

Attachment 2 Avoidance and Minimization Measures

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All construction-related activities performed will comply with the terms and conditions contained in the permits and approvals issued by the regulatory agencies. City of Ukiah (City) will coordinate with the contractor to ensure Project activities comply with the contract specifications, permits, and local, State, and Federal laws.

The following avoidance, minimization, and Mitigation Measures will be implemented to protect water quality, avoid and minimize indirect and direct impacts to jurisdictional waters, and protect nesting birds and western pond turtle.

Measures to Avoid and Minimize Impacts to Water Quality

Implementation of Storm Water Pollution and Prevention Plan (SWPPP)

A stormwater pollution pretention plan (SWPPP) will be developed and implemented, which will prescribe Best Management Practices such as silt fencing or other sediment control infrastructure. To prevent impacts from spills, construction equipment should be staged away from wetlands or sensitive habitat, and a spill prevention plan shall be in place to prevent runoff and contamination into the surrounding wetlands and drainage ditches. Excavated materials will be stockpiled away from sensitive habitat, in areas that are relatively level, and runoff control measures as described above will be used to prevent delivery of sediment to wetlands and watercourses. If wattles are used, they will consist of certified sterile, weed-free materials.

Spill Prevention Plan

To prevent impacts from inadvertent spills a spill prevention plan shall be in place to prevent runoff and contamination into adjacent waters and wetland drainage ditches. The Plan shall address the following:

- Construction equipment will be stage at least 50 feet away from the wetlands and the top of bank of waters.
- Construction equipment shall be cleaned and inspected prior to use. Mechanized construction equipment that will be used on the banks and in the channel will be cleaned and inspected daily prior to use. Servicing and refueling of vehicles and equipment shall be conducted a minimum of 50 feet from wetlands and waters at designated staging areas to avoid contamination through accidental drips and spills.
- Equipment shall be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, they shall be cleaned up, and the cleaning materials shall be collected and shall be properly disposed. The source of the leak shall be identified prior to operating the equipment with resolution of the leak documented by the foreman. Spills shall be cleaned up immediately using spill response equipment.
- Hazardous materials shall not be stored within 200 feet of wetlands or waters.

Measures to Avoid and Minimize Impacts to Wetlands and Wildlife

ESA Flagging or Fencing of Wetlands

Prior to construction activities, adjacent wetlands (as identified in the Aquatic Resources Delineation) will be flagged or fenced to clearly delineate wetlands to be protected during construction. All crews will have a set of environmental drawings showing the locations of the known

wetlands. The plans will also define the fencing installation procedure. The project's special provisions package will provide clear language regarding acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within wetland areas.

Protect Western Pond Turtles

~~Prior to the initiation of construction, a qualified biologist shall conduct environmental awareness training for Project contractors. The training shall provide pictures of a typical western pond turtle so that they can be identified by the construction workers and include a review of environmental laws and avoidance and minimization measures being implemented to reduce or avoid impacts on such resources. If a construction worker spots a western pond turtle within the work area, construction activity will stop within the immediate vicinity of the turtle until a qualified biologist can safely remove and relocate the turtle outside of the work area to a location deemed appropriate by the qualified biologist.~~

Prevent Impacts to Nesting Birds

To the extent feasible, tree and vegetation removal activities shall occur during the non-nesting season (September 1 to March 1st).

If construction activities begin during the nesting season (February 15 to August 31), a qualified biologist shall conduct a preconstruction nest survey of all trees and other potential nesting habitat within and adjacent to the work area no more than seven (7) days prior to the initiation of work. In addition to surveying the work area, the biologist shall survey within 50 feet of the work area for passerine nests and scan all trees within 250 of the work area for raptor nests.

If the survey indicates the presence of nesting birds, the biologist shall determine an appropriately sized buffer around the nest in which no work would be allowed until the young have successfully fledged (or the nest has been abandoned). The size of the nest buffer shall be determined by the biologist and shall be based on the nesting species and its sensitivity to disturbance. In general, buffer sizes of up to 250 feet for raptors and 50 feet for other birds should suffice to prevent disturbance of active nests, but these buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.

Proposed Waters and Wetland Restoration and Enhancement Activities

Solid fill impacts from the construction of the trail will be mitigated by the enhancement of wetlands and enhancement and restoration of waters within the vicinity of, and hydrologically connected to, the Project impacts. Wetlands and waters along, and adjacent to, the rail corridor have been degraded over time by a variety of debris and trash. In addition, there is opportunity to enhance riparian areas where there are large gaps in riparian vegetation along some of the waters.

The City proposes to perform enhancement and restoration activities to improve the functionality and quality of ~~two-three~~ features: one wetland outside the project footprint, and ~~one~~ two waters (D1 and D5) within the project footprint. Overall, approximately ~~20,650~~ 19,140 square feet of enhancement and restoration is proposed, resulting in greater than 3:1 ratio of enhanced and restored area to fill impact. In addition, depressional grading is proposed upstream of the culverts that drain to Wetland C, Wetland D, and Waters D3 (see Sheet CE-106 and CE-107) on the west side of the rail to establish 4,400 square feet of wetland.

Table 1 Summary Waters Enhancement and Wetlands Enhancement and Restoration

Feature	Action	Square Feet	Acre
Waters D5	Enhancement (debris removal, plantings)	16,125	0.37
Waters D1	Enhancement (plantings)	2,000	0.05
Waters Mitigation		18,125	0.42
Waters Fill		351	0.009
Existing Wetland West of Rail	Enhancement and Restoration	1,015	0.02
New Wetland West of Rail	Establish Creation/Extension	4,400	0.10
Wetlands Mitigation		5,415	0.12
Wetland Fill		4,976	0.11

Below is a description of each feature, enhancement and restoration activities associated with each, ~~and proposed success criteria and monitoring of the features and the enhancements associated with each.~~

Enhancement and Restoration of Existing Wetland West of Rail

This wetland area is located outside the project footprint, on the west side of the rail, south of Waters D3 and north of Wetland D, (trail improvements occur on the east side rail at this location). This wetland feature is scattered with significant debris and garbage (See **Image 1** below). Enhancement activities include removal of trash and other man-made debris and will occur within 625 square feet (48 linear feet) of this wetland feature. ~~In addition, a rug placed at the northern end of the wetland has cut water flow to additional wetland area to the north. When the carpet is removed, it is anticipated that approximately 390 square feet of wetland will be restored in this area.~~

Image 1 Looking South at Enhancement Wetland



Success Criteria and Monitoring

Success criteria will be measured by the complete removal of the man-made debris and garbage. Vegetation is anticipated to naturally grow back in patches that have been blocked by sun or cut off from water. ~~No~~ Monitoring is proposed for year one to verify vegetation accretes naturally to the extent there is little difference as compared to adjacent existing wetland vegetation ~~required (based on pre-construction photos)~~. If it is determined after one year, that the vegetation is not accreting at a satisfactory rate, as determined by a wetland ecologist/botanist, a wetland seed mix (see Table 2 below) will be spread in bare patches. If reseeding is required, then monitoring will occur for an additional year with pre and post conditions photo documented.

Enhancement and Restoration of Waters D5 and Enhancement of Waters D1

To accommodate the trail, the existing two culverts at D5 will be extended 10 feet east from the existing outlet. Downstream of D5, substantial trash, debris, and concrete rubble has been dumped within the channel (See **Image 2 and 3** below). Although removing the concrete rubble could be considered restoration, for the purposes of simplifying calculations, the entire length from the D5 culvert to Airport Boulevard Road is calculated as one number. Enhancement and restoration activities include removal of all trash and concrete rubble from top of bank to top of bank within the channel. In addition, approximately ~~3136~~ trees and shrubs (valley oak, common manzanita, ceanothus, and toyon) will be planted within the riparian zone along the south bank to enhance water quality and habitat (see **Figure 2 Planting Plan**). The enhancement and restoration area within the D5 channel is approximately 11,125 square feet (445 linear feet) and the enhancement area within the riparian is approximately ~~8,900~~ 2,000 square feet.

Enhancement at Waters D1 includes planting approximately 21 trees and shrubs along (see **Figure 2 Planting Plan L-104**) the banks to extend the existing riparian habitat that is on the west side of the rail tracks and trestle, to the east side where there is little to no upland understory. The enhancement of D1 covers approximately 2,000 square feet.

Image 2 Looking West along D5 Channel



Image 3 Looking East along D5 Channel



Success Criteria and Monitoring

Success criteria will be measured by the complete removal of the trash and concrete rubble within the channel. No monitoring is required for trash and concrete removal. Tree and shrub plantings will be monitored for health and survival for five years. Success criteria will be measured by an 87.5% survival rate after five years. Photo documentation from a consistent vantage point and written documentation as to the quantity and health of the trees and shrubs will be compiled in a memo each year. If the survival rate falls below 85%, new plantings will occur following the recommendation of the qualified arborist or plant ecologist monitoring the site.

Establish Wetland West of Rail

At the suggestion of NC Regional Board staff during the site visit, three areas on the west side of the rail, in the vicinity of Wetland C and D, will receive minor depressional grading at the culver inlets to extend out the existing wetland (see Sheet C-111, C-112, and C-113). These areas will be in the vicinity of the existing wetland to be enhanced and restored, shown in Image 1 above. The graded areas will be reseeded with an appropriate wetland seed mix (see Table 2, below).

Success Criteria and Monitoring

Monitoring will be performed by a qualified wetland biologist/ecologist and is proposed to occur for up to three years or until the graded areas match the vegetation density of the existing wetland and are dominated by wetland plants. The existing wetland will be used as a benchmark for determining density. If it is determined after year one of monitoring that the vegetation is not progressing at a satisfactory rate to support a functional wetland, the area will be considered for reseeded or plugs.

Table 2 Proposed Wetland Seed Mix

Scientific name	Common name	Lifeform	# per acre
<i>Agrostis exarata</i>	Spike bentgrass	Perennial grass	2 lbs/acre
<i>Carex barbarae</i>	Valley sedge	Perennial sedge	2 lbs/acre
<i>Danthonia californica</i>	California oatgrass	Perennial grass	2 lbs/acre
<i>Euthamia occidentalis</i>	Western goldentop	Perennial herb	2 lbs/acre
<i>Hordeum brachyantherum</i>	Meadow barley	Perennial grass	2 lbs/acre
<i>Juncus effusus ssp. pacificus</i>	Bog rush	Perennial rush	2 lbs/acre
<i>Juncus patens</i>	Common rush	Perennial rush	2 lbs/acre
<i>Oenanthe sarmentosa</i>	Water parsley	Perennial herb	2 lbs/acre

Alternatives Analysis

This project implements a section of The Great Redwood Trail in the City of Ukiah along the Northwest Pacific Railroad ROW. The Great Redwood Trail is a 320-mile, multi-use rail-to-trail project connecting California's San Francisco and Humboldt Bays along the Northwest Pacific Railroad right-of-way. Because State legislation dictates the Great Redwood Trail be within the rail right-of-way, no off-site alternative was considered in this analysis, such as diverting trail users to parallel roadways (i.e.: Airport Boulevard).

Trail on Rail

The City initially designed the trail to be on top of the existing rail. To accommodate this, the rail would have been removed. This alternative avoided all wetlands. However, the North Coast Rail Authority indicated they would not allow the City to remove the existing rail. Therefore, the trail had to be redesigned to be adjacent to the rail.

Avoidance of Waters through Design

By virtue of the limited rail corridor, alternative trail routes are limited. For this phase of the Ukiah project, there are 5 water crossings and several wetland drainages along the trail right-of-way route. Two of the ~~three-five~~ water crossings have been designed with a clear-span rail car bridge, thus avoiding any fill impacts at Waters D-1 and D-2. Waters D-3, D-4, and D-5 are small, culverted waters. At each of these crossings that the culverts will be extended to accommodate the width of the trail. Each extension is the minimum needed to meet the 9-foot offset requirements from the rail and accommodate the 14-foot-wide path.

Avoidance of Wetlands through Design

As to wetland impacts, the initial 30% design filled all of Wetland A, a 9,351 square-foot area. In the 90% design, the trail was re-routed east to an adjacent city-owned dirt maintenance road thus avoiding the entirety of Wetland A.

~~No alternative routes were available for~~ At the location of Wetland B, Wetland C, and Wetland D the available right-of-way is limited within or adjacent to the ROW. Immediately east of these wetland drainages is ~~a~~ privately-owned properties including established vineyards. The trail alignment was able to skirt closer to the rail and around Wetland B, but Wetland C and Wetland D could not be avoided.

Avoidance of Wetlands through Route Selection

Consideration was given to placing the trail on the west side of the rail, however the wetlands were more extensive and of better quality than those on the east. As an example, during a site visit in May 2022 it was noted that the wetlands on the east were dry and overgrown mostly with blackberries, while the wetlands on the west side of the rail still had some standing water and a higher density of wetland plants such as rushes. Thus, impacting Wetland B, C, and Wetland D was found to be least impactful. In addition, based on the topography, it is expected that extension of the culvert at Wetland D will simply push the feature out, so to speak.