

EXHIBIT A
Refuge Creek HR
SCOPE OF WORK

Under direction of the Grantor, and under the following conditions and terms, the Grantee will:

1. Improve habitat conditions for coho salmon, Chinook salmon and steelhead trout in an unnamed tributary to Howe Creek locally known as Refuge Creek. Howe Creek is tributary to Eel River in Humboldt County. The objective is to facilitate riparian forest regeneration through plantings, road crossing stabilization, livestock water systems and fencing.
2. Work will take place within the drainage of Refuge Creek. The project is located in Township 1N, Range 1W, Sections 9 and 10 of the Taylor Peak 7.5 Minute U.S.G.S. Quadrangle, Humboldt County, as depicted in Exhibit C, Project Location Map, which is attached and made part of this agreement by this reference.
3. Treatments to reduce delivery of 960 yds³ of sediment to Refuge Creek will be implemented at three stream crossings and will include the following where appropriate:
 - Installation of culverts sized for the 100-year flood flow, including sufficient capacity for expected wood and sediment;
 - Installation of critical dips to eliminate diversion potential;
 - Excavation and/or armoring of inboard ditches;
 - Excavation of culvert inlets;
 - Installation of downspouts and/or rock dissipation at culvert outlets;
 - Installation of rolling dips;
 - Reshaping of road surfaces;
 - Removal of berms;
 - Installation of ditch relief culverts;
 - Rocking of road surfaces;
 - Seeding and mulching of all exposed soils which may deliver sediment to a stream. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years.

Treatments will be implemented to exclude livestock from 148 acres including the following:

- Construction of 5,600 feet of livestock exclusion fencing;
- Fence placement, set back distance from the edge of the active stream channel will be a minimum of 35 feet from both stream banks;
- Installation of sufficient gates along the constructed fence lines to facilitate hand crew access and the quick removal of the livestock in the event of accidental entry;
- Specific fencing materials, post and wire spacing, gate locations, and final fence line set back positioning will be approved by the landowner and DFG Grant Manager;
- The landowner will maintain the livestock exclusion fencing constructed under the terms of this agreement in good repair for a period of ten years from the termination date of the agreement;
- Maintenance will include repair of fences to a level that will effectively exclude livestock from the project areas for the ten-year period, or until the vegetation in the excluded area, either

natural or planted, becomes well established and the landowner has developed and agreed to a DFG approved, riparian area grazing plan for the project area.

Treatments will be implemented to facilitate livestock watering and will include the following:

- Construction and retrofitting of two livestock water trough centers with enclosure control fencing;
- Installation of 1800' of welded, 1", buried, high density, polyethylene pipe with stainless steel fittings to connect the troughs to the water sources;
- Seeding and mulching of all exposed soils which may deliver sediment to a stream. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years.

Planting treatments will occur in a 23 acre livestock exclusion area along Refuge Creek and will include the following:

- Planting 1800 plug-1 bare root redwood seedlings spaced on approximately 24' centers;
- Sprigging of 300 black cottonwood along the fish bearing portions of Refuge Creek;
- Installation of Vexar seedling protectors on all plantings;
- Removal of grass and other vegetative competition within 14" of each seedling during the spring following planting;
- Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings. The standard for success is 80% survival of plantings or 80% ground cover for broadcast planting of seed, after a period of three years.

4. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Game.
5. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured.
6. The Grantee shall notify the Grant Manager a minimum of five working days before any fish bearing stream reaches are dewatered and the stream flow diverted. The notification will provide a reasonable time for Department personnel to supervise the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other aquatic species from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
 - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
 - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
 - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
 - The Grantee will provide fish relocation data to the Grant Manager on a form provided by the Department of Fish and Game.
 - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the

California Salmonid Stream Habitat Restoration Manual.

7. All habitat improvements will follow techniques described in the Third Edition, January 1998, of the *California Salmonid Stream Habitat Restoration Manual*, Flosi et al. and the *California Salmonid Stream Habitat Restoration Manual*, Third Edition, Volume II, Part XI, January 2004.
8. If the project will not be completed by March 31, 2012, and therefore the grantee will be requesting an amendment for time, this request and a justification for the delay resulting in the time request must also be submitted no later than December 1, 2011.
9. A progress report will be submitted annually no later than November 15 detailing the work completed that field season. The progress report will include, but not necessarily be limited to the following where applicable:
 - Grant number;
 - Project name;
 - Geographic area (e.g., watershed name);
 - Location of work – show project feature locations using U.S.G.S. 7.5 minute topographical map(s) or appropriately scaled topographical map(s);
 - implementation start and end dates;
 - as built project description including the following: length of stream treated, number of structures built, number of pieces of large wood used;
 - percentage of the project completed to date;
 - dewatering and fish relocation data on DFG data sheet (to be provided by the DFG grant manager upon request);
 - projected start and end dates for work to be implemented the following season.

The progress report will also include the following information on a site by site basis:

- Number of miles treated (e.g., fenced) according to plan
 - Number of acres treated (e.g., planted) according to plan
 - Number of acres and type of invasive species controlled
 - Species and size of trees planted
 - Number of trees/density of plantings
 - Feet of stream bank stabilized and treatments used.
 - Type and number of actions (e.g., fencing, road removal)
 - For upslope tree planting projects, # of trees planted and acres treated
 - Number of miles of road decommissioned, upgraded or restored (e.g., closed, obliterated, treated) per road segment
 - Number of stream crossings decommissioned and upgraded per road segment
 - Area of landslide/fillslope treatments per treatment site
 - Number of cubic yards of sediment saved from entering the stream per site and per road segment
 - Spoils volumes per site and per road segment
10. Upon completion of the project, the Grantee shall submit two hard copies of a final written report and one electronic, Microsoft Word compatible, copy on CD. The report shall include, but not necessarily be limited to the following information:
 - Grant number;

- Project name;
- Geographic area (e.g., watershed name);
- Location of work –show project location using U.S.G.S. 7.5 minute topographical map(s) or appropriately scaled topographical map(s);
- Geospatial reference/location (lat/long is preferred – defined as point, line, or polygon);
- Project start and end dates and the number of person hours expended;
- Total of each fund source, by line item, expended to complete the project, breaking down Grant dollars, by line item, and any other funding, including type of match (cash or in-kind service);
- Expected benefits to anadromous salmonids from the project;
- Length of stream treated;
- Labeled before and after photographs of each structure;
- Specific project access using public and private roads and trails, with landowner name and address;
- Complete as built project description including the following information for each structure: gps coordinates, number of logs, rootwads and boulders used;
- Report measurable metrics for the project by responding to the restoration project metrics listed below.

Habitat Protection and Restoration Projects– Reporting Metrics (Report N/A to those that do not apply)

Habitat Projects: (all)

- Identify the watershed/sub-basin plan or assessment in which the project is identified as a priority.
- Name the priority habitat limiting factors identified in that plan that are addressed by the project
- Type of monitoring included in the project
 - Design spec achieved
 - Fish movement/abundance
- Number of stream miles treated/affected by the project within the project boundaries.

Instream Habitat Projects (HI, HS)

- Description of instream treatments used, including site locations referenced to an established landmark, number of treatment sites, and any modifications to site/treatment design.
- Type of materials used for channel structure placement, select from: individual logs (unanchored); logs fastened together (logjam); rocks/boulders (unanchored); rocks/boulders (fastened or anchored); stumps with roots attached (root wads); weirs; gabions; deflectors/barbs; or other engineered structures
- Miles of stream treated with channel structure placement
- Number of instream pools created by structure placement
- Number of structures placed in channel.

Upland Habitat Projects (HU)

- Number of actions (road decommission / upgrade)
- Total acres of upslope area treated.
- Total miles of road treated.
- Miles of road treated for road drainage system improvements.
- Miles of road decommissioned.

- Number of cubic yards of sediment saved from entering the stream.
- Type(s) of upland erosion and sediment control, select from erosion control structures; planting; or slope stabilization
- Number of erosion / sediment control installations
- Type(s) of upland agriculture management, select from agricultural management practices; vegetative and tilling practices; or structural practices
- Type(s) of upland livestock management, select from livestock watering schedules; grazing management plans; upland exclusion and fencing; or livestock water development
- Number of livestock water installations.

Riparian Habitat Projects (HR)

- Miles of stream treated overall, count stream reach only once.
- Miles of riparian stream bank treated, measure both sides of the bank.
- Total acres of riparian area treated.
- Acres of riparian area planted.
- Species scientific names of plants planted.

11. The Grantee will acknowledge the participation of the Department of Fish and Game, Fisheries Restoration Grant funds on any signs, flyers, or other types of written communication or notice to advertise or explain Refuge Creek HR.

Exhibit C
Refuge Creek HR
Map 1 – Project Location
T 1N, R 1W, S 9 and 10 – Taylor Peak Quad – Humboldt County

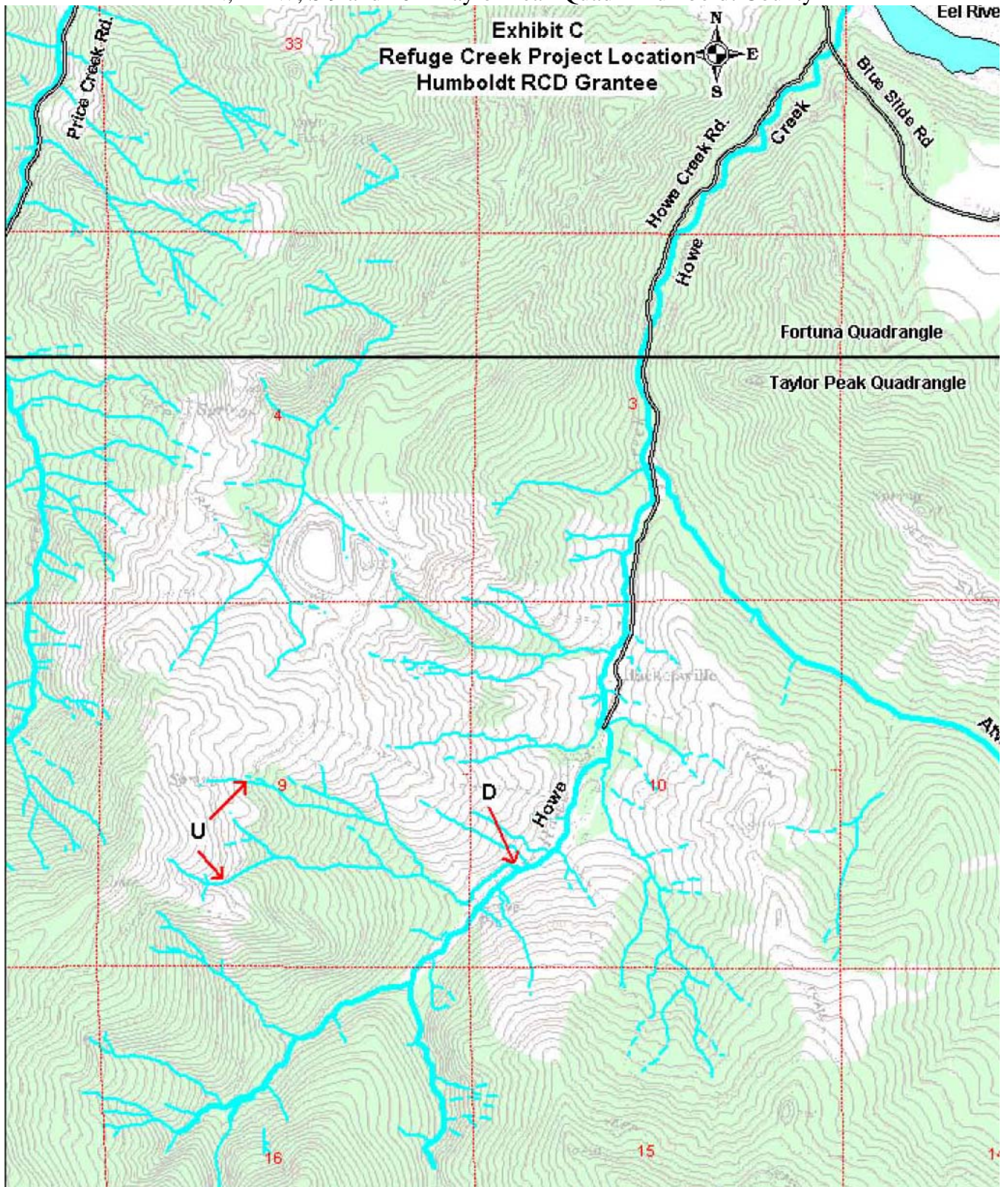


Exhibit C
Refuge Creek HR
Map 2 – Plan Overview
T 1N, R 1W, S 9 and 10 – Taylor Peak Quad – Humboldt County

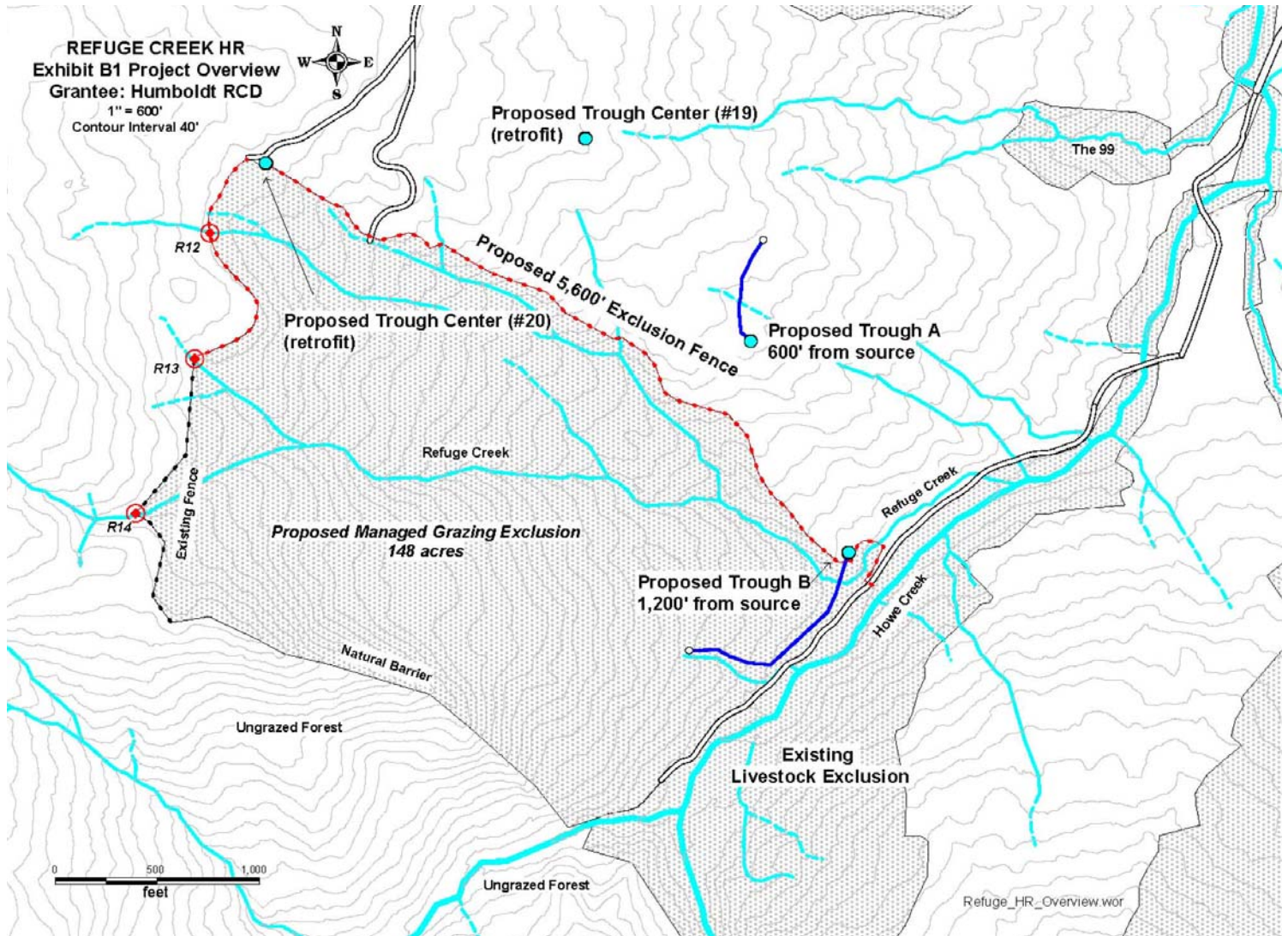


Exhibit C
Refuge Creek HR
Map 3 – Revegetation Site Plan
T 1N, R 1W, S 9 and 10 – Taylor Peak Quad – Humboldt County

Exhibit B2; REFUGE CREEK HR
Revegation Site Plan

1" = 600'
Contour Interval 40'

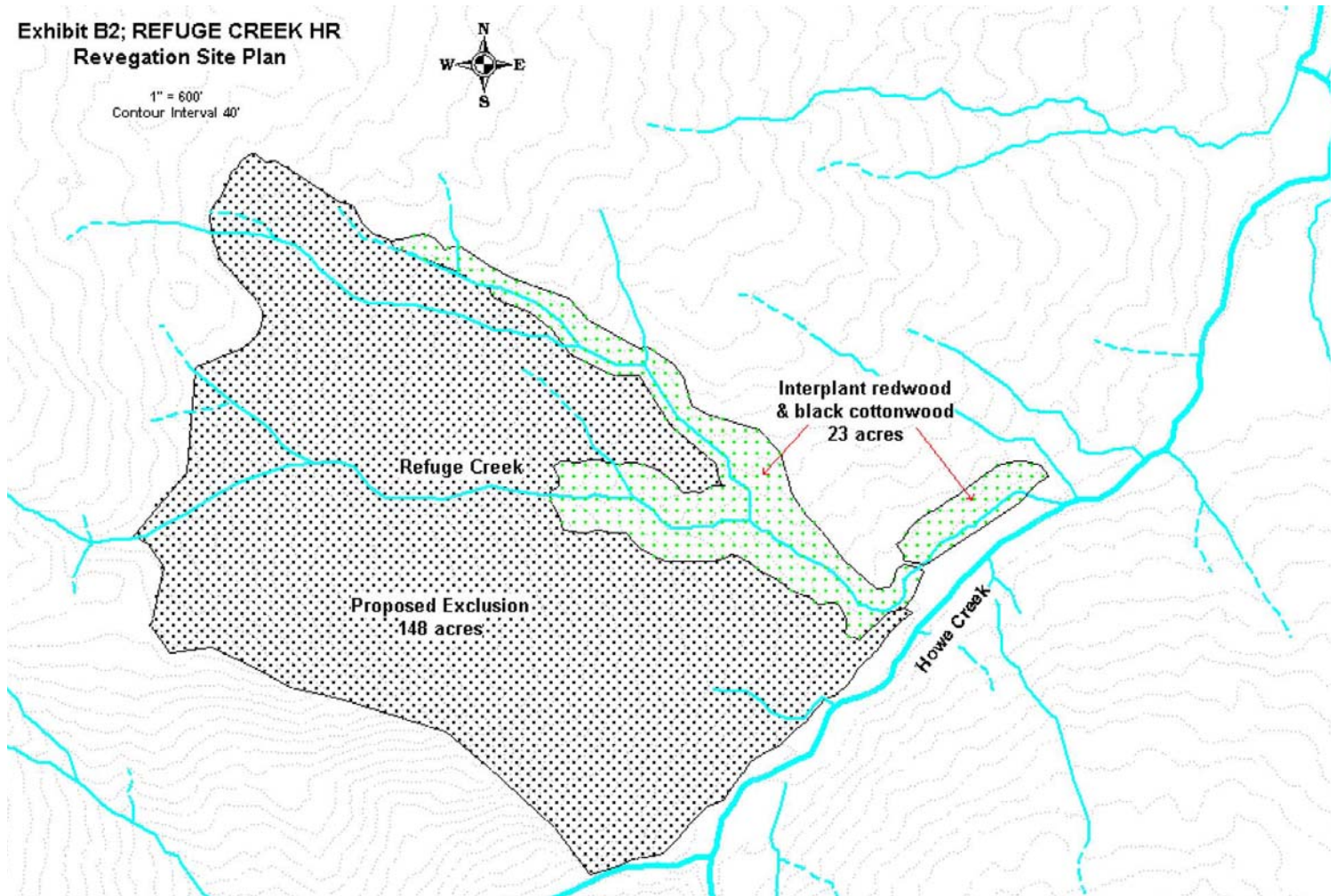
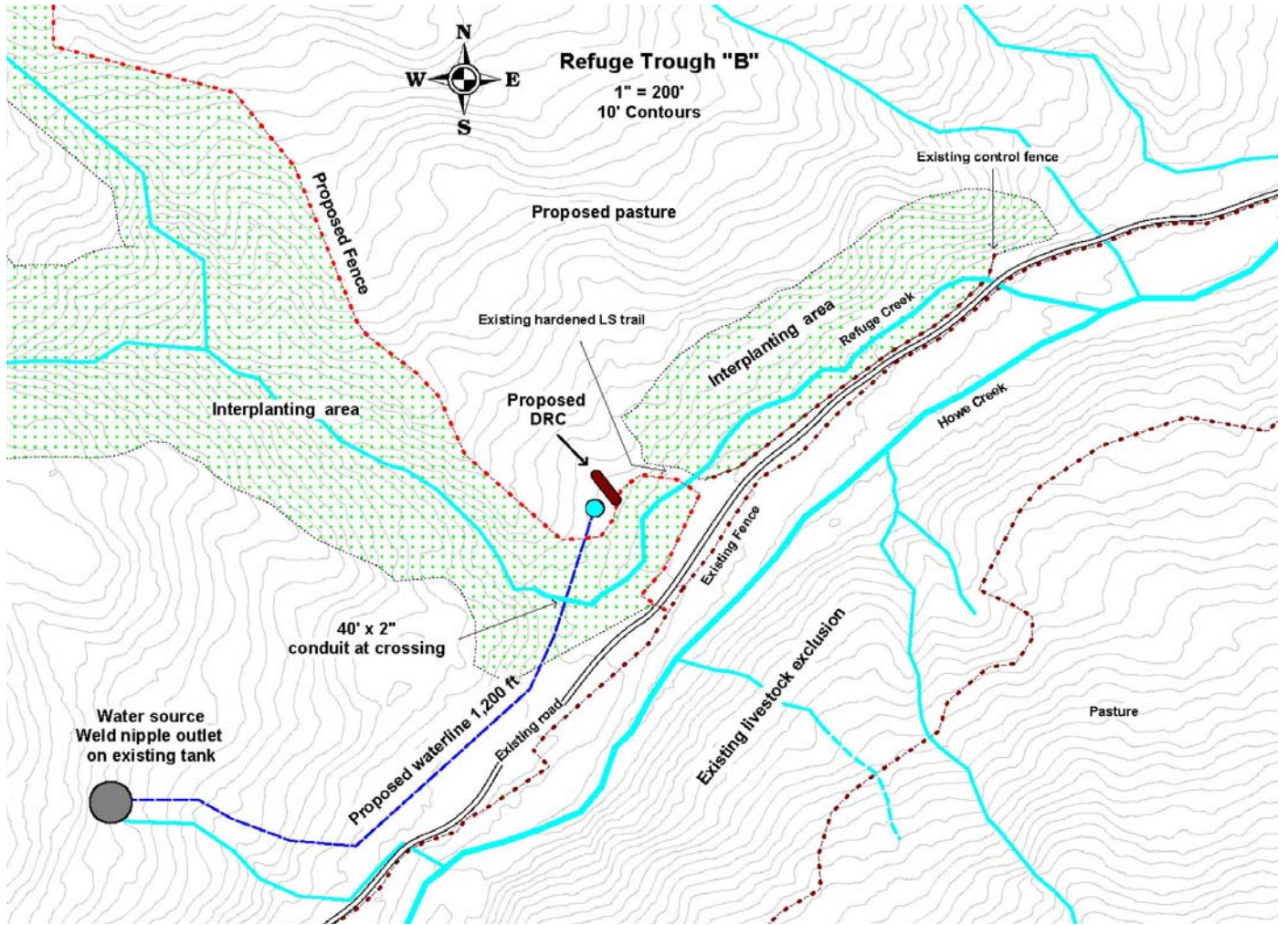


Exhibit C
Refuge Creek HR
Map 4
T 1N, R 1W, S 9 and 10 – Taylor Peak Quad – Humboldt County



California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Taylor Peak and Surrounding Quads for:
Refuge Creek HR
T 1N, R 1W, Sections 9 and 10 - Humboldt County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Coastal Douglas Fir Western Hemlock Forest	CTT82410CA			G4	S2.1	
2 Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
3 Cooper's hawk <i>Accipiter cooperii</i>	ABNKC12040			G5	S3	
4 Hitchcock's blue-eyed grass <i>Sisyrinchium hitchcockii</i>	PMIRI0D0S0			G2	S1.1	1B.1
5 Howell's montia <i>Montia howellii</i>	PDPOR05070			G3G4	S3	2.2
6 Humboldt marten <i>Martes americana humboldtensis</i>	AMAJF01012			G5T2T3	S2S3	SC
7 Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
8 Oregon coast paintbrush <i>Castilleja affinis ssp. litoralis</i>	PDSCR0D012			G4G5T4	S2.2	2.2
9 Oregon polemonium <i>Polemonium carneum</i>	PDPLM0E050			G4	S1	2.2
10 Pacific gilia <i>Gilia capitata ssp. pacifica</i>	PDPLM040B6			G5T3T4	S2.2?	1B.2
11 Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S2S3	SC
12 Siskiyou checkerbloom <i>Sidalcea malviflora ssp. patula</i>	PDMAL110F9			G5T1	S1.1	1B.2
13 Sonoma tree vole <i>Arborimus pomo</i>	AMAFF23030			G3	S3	SC
14 Townsend's big-eared bat <i>Corynorhinus townsendii</i>	AMACC08010			G4	S2S3	SC
15 Whitney's farewell-to-spring <i>Clarkia amoena ssp. whitneyi</i>	PDONA05025			G5T2	S2.1	1B.1
16 Wolf's evening-primrose <i>Oenothera wolfii</i>	PDONA0C1K0			G1	S1.1	1B.1
17 Yuma myotis <i>Myotis yumanensis</i>	AMACC01020			G5	S4?	
18 beach layia <i>Layia carmosa</i>	PDAST5N010	Endangered	Endangered	G2	S2.1	1B.1
19 coast cutthroat trout <i>Oncorhynchus clarkii clarkii</i>	AFCHA0208A			G4T4	S3	SC
20 coast fawn lily <i>Erythronium revolutum</i>	PMLIL0U0F0			G4	S3	2.2
21 coastal marsh milk-vetch <i>Astragalus pycnostachyus var. pycnostachyus</i>	PDFAB0F7B2			G2T2	S2.2	1B.2
22 coho salmon - central California coast ESU <i>Oncorhynchus kisutch</i>	AFCHA02034	Endangered	Endangered	G4	S2?	
23 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S2S3	SC

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24 giant fawn lily <i>Erythronium oregonum</i>	PMLIL0U0C0			G5	S2.2	2.2
25 golden eagle <i>Aquila chrysaetos</i>	ABNKC22010			G5	S3	
26 great blue heron <i>Ardea herodias</i>	ABNGA04010			G5	S4	
27 great egret <i>Ardea alba</i>	ABNGA04040			G5	S4	
28 hoary bat <i>Lasiurus cinereus</i>	AMACC05030			G5	S4?	
29 leafy reed grass <i>Calamagrostis foliosa</i>	PMPOA170C0		Rare	G3	S3.2	4.2
30 long-beard lichen <i>Usnea longissima</i>	NLLEC5P420			G4	S4.2	
31 maple-leaved checkerbloom <i>Sidalcea malachroides</i>	PDMAL110E0			G3G4	S3S4.2	4.2
32 marbled murrelet <i>Brachyramphus marmoratus</i>	ABNNN06010	Threatened	Endangered	G3G4	S1	
33 northern red-legged frog <i>Rana aurora</i>	AAABH01021			G4T4	S2?	SC
34 northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened		G3T3	S2S3	SC
35 osprey <i>Pandion haliaetus</i>	ABNKC01010			G5	S3	
36 pallid bat <i>Antrozous pallidus</i>	AMACC10010			G5	S3	SC
37 running-pine <i>Lycopodium clavatum</i>	PPLYC01080			G5	S4.1	4.1
38 seacoast ragwort <i>Packera bolanderi var. bolanderi</i>	PDAST8H0H1			G4T4	S1.2	2.2
39 sharp-shinned hawk <i>Accipiter striatus</i>	ABNKC12020			G5	S3	
40 short-leaved evax <i>Hesperivax sparsiflora var. brevifolia</i>	PDASTE5011			G4T2T3	S2S3	1B.2
41 slender silver moss <i>Anomobryum julaceum</i>	NBMUS80010			G4G5	S1.3	2.2
42 southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020			G3G4	S2S3	SC
43 summer-run steelhead trout <i>Oncorhynchus mykiss irideus</i>	AFCHA0213B			G5T4Q	S2	SC
44 tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020			G2G3	S2	SC
45 western pond turtle <i>Actinemys marmorata</i>	ARAAD02030			G3G4	S3	SC

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46 western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Candidate	Endangered	G5T3Q	S1	
47 white-flowered rein orchid <i>Piperia candida</i>	PMORC1X050			G3	S3.2	1B.2
48 willow flycatcher <i>Empidonax traillii</i>	ABPAE33040		Endangered	G5	S1S2	