_Q100trun	1500.00	2794.00	2798.43	2798.43	2799.81	0.020951	10.58	192.81	77.48	0.94	5.04
Low Flow Channel	247.39	750 cfs	EC_high_trunQ	750.00	2792.18	2796.91	2796.91	2798.16	0.015097	9.77	102.51	43.17	0.82	4.12
Low Flow Channel	247.39	1000 cfs	EC_high_trunQ	1000.00	2792.18	2797.21	2797.21	2798.99	0.020057	11.77	116.10	45.69	0.96	5.86
Low Flow Channel	247.39	1500 cfs	EC_high_trunQ	1500.00	2792.18	2798.55	2798.55	2800.14	0.014480	11.81	188.02	56.59	0.85	5.43
Low Flow Channel	234	750 cfs	PC high_Q100trun	750.00	2793.19	2796.87	2796.87	2797.73	0.017419	8.07	120.10	68.82	0.82	3.21
Low Flow Channel	234	1000 cfs	PC high_Q100trun	1000.00	2793.19	2796.67	2797.26	2798.62	0.041891	11.95	106.43	68.24	1.25	7.20
Low Flow Channel	234	1500 cfs	PC high_Q100trun	1500.00	2793.19	2798.24	2797.93	2799.08	0.012166	8.64	251.14	100.36	0.73	3.25
Low Flow Channel	222.85	750 cfs	EC_high_trunQ	750.00	2790.40	2796.85	2795.78	2797.65	0.011768	7.30	117.39	59.57	0.63	2.50
Low Flow Channel	222.85	1000 cfs	EC_high_trunQ	1000.00	2790.40	2797.23	2796.93	2798.30	0.014552	8.59	140.13	59.57	0.71	3.37
Low Flow Channel	222.85	1500 cfs	EC_high_trunQ	1500.00	2790.40	2797.29	2797.86	2799.60	0.031104	12.67	143.45	59.57	1.03	7.30
Low Flow Channel	214.96	750 cfs	EC_high_trunQ	750.00	2792.11	2796.89		2797.51	0.009275	6.62	140.15	62.42	0.58	2.04
Low Flow Channel	214.96	1000 cfs	EC_high_trunQ	1000.00	2792.11	2797.34		2798.11	0.010508	7.56	167.97	62.42	0.63	2.56
Low Flow Channel	214.96	1500 cfs	EC_high_trunQ	1500.00	2792.11	2798.12	2797.60	2799.16	0.011925	8.97	216.95	62.42	0.69	3.42
Low Flow Channel	209	750 cfs	PC high_Q100trun	750.00	2792.22	2795.76	2796.12	2797.16	0.027624	10.02	94.11	60.96	1.02	4.98
Low Flow Channel	209	1000 cfs	PC high_Q100trun	1000.00	2792.22	2796.22	2796.55	2797.71	0.025729	10.65	122.66	62.15	1.01	5.36
Low Flow Channel	209	1500 cfs	PC high_Q100trun	1500.00	2792.22	2797.86	2797.26	2798.79	0.010766	8.93	230.36	73.74	0.70	3.31
Low Flow Channel	207.15	750 cfs	EC_high_trunQ	750.00	2792.11	2796.86		2797.43	0.007182	6.65	150.29	57.85	0.56	1.92
Low Flow Channel	207.15	1000 cfs	EC_high_trunQ	1000.00	2792.11	2797.29		2798.03	0.008496	7.69	174.99	57.85	0.62	2.50

HEC-RAS River: little shasta Reach: Low Flow Channel (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
Low Flow Channel	207.15	1500 cfs	EC_high_trunQ	1500.00	2792.11	2798.02		2799.07	0.010507	9.40	216.86	57.85	0.71	3.56
Low Flow Channel	199.13	750 cfs	EC_high_trunQ	750.00	2789.75	2796.40	2796.40	2797.31	0.017096	10.03	126.22	55.25	0.76	4.42
Low Flow Channel	199.13	1000 cfs	EC_high_trunQ	1000.00	2789.75	2796.79	2796.79	2797.89	0.019543	11.24	148.01	55.25	0.82	5.43
Low Flow Channel	199.13	1500 cfs	EC_high_trunQ	1500.00	2789.75	2797.78		2798.95	0.017717	11.89	202.69	55.25	0.81	5.76
Low Flow Channel	193.14	750 cfs	EC_high_trunQ	750.00	2789.41	2794.56	2795.31	2797.01	0.040362	17.54	82.99	38.82	1.37	12.69
Low Flow Channel	193.14	1000 cfs	EC_high_trunQ	1000.00	2789.41	2795.20	2796.15	2797.60	0.036858	18.14	109.23	44.71	1.34	13.05
Low Flow Channel	193.14	1500 cfs	EC_high_trunQ	1500.00	2789.41	2798.05		2798.74	0.007575	10.78	267.29	56.72	0.65	4.02
Low Flow Channel	182.23	750 cfs	EC_high_trunQ	750.00	2789.01	2795.47	2794.30	2795.97	0.006549	7.02	165.20	62.00	0.52	2.04
Low Flow Channel	182.23	1000 cfs	EC_high_trunQ	1000.00	2789.01	2796.36	2794.81	2796.86	0.005682	7.22	221.39	63.00	0.50	2.05
Low Flow Channel	182.23	1500 cfs	EC_high_trunQ	1500.00	2789.01	2798.17	2795.92	2798.61	0.003857	7.01	335.01	63.00	0.43	1.78
Low Flow Channel	182	750 cfs	PC high_Q100trun	750.00	2791.12	2794.29	2794.29	2796.50	0.050784	12.19	66.76	33.06	1.35	7.79
Low Flow Channel	182	1000 cfs	PC high_Q100trun	1000.00	2791.12	2795.99	2795.63	2796.79	0.010892	7.95	166.36	64.39	0.68	2.79
Low Flow Channel	182	1500 cfs	PC high_Q100trun	1500.00	2791.12	2798.01	2796.34	2798.49	0.004387	6.54	329.36	90.62	0.46	1.66
Low Flow Channel	173.43	750 cfs	EC_high_trunQ	750.00	2788.77	2795.45		2795.91	0.004189	6.03	175.49	63.72	0.44	1.45
Low Flow Channel	173.43	1000 cfs	EC_high_trunQ	1000.00	2788.77	2796.34		2796.82	0.003831	6.34	236.25	70.16	0.43	1.53
Low Flow Channel	173.43	1500 cfs	EC_high_trunQ	1500.00	2788.77	2798.16		2798.57	0.002733	6.28	363.47	70.16	0.38	1.39
Low Flow Channel	158.55	750 cfs	EC_high_trunQ	750.00	2789.33	2795.16		2795.81	0.007324	7.69	145.17	51.37	0.59	2.40
Low Flow Channel	158.55	1000 cfs	EC_high_trunQ	1000.00	2789.33	2796.01		2796.71	0.007052	8.32	197.85	66.10	0.59	2.68
Low Flow Channel	158.55	1500 cfs	EC_high_trunQ	1500.00	2789.33	2798.03		2798.52	0.003764	7.34	331.47	66.10	0.45	1.90
Low Flow Channel	158	750 cfs	PC high_Q100trun	750.00	2790.16	2795.12	2794.20	2795.66	0.006887	6.51	154.59	60.73	0.55	1.85
Low Flow Channel	158	1000 cfs	PC high_Q100trun	1000.00	2790.16	2796.03	2794.89	2796.53	0.005324	6.49	211.27	63.41	0.49	1.72
Low Flow Channel	158	1500 cfs	PC high_Q100trun	1500.00	2790.16	2797.99	2795.67	2798.39	0.003097	6.09	354.70	76.89	0.40	1.37
Low Flow Channel	144.03	750 cfs	EC_high_trunQ	750.00	2789.74	2794.98		2795.69	0.009003	8.31	147.82	59.89	0.65	2.84
Low Flow Channel	144.03	1000 cfs	EC_high_trunQ	1000.00	2789.74	2796.02		2796.57	0.006097	7.74	209.67	59.89	0.55	2.32
Low Flow Channel	144.03	1500 cfs	EC_high_trunQ	1500.00	2789.74	2797.99		2798.45	0.003723	7.29	327.93	59.89	0.45	1.87
Low Flow Channel	143	750 cfs	PC high_Q100trun	750.00	2789.65	2795.04		2795.56	0.006315	6.20	154.13	62.68	0.52	1.68
Low Flow Channel	143	1000 cfs	PC high_Q100trun	1000.00	2789.65	2795.97		2796.45	0.004881	6.19	212.62	62.68	0.47	1.57
Low Flow Channel	143	1500 cfs	PC high_Q100trun	1500.00	2789.65	2797.91		2798.34	0.003047	6.01	334.43	62.68	0.39	1.33
Low Flow Channel	129.66	750 cfs	EC_high_trunQ	750.00	2789.04	2795.17		2795.48	0.003903	6.02	215.20	71.64	0.44	1.42
Low Flow Channel	129.66	1000 cfs	EC_high_trunQ	1000.00	2789.04	2796.14		2796.43	0.003076	5.92	284.83	71.64	0.40	1.31
Low Flow Channel	129.66	1500 cfs	EC_high_trunQ	1500.00	2789.04	2798.09		2798.35	0.002106	5.78	424.15	71.64	0.34	1.15
Low Flow Channel	129	750 cfs	PC high_Q100trun	750.00	2789.04	2795.14		2795.41	0.003582	4.64	208.76	67.97	0.39	0.94
Low Flow Channel	129	1000 cfs	PC high_Q100trun	1000.00	2789.04	2796.06		2796.33	0.002940	4.76	271.87	69.24	0.36	0.93
Low Flow Channel	129	1500 cfs	PC high_Q100trun	1500.00	2789.04	2797.99		2798.25	0.001986	4.79	405.14	69.24	0.31	0.85

HEC-RAS River: little shasta Reach: Low Flow Channel (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Shear Chan
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(lb/sq ft)
Low Flow Channel	110.06	750 cfs	EC_high_trunQ	750.00	2789.51	2794.18	2793.65	2795.20	0.013769	9.39	106.34	31.95	0.79	3.80
Low Flow Channel	110.06	750 cfs	PC high_Q100trun	750.00	2789.51	2794.18	2793.65	2795.20	0.013769	9.39	106.34	31.95	0.79	3.80
Low Flow Channel	110.06	1000 cfs	EC_high_trunQ	1000.00	2789.51	2794.89	2794.29	2796.12	0.013828	10.39	129.52	32.97	0.81	4.43
Low Flow Channel	110.06	1000 cfs	PC high_Q100trun	1000.00	2789.51	2794.89	2794.29	2796.12	0.013823	10.39	129.53	32.97	0.81	4.43
Low Flow Channel	110.06	1500 cfs	EC_high_trunQ	1500.00	2789.51	2796.86	2795.35	2798.08	0.009293	10.57	197.10	35.89	0.70	4.11
Low Flow Channel	110.06	1500 cfs	PC high_Q100trun	1500.00	2789.51	2796.86	2795.35	2798.08	0.009295	10.57	197.09	35.89	0.70	4.11
Low Flow Channel	108			Bridge										
Low Flow Channel	88.47	750 cfs	EC_high_trunQ	750.00	2789.73	2794.23		2794.76	0.006682	5.85	130.47	35.61	0.53	1.56
Low Flow Channel	88.47	750 cfs	PC high_Q100trun	750.00	2789.73	2794.23		2794.76	0.006682	5.85	130.47	35.61	0.53	1.56
Low Flow Channel	88.47	1000 cfs	EC_high_trunQ	1000.00	2789.73	2795.01		2795.65	0.006412	6.48	158.23	36.33	0.53	1.80
Low Flow Channel	88.47	1000 cfs	PC high_Q100trun	1000.00	2789.73	2795.01		2795.65	0.006411	6.48	158.24	36.33	0.53	1.80
Low Flow Channel	88.47	1500 cfs	EC_high_trunQ	1500.00	2789.73	2796.34		2797.20	0.006123	7.50	207.50	38.28	0.54	2.21
Low Flow Channel	88.47	1500 cfs	PC high_Q100trun	1500.00	2789.73	2796.34		2797.20	0.006123	7.50	207.49	38.27	0.54	2.22
Low Flow Channel	51.82	750 cfs	EC_high_trunQ	750.00	2789.22	2794.07	2792.41	2794.52	0.005000	5.36	142.84	35.93	0.46	1.27
Low Flow Channel	51.82	750 cfs	PC high_Q100trun	750.00	2789.22	2794.07	2792.41	2794.52	0.005000	5.36	142.84	35.93	0.46	1.27
Low Flow Channel	51.82	1000 cfs	EC_high_trunQ	1000.00	2789.22	2794.85	2792.94	2795.41	0.005000	6.01	171.13	36.65	0.48	1.51
Low Flow Channel	51.82	1000 cfs	PC high_Q100trun	1000.00	2789.22	2794.85	2792.94	2795.41	0.005000	6.01	171.13	36.65	0.48	1.51
Low Flow Channel	51.82	1500 cfs	EC_high_trunQ	1500.00	2789.22	2796.20	2793.87	2796.96	0.005008	7.06	222.21	46.64	0.50	1.92
Low Flow Channel	51.82	1500 cfs	PC high_Q100trun	1500.00	2789.22	2796.20	2793.87	2796.96	0.005008	7.06	222.21	46.64	0.50	1.92