

ATTACHMENT 1c
Aldebaran's Gaze Full Resubmittal

Project: Aldebaran's Gaze Remediation

Applicant: Aldebaran's Gaze, LLC

Contact: Bryan Harpel

APN: 223-091-003

Grant Funding Requested: \$17,040.00

Project Description

The project is located on Humboldt County APN 223-091-003 near Garberville, California. The property is located on Ross Road, in the Eel River watershed, approximately eight miles east of Garberville.

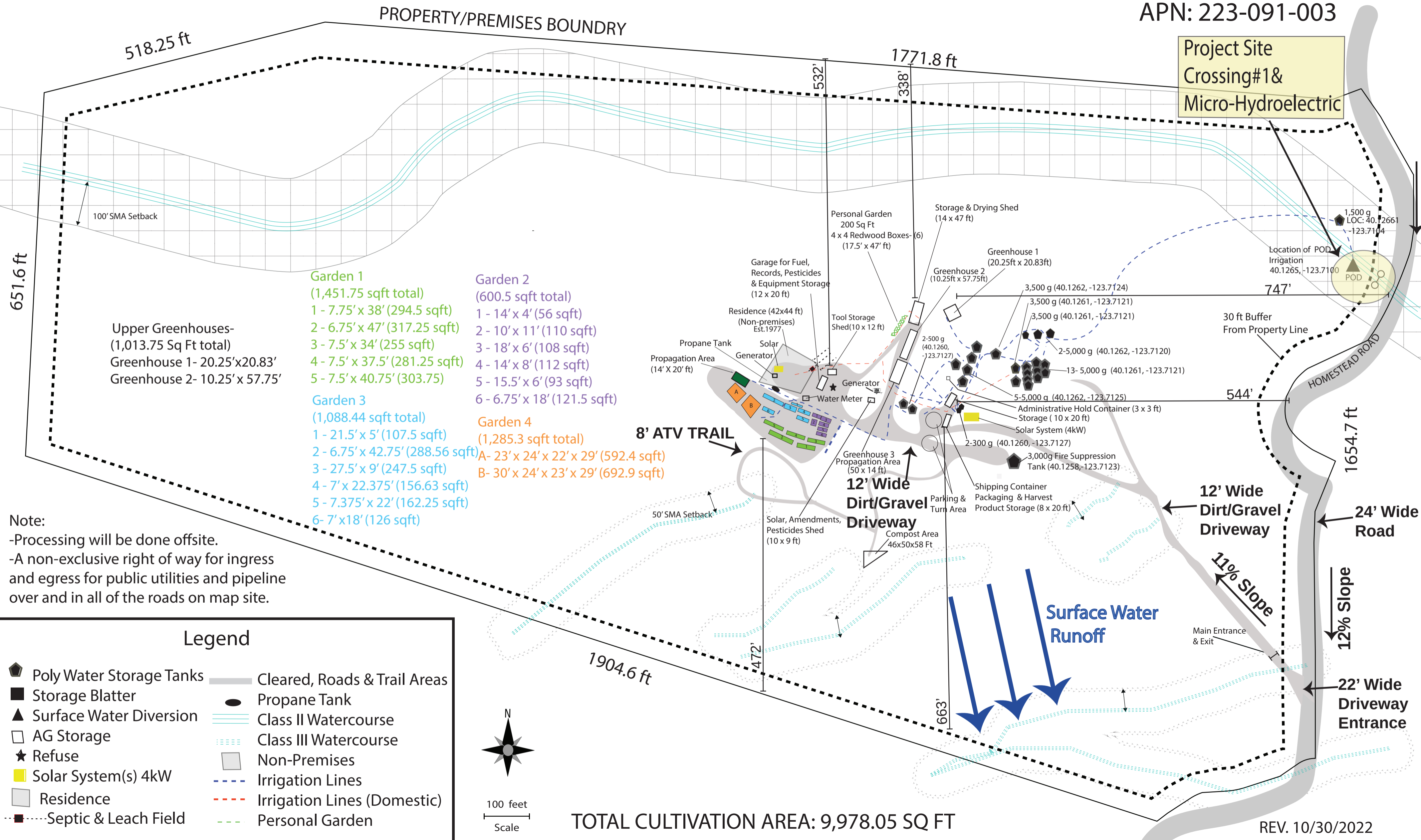
The project proposes the upgrade of an undersized culvert along with removal of legacy hydroelectric facility infrastructure at one stream crossing as required by the applicant's Lake and Streambed Alteration Agreement with the California Department of Fish & Wildlife.

While the Humboldt GIS indicates the parcels are in a general area of high slope instability, they are not within a flood hazard zone, nor in an earthquake hazard zone. The parcels are surrounded by rural improved properties. No impact to these other parcels is expected.

This project would storm-proof the stream crossing for a 100 year flood event and reduce the potential for road-related sediment delivery into the unnamed tributary and down to the south fork of the Eel River. The upgraded stream crossing will protect water quality and aquatic ecosystems, limiting the impact on downstream resources. The crossing upgrade will be constructed according to standards provided in the "Handbook for Forest, Ranch and Rural Roads" (Weaver, Weppner and Hagans, 2015), and the California Salmonid Stream Habitat Manual, Part X (Weaver, Hagans and Weppner, 2006) by a licensed contractor.

Permanent impacts to existing native channel bed, channel, watercourse banks, and associated riparian habitat will be negligible and avoided. Incidental destruction of small areas of riparian habitat growing on existing road fill or in disturbed channel areas is expected but will be minimized at the proposed sites during remediation. No loss of trees is expected.

Project Site
 Crossing#1 &
 Micro-Hydroelectric



651.6 ft

518.25 ft

1771.8 ft

532'

338'

100' SMA Setback

Garden 1
 (1,451.75 sqft total)
 1 - 7.75' x 38' (294.5 sqft)
 2 - 6.75' x 47' (317.25 sqft)
 3 - 7.5' x 34' (255 sqft)
 4 - 7.5' x 37.5' (281.25 sqft)
 5 - 7.5' x 40.75' (303.75)

Garden 2
 (600.5 sqft total)
 1 - 14' x 4' (56 sqft)
 2 - 10' x 11' (110 sqft)
 3 - 18' x 6' (108 sqft)
 4 - 14' x 8' (112 sqft)
 5 - 15.5' x 6' (93 sqft)
 6 - 6.75' x 18' (121.5 sqft)

Garden 3
 (1,088.44 sqft total)
 1 - 21.5' x 5' (107.5 sqft)
 2 - 6.75' x 42.75' (288.56 sqft)
 3 - 27.5' x 9' (247.5 sqft)
 4 - 7' x 22.375' (156.63 sqft)
 5 - 7.375' x 22' (162.25 sqft)
 6 - 7' x 18' (126 sqft)

Garden 4
 (1,285.3 sqft total)
 A- 23' x 24' x 22' x 29' (592.4 sqft)
 B- 30' x 24' x 23' x 29' (692.9 sqft)

Upper Greenhouses-
 (1,013.75 Sq Ft total)
 Greenhouse 1- 20.25'x20.83'
 Greenhouse 2- 10.25' x 57.75'

8' ATV TRAIL

12' Wide
 Dirt/Gravel
 Driveway

12' Wide
 Dirt/Gravel
 Driveway

24' Wide
 Road

12% Slope

11% Slope

Surface Water
 Runoff

22' Wide
 Driveway
 Entrance

1654.7 ft

544'

747'

1904.6 ft

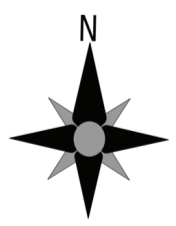
472'

663'

Note:
 -Processing will be done offsite.
 -A non-exclusive right of way for ingress
 and egress for public utilities and pipeline
 over and in all of the roads on map site.

Legend

Poly Water Storage Tanks	Cleared, Roads & Trail Areas
Storage Blatter	Propane Tank
Surface Water Diversion	Class II Watercourse
AG Storage	Class III Watercourse
Refuse	Non-Premises
Solar System(s) 4kW	Irrigation Lines
Residence	Irrigation Lines (Domestic)
Septic & Leach Field	Personal Garden



100 feet
 Scale

TOTAL CULTIVATION AREA: 9,978.05 SQ FT

REV. 10/30/2022

PLOT PLAN AND TENTATIVE MAP CHECKLIST

The following information must be shown on your plot plan or tentative map. Please check the box to the left of the items shown on the plot plan or tentative map. If any item is not on your site to your knowledge, write "N/A" next to the box. Plot plans shall be drawn on a minimum size sheet of 8-1/2" x 11", and tentative subdivision maps on a minimum size sheet of 18" x 26". **Note: This Checklist must be completed by the applicant and submitted with your application.**

Applicant's Name Aldebaran's Gaze Remediation APN 223-091-003

FOR ALL PROJECTS	
<input checked="" type="checkbox"/>	1. Name of applicant(s)
<input checked="" type="checkbox"/>	2. Location or vicinity map (on or attached to the plot plan)
<input checked="" type="checkbox"/>	3. The subject parcel (show entire parcel with dimensions)
<input checked="" type="checkbox"/>	4. Date, north arrow and scale
<input checked="" type="checkbox"/>	5. Name, County road numbers, and width of all existing and proposed access roadways adjacent to or within the subject parcel (indicate width of traveled way, grade (in % slope), and surface)
<input checked="" type="checkbox"/>	6. Existing <u>and</u> proposed improvements (label as "existing" and "proposed" with dimensions and distance to nearest two (2) property lines)
	<input checked="" type="checkbox"/> a. Structures and buildings (include floor area, height and proposed use)
	<input checked="" type="checkbox"/> b. Driveways and turnaround areas (indicate width, grade (in % slope) and surface)
N/A	<input type="checkbox"/> c. Utility lines (electric, gas, telephone, sewer, water, and cable TV)
	<input checked="" type="checkbox"/> d. Septic tanks and leachfields (label primary/reserve areas and test holes)
N/A	<input type="checkbox"/> e. Wells
	<input checked="" type="checkbox"/> f. Parking and loading areas (show individual parking spaces, including handicapped parking and ramps)
N/A	<input type="checkbox"/> g. Storm drains, curbs and gutters
	<input checked="" type="checkbox"/> h. Emergency water storage tanks and fire hydrants
N/A	<input type="checkbox"/> i. Landscaped areas (include proposed exterior lighting)
N/A	<input type="checkbox"/> j. Major vegetation (identify mature trees (12" dbh or larger) to be removed)
N/A	<input type="checkbox"/> k. Diked areas
N/A	<input type="checkbox"/> l. Proposed grading and fill (estimate volume)
N/A	<input type="checkbox"/> m. Signs (indicate size, illuminated, and design (e.g., monument, pylon, etc.))
N/A	<input type="checkbox"/> n. Other - specify _____
<input checked="" type="checkbox"/>	7. Direction of surface water runoff
<input checked="" type="checkbox"/>	8. Location and width of all existing and proposed easements of record
<input type="checkbox"/> N/A	9. Hazardous areas (indicate on map if on the project site <u>or</u> within 400 feet of the project site):
N/A	<input type="checkbox"/> a. Areas subject to inundation or flooding
N/A	<input type="checkbox"/> b. Steep or unstable slopes
N/A	<input type="checkbox"/> c. Expansive (clay) soils
N/A	<input type="checkbox"/> d. Earthquake faults
N/A	<input type="checkbox"/> e. Hazardous waste or substance sites
N/A	<input type="checkbox"/> f. Other - specify _____
<input checked="" type="checkbox"/>	10. Sensitive habitat areas (indicate on map if on project site <u>or</u> within 400 feet of the project site):
	<input checked="" type="checkbox"/> a. Creeks, rivers, sloughs and other drainage courses
N/A	<input type="checkbox"/> b. Lakes, ponds, marshes, or "wet" meadows
N/A	<input type="checkbox"/> c. Beaches
N/A	<input type="checkbox"/> d. Sand dunes
N/A	<input type="checkbox"/> e. Other - specify _____
<input type="checkbox"/> N/A	11. Historical buildings or known archaeological or paleontological resources
<input checked="" type="checkbox"/>	12. Land use and buildings on adjacent parcels, and approximate distances to closest property lines
FOR LOT LINE ADJUSTMENT PLOT PLANS ONLY	
<input type="checkbox"/> N/A	13. Proposed new lines and lines to be eliminated (show lines to be eliminated as dashed)
<input type="checkbox"/> N/A	14. Areas (in square footage or acreage) of the initial and resulting parcels

FOR TENTATIVE SUBDIVISION MAPS ONLY	
<input type="checkbox"/> N/A	16. Approximate dimensions and areas of all proposed lots
<input type="checkbox"/> N/A	17. A statement that "All easements of record are shown on the tentative map and will appear on the recorded subdivision map"
<input type="checkbox"/> N/A	18. Contour lines (at _____ intervals)
<input type="checkbox"/> N/A	19. For major subdivisions (5 or more parcels): proposed drainage improvements, details of any grading to be performed, approximate radii of all roadway curves, areas for public use, and typical sections of all streets, highways, ways and alleys
<input type="checkbox"/> N/A	20. Names and assessor's parcel numbers of all contiguous ownerships

NOTE: THE SUBMITTAL OF INCOMPLETE OR ILLEGIBLE PLOT PLANS OR TENTATIVE MAPS WILL CAUSE DELAYS IN THE PROCESSING OF YOUR APPLICATION

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Applicant: Aldebaran's Gaze, LLC

Contact: Bryan Harpel

APN: 223-091-003

Grant Funding Requested: \$17,040.00

Scope of Work

The project is for the upgrade of one non-compliant stream crossing along with the removal of legacy micro-hydroelectric infrastructure debris. The scope of work is described in the applicant's LSA agreement with Fish & Wildlife, and is summarized as follows:

Crossing 1: Replace undersized (short) 48" diameter by 20' culvert with a new 48" diameter by 30' long culvert. Remove micro-hydroelectric facility debris and restore channel/banks to natural condition. Debris will be properly disposed of at a local waste facility.

The project will require a new culvert and a supply of rock and related materials for rip rap to stabilize the channel. Estimated completion of the project will require 16 hours of excavation, 8 hours of labor, and 6 hours of machine transport. The work requires heavy equipment and will be completed by Eel River Excavation.

Prior to starting project operations, the applicant will work with Timberland Resource Consultants to obtain a 401 certification permit for the work.

Margro Advisors will work with the applicant on maintaining compliance with local and State regulations, and provide support for the project's grant administration and reporting, as needed.

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Mitigation and Remediation Fund Schedule for Completion

Milestone	Start Date	End Date
Detailed Project Design	January 1, 2023	February 1, 2023
Permitting	February 1, 2023	May 1, 2023
Final Bidding and Contracting	May 1, 2023	May 31, 2023
Project Ground-Breaking	June 1, 2023	
Project Completion		August 1, 2023
Monitoring	August 1, 2023	Ongoing

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Erosion Control and Monitoring Plan

To protect nearby watershed areas and nearby habitat the site is managed to meet standard conditions and follow best practices in accordance with guidelines provided by the North Coast Regional Water Quality Control Board (NCRWQCB). These practices address erosion control and drainage features, spoils management, water storage and use, irrigation runoff, fertilizers and pesticides, and stream and wetland buffers when applicable.

Best practice steps for this site can include:

- Moderate road shaping and ditch-relief used to optimize drainage to stable areas
- Out-sloping maintained to ensure proper capture and capacity of seasonal flow
- Usage of vegetative ground cover and gravel for added sediment control
- Application of straw mulch to exposed soils to minimize erosion
- Careful irrigation, with immediate oversight, to reduce the possibility of irrigation runoff

Applicant will maintain driveways and access roads to eliminate erosion or runoff during storms. Prior to the winter season and significant storm events, roads and cultivation sites will be inspected and monitored to ensure that runoff is prevented. Culverts will be inspected to ensure armoring is maintained and any debris or sediment has been removed..

If potential issues are discovered during or immediately following a storm event, they will be corrected as soon as possible to ensure minimal impact and prevent sediment flow in the future. This will include proper ditching and vegetation buffers, and as needed, straw, seed, wattles, jute cloth, riprap, or other industry standards used to prevent and eliminate runoff.

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Total Budget: \$26,002.45

Project Budget

Item	Grant Funds	Other Funds (Source)
<i>Permit Fees</i>		
CDFW LSA Agreement		\$5,888.45 (Applicant)
SWRCB 401 Certification	\$2,417.00	
<i>Consultant and Professional Fees</i>		
Timberland Resource Consultants		\$2,500.00 (Applicant)
Margro Advisors	\$423.00	\$574.00 (Applicant)
<i>Materials, Equipment and Labor*</i>		
Eel River Excavation	\$14,200.00	
Totals	\$17,040.00	\$8,962.45

*See attached bid

EEL RIVER EXCAVATION

3450 upper sawmill rd

City- Garberville

State- ca

Zip code- 95542

Tel.707-672-4818

Estimate # 1

DATE. 10/26/2022

SOLDTO. Aldebarans Gaze LLC

Bryan harpel

Project notes - replace 48" culvert

DESCRIPTION	Quantity	Rate	AMOUNT
Rock and Rip Rap	2	1000	\$2000
Machines hours -30,000#Excavator	16 hours	275	\$4400
Culvert pipe	2	3000	\$6000
Machine Transport	6 hr	200	\$ 1200
Man hours 1 Person	8 hr	50	\$ 400
TOTAL			\$14,200

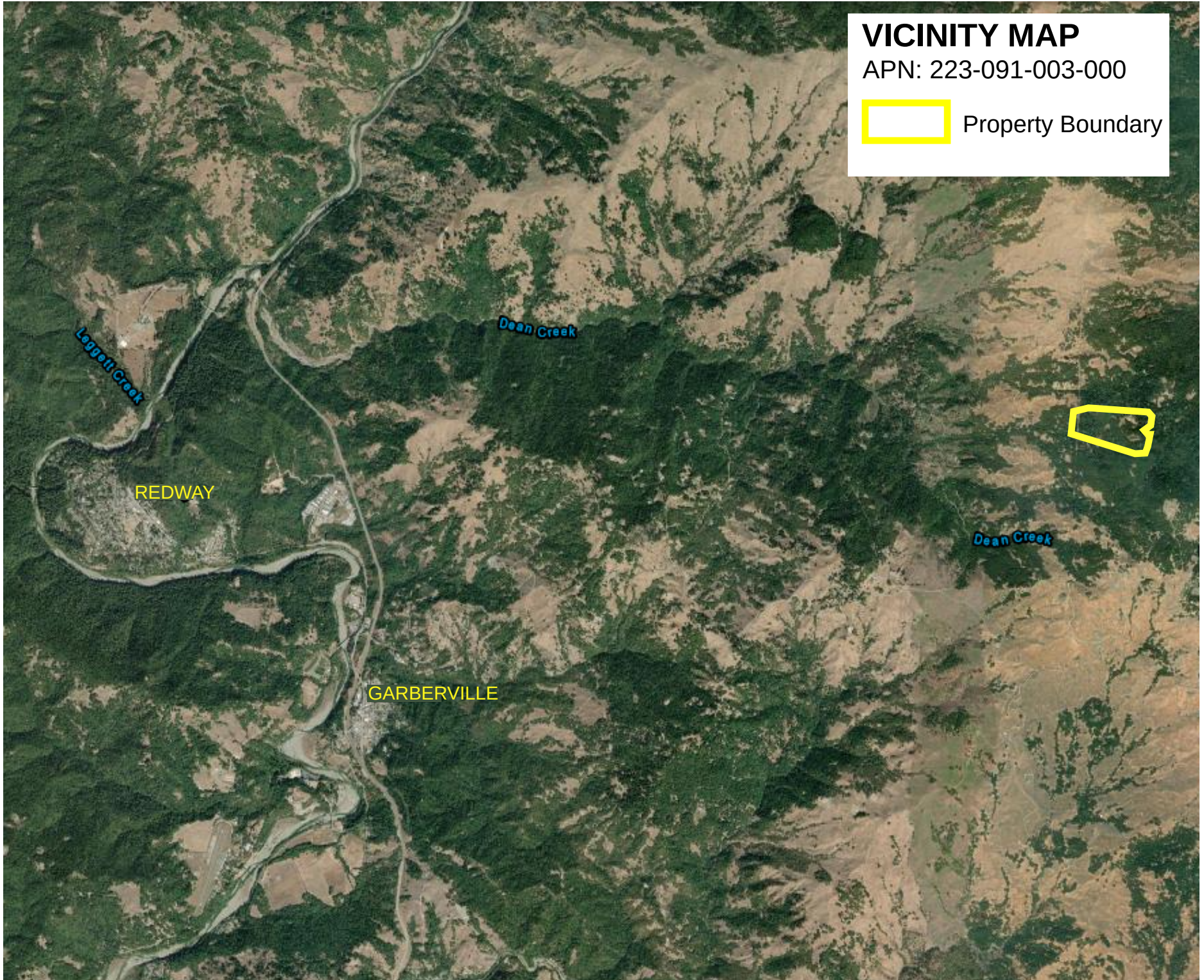


Figure 1 - Vicinity Map



Harpel Topo Map

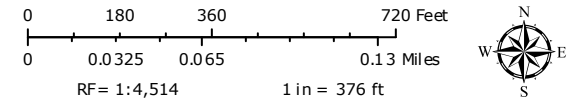
Humboldt County Planning and Building Department

Printed: October 25, 2022

Web AppBuilder 2.0 for ArcGIS

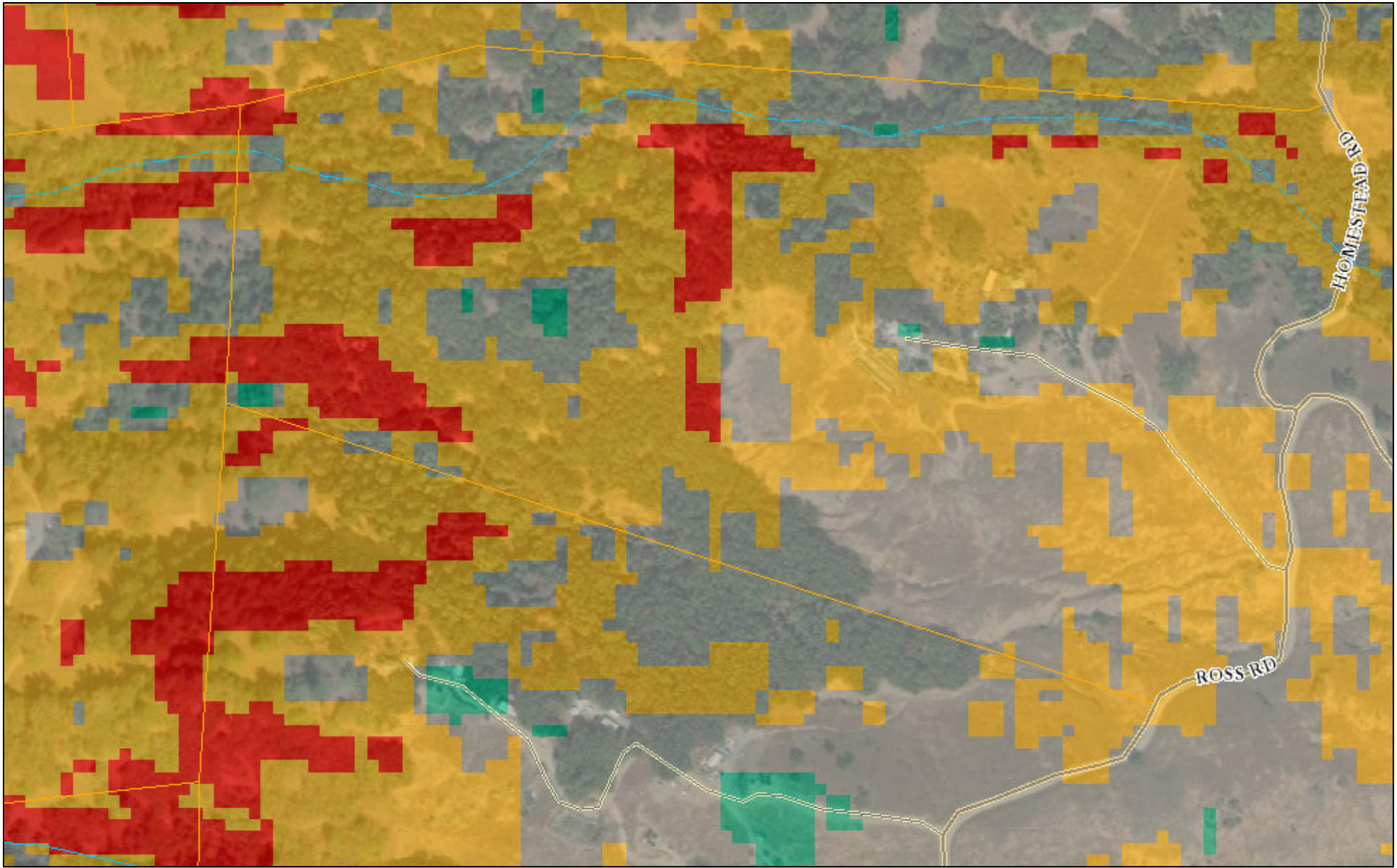
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- | | | | |
|---------------------------|---------------------------|----------------------------------|------------------|
| Highways and Roads | — Private or Unclassified | — Subsurface | — Major Interval |
| — Principal Arterials | — Major River or Stream | — City Boundary | |
| — Minor Arterials | Blue Line Streams | — Counties | |
| — Major Collectors | — Perennial 1-3 | — Parcels (no APN labels) | |
| — Minor Collectors | — Perennial >4 | Topographic Contours 40ft | |
| — Local Roads | — Intermittent | — Minor Interval | |



Sources: Humboldt County GIS
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
FRAP, FEMA, USGS, ESA, CGS
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

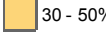
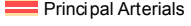


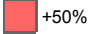


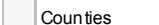
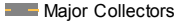
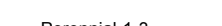
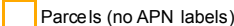
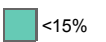
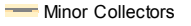
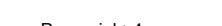

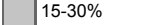
Figure 2 - Topo Map

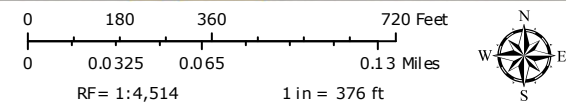


 **Harpel Slope Map**

Humboldt County Planning and Building Department
 Printed: October 25, 2022 Web AppBuilder 2.0 for ArcGIS

Map Disclaimer:
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Highways and Roads	— Private or Unclassified	— Subsurface	 30 - 50%
 Principal Arterials	 Major River or Stream	 City Boundary	 +50%
 Minor Arterials	 Perennial 1-3	 Counties	Slope less than 15%
 Major Collectors	 Perennial >4	 Parcels (no APN labels)	 <15%
 Minor Collectors	 Intermittent	Slope USGS	
 Local Roads		 15-30%	



Sources: Humboldt County GIS
 Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
 FRAP, FEMA, USGS, ESA, CGS
 Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 3 - Slope Map

Cofferdam Construction and Use Specifications

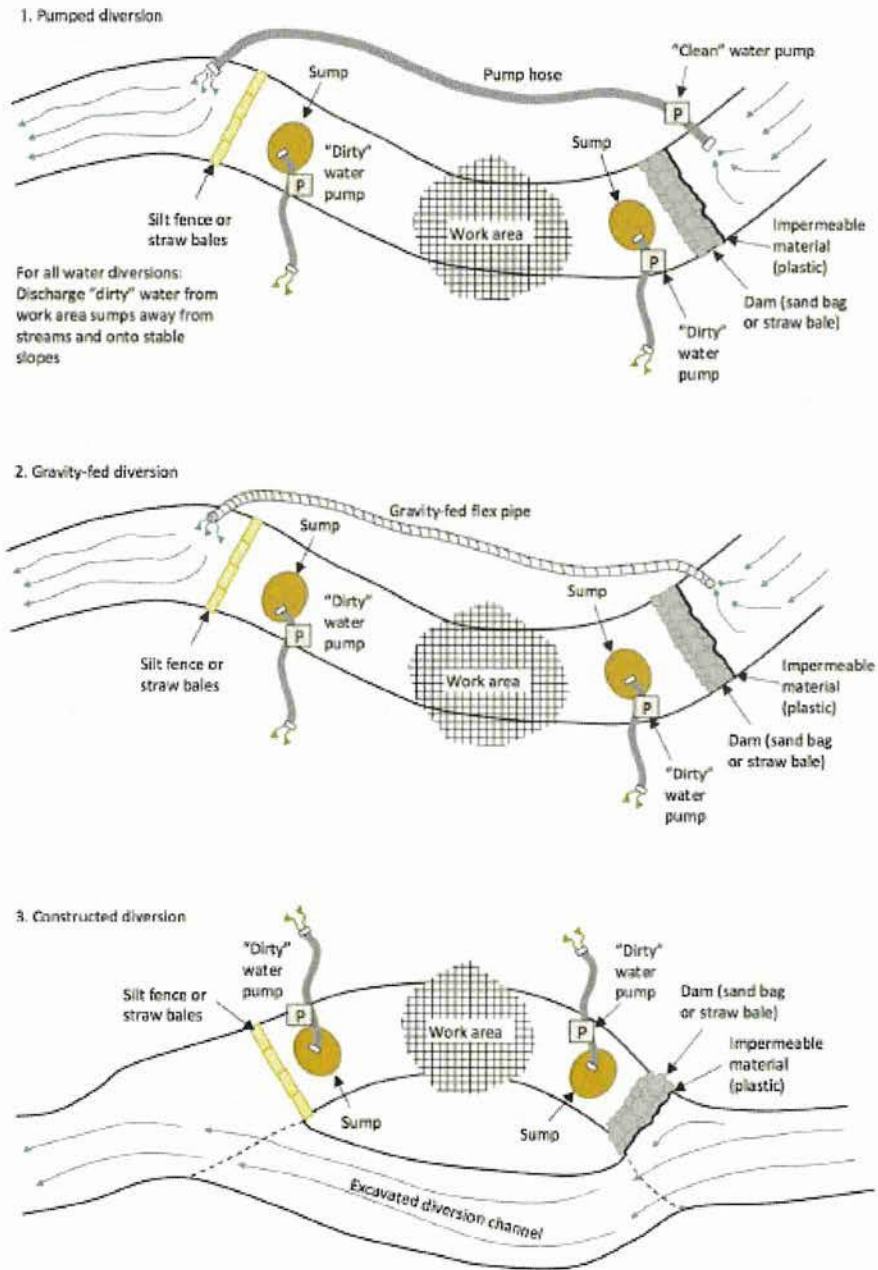


Figure 4A - Cofferdam Specifications

Cofferdam Construction and Use Specifications



FIGURE 197. Flex pipe stream diversion around a road construction site. The inlet to this 6 inch diameter flex pipe inlet collects clear streamflow from a retention dam above the project site and gravity feeds it around the project area and back into the natural channel downstream from construction work (see photo).



FIGURE 198. Sand bag retention dam on this small stream was used to pond streamflow so it could be pumped around a culvert installation site. The green intake hose is screened to keep out rocks and debris while the red pump hose extends several hundred feet around the project work area.



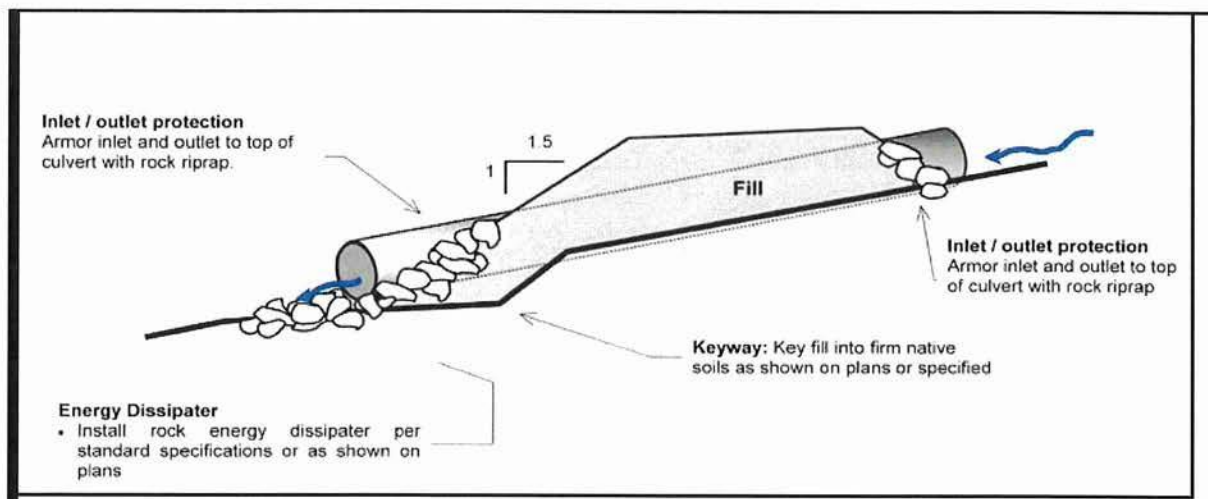
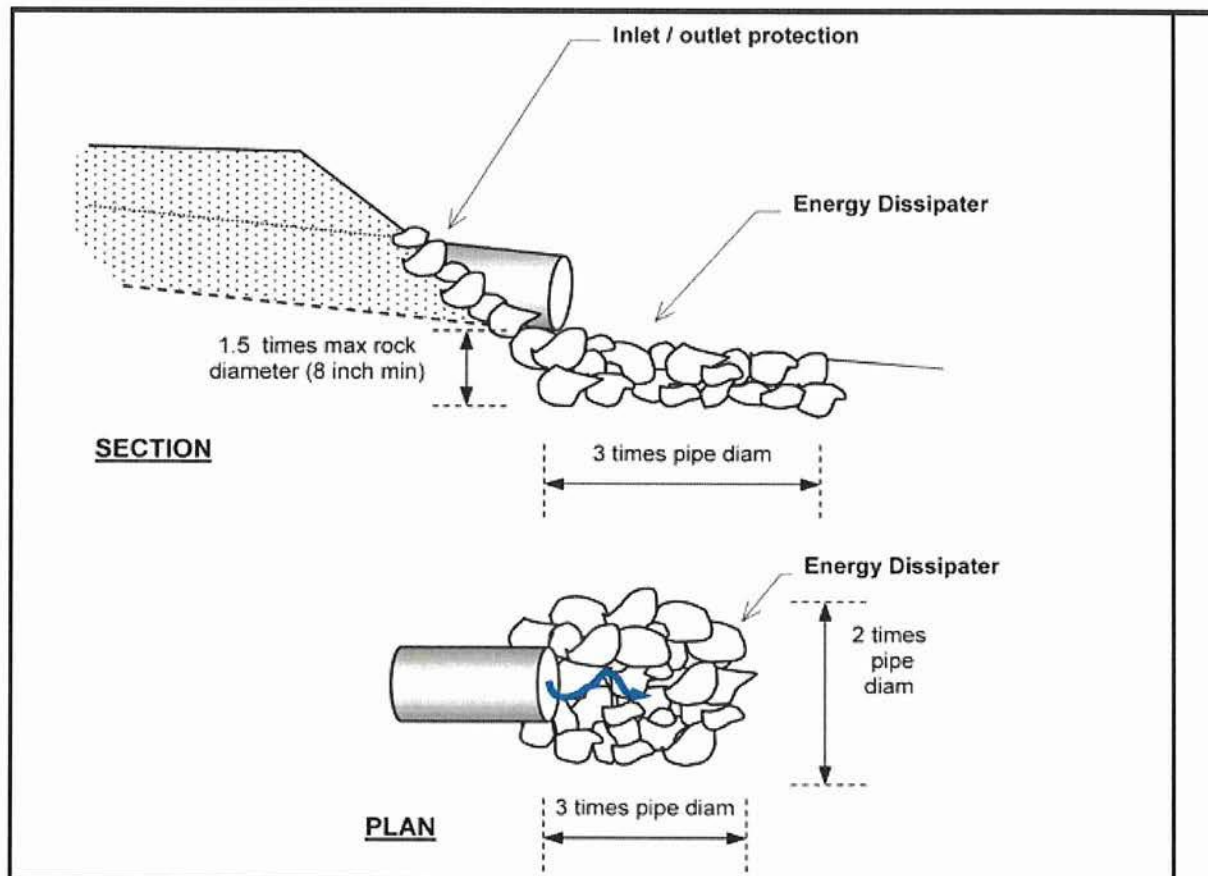
FIGURE 199. For larger streams, pump trucks, large pumps or multiple small pumps can be used to pump streamflow around project work sites. Here, a pump truck is used to temporarily divert flow in a fish bearing stream where dual culverts are being replaced with a riser bridge. Young fish were removed from this fish bearing stream before project work started.

Culvert Installation Specifications

- New culvert installations shall be sized to accommodate a 100-year storm.
- New culverts shall be placed at stream gradient, or have downspouts, or have energy dissipaters at outfall.
 - Align culverts with the natural stream channel orientation to ensure proper function, prevent bank erosion and minimize debris plugging.
 - Place culverts at the base of the fill and at the grade of the original streambed or install a downspout past the base of the fill. Downspouts should only be installed if there are no other options.
 - Culverts should be set slightly below the original stream grade so that the water drops several inches as it enters the pipe.
 - Culvert beds should be composed of rock-free soil or gravel, evenly distributed under the length of the pipe.
 - Compact the base and sidewall material before placing the pipe in its bed.
 - Lay the pipe on a well-compacted base. Poor basal compaction will cause settling or deflection in the pipe and can result in separation at a coupling or rupture in the pipe wall.
 - Backfill material should be free of rocks, limbs or other debris that could dent or puncture the pipe or allow water to seep around the pipe.
 - Cover one end of the culvert pipe, then the other end. Once the ends are secure, cover the center.
 - Tamp and compact backfill material throughout the entire process, using water as necessary for compaction.
 - Backfill compacting will be done in 0.5 – 1.0 foot lifts until 1/3 of the diameter of the culvert has been covered.
 - Push layers of fill over the crossing to achieve the final design road grade, at a minimum of one-third to one-half the culvert diameter.
- Critical dips shall be installed on culvert crossings to eliminate diversion potential.
- Road approaches to crossings shall be treated out to the first drainage structure (i.e. waterbar) or hydrologic divide to prevent transport of sediment.
- Road surfaces and ditches shall be disconnected from streams and stream crossings to the greatest extent feasible. Ditches and road surfaces that cannot be feasible disconnected from streams or stream crossings shall be treated to reduce sediment transport to streams.
- If downspouts are used, they shall be secured to the culvert outlet and shall be secure on fill slopes.
- Culverts shall be long enough so that road fill does not extend or slough past the culvert ends.
- Inlet of culverts and associate fill shall be protected with appropriate measures that extend at least as high as the top of the culvert.
- Outlet of culverts shall be armored with rock if road fill sloughing into channel can occur.
- Armor inlets and outlets with rock, or mulch and seed with grass as needed (not all stream crossings need to be armored).
- Where debris loads could endanger the crossing a debris catchment structure shall be constructed upstream of the culvert inlet.
- Bank and channel armoring may occur when appropriate to provide channel and bank stabilization.

Figure 5A - Culvert Specifications

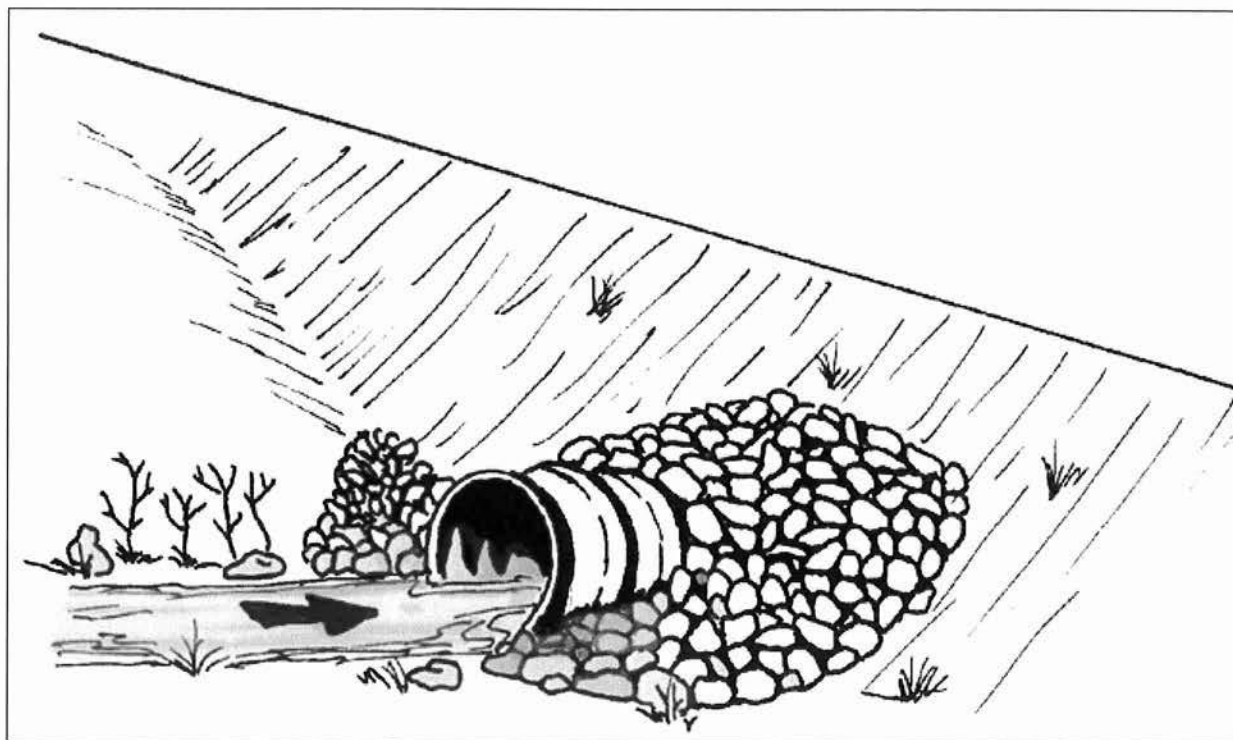
Culvert Installation Specifications



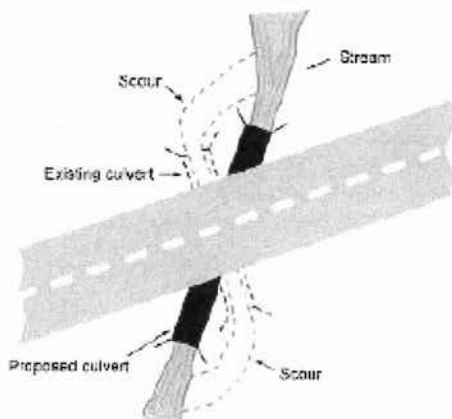
Riprap installed to protect the inlet and outlet of a stream crossing culvert from erosion or for energy dissipation should be keyed into the natural channel bed and banks to an approximate depth of about 1.5x the maximum rock thickness. Riprap should be placed at least up to the top of the culvert at both the inlet and outlet to protect them from splash erosion and to trap any sediment eroded from the newly constructed fill slope above.

Figure 5B - Culvert Specifications

Culvert Installation Specifications



Rock armor used for inlet and outlet protection (i.e., not as energy dissipation) does not have to be sized to protect against high velocity scour. If the culvert is properly sized and its length is adequate, it should be able to transmit flood flows without scouring the inlet or eroding the outlet around the culvert. Armor shown here is designed to protect the culvert outlet and basal fill from splash erosion and from occasional submergence and currents within standing water (at the inlet) when the culvert plugs. Importantly, inlet and outlet armor also serves to trap sediment that has been eroded or slides down the new constructed fill face in its first several years, until the slope becomes well vegetated.



HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

FIGURE 97. Culvert alignment should be in relation to the stream and not the road. It is important that the stream enters and leaves the culvert in a relatively straight horizontal alignment so streamflow does not have to turn to enter the inlet or discharge into a bank as it exits. This figure shows a redesigned culvert installation that replaces the bending alignment that previously existed. Channel turns at the inlet increase plugging potential because wood going through the turn will not align with the inlet. Similarly, channel turns at the inlet and outlet are often accompanied by scour against the channel banks (Wisconsin Transportation Information Center, 2004).

Figure 5C - Culvert Specifications

Culvert Installation Specifications

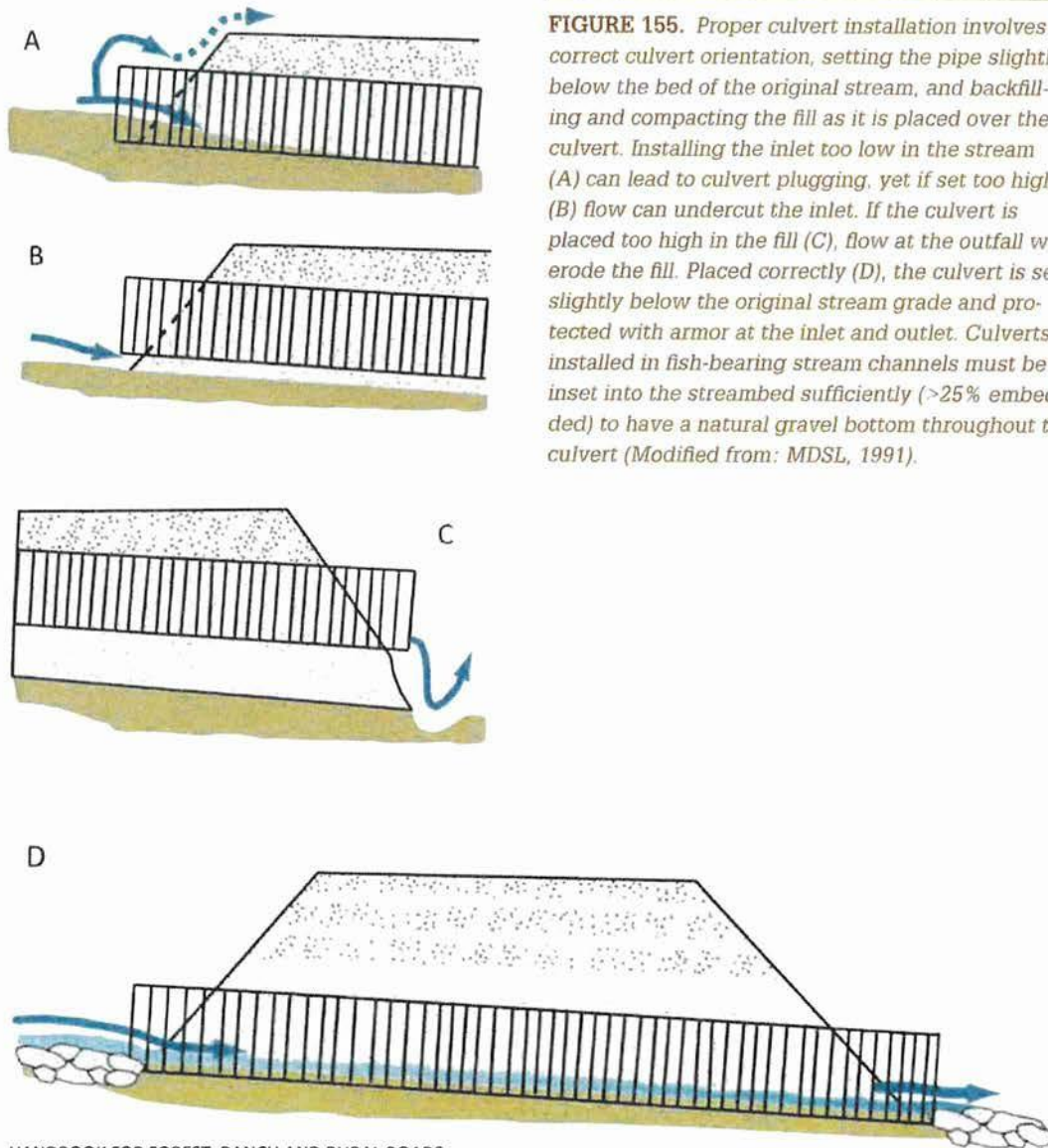


FIGURE 155. Proper culvert installation involves correct culvert orientation, setting the pipe slightly below the bed of the original stream, and backfilling and compacting the fill as it is placed over the culvert. Installing the inlet too low in the stream (A) can lead to culvert plugging, yet if set too high (B) flow can undercut the inlet. If the culvert is placed too high in the fill (C), flow at the outfall will erode the fill. Placed correctly (D), the culvert is set slightly below the original stream grade and protected with armor at the inlet and outlet. Culverts installed in fish-bearing stream channels must be inset into the streambed sufficiently (>25% embedded) to have a natural gravel bottom throughout the culvert (Modified from: MDSL, 1991).

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

Figure 5D - Culvert Specifications

Distance to Nearest Adjoining Parcel Primary Structure & Adjoining Parcel Use Code Descriptions



Aldeberan's Gaze Parcel Map

Humboldt County Planning and Building Department

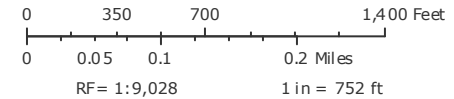
Printed: October 31, 2022

Web AppBuilder 2.0 for ArcGIS

Map Disclaimer:

While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

- | | | |
|---------------------------|---------------------------|---------------------------|
| Highways and Roads | — Private or Unclassified | — Intermittent |
| — Principal Arterials | — Major River or Stream | — Subsurface |
| — Minor Arterials | Blue Line Streams | — City Boundary |
| — Major Collectors | — Perennial 1-3 | — Counties |
| — Minor Collectors | — Perennial >4 | — Parcels |
| — Local Roads | | — Parcels (no APN labels) |



Sources: Humboldt County GIS
 Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
 Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 6 - Adjacent Parcels