**Coastal cutthroat trout** (*Oncorhynchus clarii clarki)* are in the Family Salmonidae and are found in coastal streams from the Eel River to Seward in southeastern Alaska. Populations in the lower Eel River drainage (including tributaries) represent the southern extent of the species range. The project as proposed will not affect the Elk River Estuary; therefore, no impacts to coastal cutthroat trout are anticipated.

**Southern Oregon Northern California Coast (SONCC) Coho Salmon** (*Oncorhynchus kisutch*) **and northern California steelhead** (*Oncorhynchus mykiss irideus*) are in the Family Salmonidae. The Elk River is an important watershed for both species. However, the project as proposed will not affect the Elk River Estuary; therefore, no impacts to the Coho salmon or steelhead are anticipated

**Northern red-legged frogs** (*Rana aurora aurora*) are in the Family Ranidae and are associated with lentic (standing to low flow) conditions for breeding sites. Adults and other age classes are know to disperse great distances (more than 300 meters) and are associated with mesic forests and riparian areas (Pearl, 2005). Due to the mobility of northern red-legged frog, and greater thermal tolerances, northern red-legged frogs are relatively common within the coastal fog belt of Humboldt County. The freshwater ponds surrounding the WWTP, east of the study area, have suitable breeding habitat for the northern red-legged frog assuming that salinity is not a limiting factor. Northern red-legged frogs were not observed during any of the 2006 or 2007 field surveys, however, Pacific tree frogs (*Hyla regilla*) are present, and are often found in similar breeding and non-breeding habitat as northern red-legged frog. Northern red-legged frogs typically breed earliest along the coast in January, February, and March, compared to inland. Focused surveys in suitable breeding habitat adjacent to the Phase II study area were not conducted because the proposed project avoids those areas. However, suitable non-breeding habitat is located throughout the study area.

## 5.4 CNDDB Natural Communities

Natural communities are habitats that are generally defined by vegetation type and geographical location and are increasingly restricted in abundance and distribution. CNDDB natural communities are habitat for numerous special status plant and animal species. The natural communities that are included in the CNDDB are based on the state and global ranking status, which provides an estimate of the number of acres that remains of a particular community and threat level designation. Recognition of natural communities is an ecosystem-based approach to maintaining biodiversity in California.

**Coastal Terrace Prairie.** Coastal terrace prairie is a native grassland community found on sandy, marine terraces within the zone of fog intrusion. This habitat is dominated by fairly tall (greater than 3 feet) sod and tussock-forming perennial grasses. Herbaceous annual species are typically scattered amongst the grasses. Much of California's coastal prairie habitat has been destroyed by agricultural conversion and development. The remaining areas are also threatened by the invasion of non-native species such as annual fescues (*Vulpia* sp.), nonnative bromes (*Bromus* sp.), and oats (*Avena* sp.). The state rarity status for coastal terrace prairie is very threatened (S2.1) with 2,000-10,000 acres remaining in the state. A form of coastal prairie community that intergrades with dunemat vegetation is located in the study area.

**Northern Coastal Salt Marshes**. Northern coastal salt marshes develop along the intertidal shores of bays, lagoons, and estuaries. The historic distribution of northern coastal salt marsh in Humboldt County and throughout California has been greatly reduced by agricultural conversion, diking, and coastal development. Native species commonly associated with northern coastal salt marsh include spearscale, tufted hairgrass, saltgrass, gumweed, salt rush, pickleweed, and silverweed. A number of sensitive plant species are found within this habitat type (refer to Table 1). The state rarity status for northern coastal salt marsh is threatened (state rank S3.2) with 10,000 to 50,000 acres remaining in the state. This natural community is located within and adjacent to the Phase II study area.

**Northern Foredune Grassland.** Northern foredune grassland habitat is located in active coastal dune areas where plants are subject to desiccating, salt-bearing winds. Perennial grasses that are up to 2.5 feet tall dominate this habitat. Coverage varies from dense to scattered. Dominant grass species in northern foredune habitat are almost always European dunegrass and American dunegrass. Succulent, perennial herbs and stunted shrubs approximately 10 inches tall are often interspersed amongst the grasses. Associate species typically include yellow sand verbena, silver burweed, and sea rocket in areas most exposed to the wind and beach morning glory, and beach primrose in more sheltered sites (Holland, 1986). The state rarity status for northern foredune grassland is very threatened (state rank S1.1) with less than 2,000 acres remaining in the state. The only northern foredune grassland reported by the CNDDB is from Humboldt County, at Lanphere Dunes (CDFG, 2007a). A form of northern foredune grassland association that intergrades with dunemat vegetation is located in the study area.

**Sitka Spruce Forest.** Sitka spruce grows in mild wet coastal climates and occurs in a narrow band along the Pacific coast from Northern California to Alaska. Sitka spruce forest is usually found growing on steep seaward upland slopes or topographically flat areas, but can also occur in wetlands, such as stream and river backwaters, bottoms, and floodplains. Species commonly associated with upland Sitka spruce forests include redwood (*Sequoia sempervirens*), western hemlock (*Tsuga heterophylla*), hazelnut (*Corylus cornuta*), cascara (*Rhamnus purshiana*), salmonberry (*Rubus spectabilis*), Douglas's iris (*Iris douglasiana*), false lily-of-the-valley (*Maianthemum dilatatum*), and sword fern. The state rarity status for Sitka spruce forest is very threatened (state rank S1.1) with less than 2,000 acres remaining in the state. The CNDDB reports four occurrences of Sitka spruce forest, all of which are located in Humboldt County (CDFG, 2007a).

Palustrine forested wetlands that are dominated with Sitka spruce have a different assemblage of species. The overstory typically consists of Sitka spruce, Oregon crabapple (*Malus fusca*), red alder, with a subcanopy of cascara, willows, twinberry (*Lonicera involucrate*), and wax myrtle (*Myrica californica*). Dominant shrubs include salmonberry, thimbleberry (*Rubus parviflorus*), and elderberry (*Sambucus racemosa*). Common herbaceous species are sword fern, false lily-of-the-valley, milk maids (*Cardamine californica*), Douglas iris, and grass species including Pacific reed grass (*Calamagrostis nutkaensis*).

No Sitka spruce forests are located within or adjacent to the study area.

## 5.5 Survey Results

### 5.5.1 Special Status Plant Species

Three special status plant species were detected within or immediately adjacent to the Phase II study area. These species include Point Reyes bird's-beak, Humboldt Bay owl's clover, and Lyngbye's sedge.

Point Reye's bird's-beak and Humboldt Bay owl's clover are located in salt marsh habitat adjacent to the footpath (Figure 3). Both species are scattered throughout the high quality salt marsh habitat and include more than 100 individuals of each species. No individuals were found within the study area/potential impact zone of the footpath. However, there is a network of trails in the salt marsh habitat that are regularly used by pedestrians, although these trails are not the footpath that is designated for use. Use of these unofficial trails results in trampling of the Humboldt Bay owl's clover and Point Reyes bird's-beak. Humboldt Bay owl's clover is also located outside of the study area along the southern bank of the south slough in salt marsh habitat (Figure 5). The proposed project is not expected to impact this occurrence because it is located outside of the trail improvement impact zone.

Lyngbye's sedge is located in the salt marsh habitat just south of the study area segment that runs from the railroad to the Herrick Avenue Park and Ride. One occurrence consists of approximately 5 plants and is located in the study area, a few feet from the edge of pavement along Pound Road (Figure 5). The other occurrence is located further south of Pound Road and consists of approximately 50 individuals (Figure 5).

### 5.5.2 Special Status Wildlife Species

A number of common avian species were observed in the Phase II study area during 2007. The species list is virtually identical to the list included in SHN (2007a); however, a few additional bird species have been added to Table 2. Forty-one avian species and two mammal species were observed during the field visits conducted on June 19, July 20, and August 2, 2007 (Table 2). Three of the 27 species know to occur within the vicinity of the study area were observed including the Osprey, Brown Pelican, and Double-crested Cormorant.

**Table 2**
**Wildlife Species Observed Within and Adjacent to Phase II Study Area**
**Elk River Wildlife Trail Improvement Project, Humboldt County, California**

| Species | Area Where Bird was Observed |
|---|---|
| Bewick's wren | Phase II study area |
| Swainson's thrush | Phase II study area |
| Chestnut backed chickadee | Phase II study area |
| Red-winged blackbird | Phase II study area |
| Northern rough winged swallow | Phase II study area |
| Violet Green Swallow | Phase II study area |
| Cliff swallow | Phase II study area |
| Barn Swallow | Phase II study area |
| American Goldfinch | Phase II study area |
| Lesser Goldfinch | Phase II study area |
| House Sparrow | Phase II study area |

| Table 2<br>Wildlife Species Observed Within and Adjacent to Phase II Study Area<br>Elk River Wildlife Trail Improvement Project, Humboldt County, California | |
|---|---|
| Song Sparrow | Phase II study area |
| Fox Sparrow | Phase II study area |
| White-crowned Sparrow | Phase II study area |
| Osprey | Over Bay/Estuary/Spit |
| Red-shouldered Hawk | Adjacent to Phase II study area |
| American Kestrel | Adjacent to Phase II study area |
| Forester's Tern | Estuary/Spit |
| Double-crested Cormorant | Estuary/Spit |
| Brown Pelican | Over Bay/Estuary/Spit |
| Great Egret | Over Bay /Estuary/Spit |
| Great Blue Heron | Over Bay /Estuary/Spit |
| European Starling | Phase II study area |
| Black-crowned Night Heron | Over Bay /Estuary/Spit |
| Cedar Waxwing | Phase II study area |
| Marbled Godwit | Estuary/Spit |
| Western Sandpiper | Estuary/Spit |
| Western Gull | Estuary/Spit |
| Herring Gull | Estuary/Spit |
| Black Phoebe | Phase II study area |
| Bushtit | Phase II study area |
| Marsh Wren | Phase II study area |
| California Towhee | Phase II study area |
| Western Meadowlark | Phase II study area |
| American Robin | Phase II study area |
| Purple Finch | Phase II study area |
| Ruby-crowned Kinglet | Phase II study area |
| Bufflehead | Estuary/Spit |
| Widgeon | Estuary/Spit |
| Mallard | Estuary/Spit |
| Northern Harrier | Adjacent to study area |
| Raccoon | Phase II study area |
| Gray Fox | Phase II study area |

The Phase II study area provides abundant habitat for wildlife. Habitat to the west of the study area offers ample opportunities for viewing shorebirds and special status avian species such as Osprey, Double-crested Cormorant, and Brown Pelican. Although wildlife habitat is abundant in and adjacent to the study area, no rookeries, nests of special status species, or other features that are indicative of special status wildlife species were encountered within or immediately adjacent to the Phase II study area. The proposed project is not expected to result in an impact to special status wildlife species.

### 5.5.3 Vegetation/Wetland Impacts

Starting at the northern access parking lot and ending at the Herrick Avenue Park and Ride, trail segments were quantified for the aforementioned important resource variables. The absence of the east or west side of the trail in Table 3 means that resources will not be impacted in that area

therefore they were excluded from Table 3 (refer to Figures 3-5). Areas that were excluded are typically dominated by upland herbaceous species such as mustards, wild radish, Queen Ann's lace, and a variety of upland grass species.

**Table 3**
**Vegetation and Wetland Impacts**
**Elk River Wildlife Trail Improvement Project, Phase II, Eureka, California**

| Trail Segment No. | Existing Trail | 14-Foot Impact Length (sq. ft.) | Additional 6-foot Width (each side of trail) | 6-Foot Impact Length (sq. ft.) | Habitat Type to be Affected per Trail Segment |
|---|---|---|---|---|---|
| **Main Trail** | | | | | |
| North Slough | No Impact | 0.0 | No additional area for trail without filling the slough | TBD[1] | Salt marsh |
| 1 | No Impact | 0.0 | Trimming/ Clearing | 275 | Scrub-shrub |
| 2 | No Impact | 0.0 | Trimming | 129.6 | Scrub-shrub |
| 3 | No Impact | 0.0 | Large Stem Clearing | 137.6 | Scrub-shrub |
| 4 | Trimming | 86.3 | Trimming/ Clearing | 757.9 | Scrub-shrub |
| 5 | No Impact | 0.0 | Trimming | 168.3 | Scrub-shrub |
| 6 East | Trimming | 78.0 | Trimming/ Clearing | 479.9 | Scrub-shrub |
| 6 West | No impact | 0.0 | Trimming/ Clearing | 265.1 | Scrub-shrub |
| 7 East | Trimming | 109.9 | Trimming/ Clearing | 611.7 | Scrub-shrub |
| 7 West | Trimming | 259.7 | Trimming/ Clearing | 563.5 | Scrub-shrub |
| 8 East | Trimming | 139.6 | Trimming/ Clearing | 1009.7 | Scrub-shrub |
| 8 West | No Impact | 0.00 | Trimming/ Clearing | 99.1 | Scrub-shrub |
| 9 | Trimming | 105.3 | Trimming/ Clearing | 390.3 | Scrub-shrub |
| 10 | No Impact | 0.0 | Trimming/ Clearing | 30.3 | Scrub-shrub |
| 11 | No Impact | 0.0 | No Impact | 0.0 | N/A[2] |
| 12 East | Trimming | 142.7 | Trimming/ Clearing | 1114.3 | Scrub-shrub |
| 12 West | Trimming | 44.8 | Trimming/ Clearing | 518.3 | Scrub-shrub |
| 13 East | Trimming | 49.6 | Trimming/ Clearing | 587.6 | Scrub-shrub |
| 13 West | Trimming | 92.6 | Wetland | 360.5 | Emergent wetland |
| 14 East | No Impact | 0.00 | Trimming/ Large Stem Clearing | 784.6 | Scrub-shrub |

| Table 3<br>Vegetation and Wetland Impacts<br>Elk River Wildlife Trail Improvement Project, Phase II, Eureka, California | | | | | |
|---|---|---|---|---|---|
| **Trail Segment No.** | **Existing Trail** | **14-Foot Impact Length (sq. ft.)** | **Additional 6-foot Width (each side of trail)** | **6-Foot Impact Length (sq. ft.)** | **Habitat Type to be Affected per Trail Segment** |
| 14 West | Trimming | 963.0 | Trimming/ Large Stem Clearing | 752.4 | Scrub-shrub |
| 15 East | No Impact | 0.00 | Trimming/ Clearing/ Wetland | 2343.7 | Scrub-shrub |
| 15 West | Trimming/ Wetlands | 2684.3 | Trimming/ Clearing/ Wetland | 2327.2 | Scrub-shrub |
| 16 East | No Impact | 0.00 | Trimming/ Large Stem Clearing/Wetland | 630.6 | Scrub-shrub |
| 16 West | Trimming/ Wetlands | 653.2 | Trimming/ Large Stem Clearing/Wetland | 602.7 | Scrub-shrub |
| 17 East | Trimming/ Wetlands | 15.5 | Trimming/ Clearing/ Wetland | 206.6 | Scrub-shrub |
| 18 East | Trimming/ Clearing/ Wetlands | 33.1 | Trimming/ Clearing/ Wetland | 264.4 | Scrub-shrub |
| 18 West | No Impact | 0.00 | Trimming/ Clearing/ Wetland | 424.4 | Scrub-shrub |
| 19 East | No Impact | 0.00 | Trimming/ Clearing/ Wetland | 14.6 | Scrub-shrub |
| 19 West | No Impact | 0.00 | Trimming/ Clearing/ Wetland | 76.9 | Scrub-shrub |
| 20 East | No Impact | 0.00 | Trimming/ Clearing | 119.5 | Scrub-shrub |
| 20 West | No Impact | 0.00 | Trimming/ Clearing | 75.8 | Scrub-shrub |
| 21 East | No Impact | 0.00 | Trimming/ Clearing | 186.8 | Scrub-shrub |
| 22 East | No Impact | 0.00 | No Impact | 0.00 | Scrub-shrub |
| 22 West | No Impact | 0.00 | Trimming/ Clearing | 199.2 | Scrub-shrub |
| South Slough | Salt marsh | 58.5 | Salt marsh | 258.8 | Salt marsh |
| **Foot Path** | | | | | |
| 23 | No Impact | 0.00 | Salt Marsh | 169.3 | Salt marsh |
| 24 | No Impact | 0.00 | Trimming | 758.0 | Scrub-shrub |

| Table 3<br>Vegetation and Wetland Impacts<br>Elk River Wildlife Trail Improvement Project, Phase II, Eureka, California | | | | | |
|---|---|---|---|---|---|
| **Trail Segment No.** | **Existing Trail** | **14-Foot Impact Length (sq. ft.)** | **Additional 6-foot Width (each side of trail)** | **6-Foot Impact Length (sq. ft.)** | **Habitat Type to be Affected per Trail Segment** |
| 25 A | Dunemat/Northern Foredune Grassland | 493.65 | Dunemat/Northern Foredune Grassland | 1619.8 | Sensitive Dunemat/Northern Foredune Grassland Habitat |
| 25 B | Dunemat/Northern Foredune Grassland | 493.65 | Dunemat/Northern Foredune Grassland | 1653.4 | Sensitive Dunemat/Northern Foredune Grassland Habitat |
| 26 A | Emergent wetland | 36.4 | Wetland | 227.6 | Emergent wetland |
| 26 B | Emergent wetland | 36.4 | Wetland | 239.8 | Emergent wetland |
| **Railroad to Herrick Avenue Park and Ride** | | | | | |
| 27 North | No Impact | 0.00 | Salt marsh | 324.4 | Salt marsh |
| 27 South | No Impact | 0.00 | Salt marsh | 100.3 | Salt marsh |

1. TBD: To Be Determined (once trail design is finalized).
2. N/A: Not Applicable

### 5.5.4 Main Trail

The most significant amount of vegetation trimming or clearing within the study area will occur along the main trail (Figures 3 and 4). Due to the difficultly of differentiating vegetation clearing impacts from wetland impacts in the portions of the study area were both impacts occur along the same trail segment, the following numbers correspond to segments with vegetation clearing only (Table 3). Approximately 2,072 sq. ft. of vegetation will be trimmed or cleared along the existing trail and approximately 9257 sq. ft. of vegetation will be trimmed or cleared within the impact zone of the main trail. Therefore, a total of approximately 11,328 sq. ft. (0.26 acres) of vegetation will be impacted along the main trail by trimming and/or clearing.

Approximately 3,386 sq. ft (0.08 acre) of freshwater wetlands will be impacted within the existing footprint of the main trail and approximately 7,252 sq. ft. (0.17 acre) of wetlands are located within the impact zone. The total freshwater wetland impact for the main trail segment portion of the study area is approximately 10,638 sq. ft. (0.24 acres; Figures 3 and 4).

The existing trail over the south slough is very narrow therefore trail improvements will result in impacts to salt marsh wetlands (Figure 5). Approximately 59 sq. ft. of salt marsh is located along the existing path and approximately 259 sq. ft. of salt marsh is located in the impact zone. Therefore, a total of approximately 317 sq. ft. of salt marsh will be impacted within the south slough.

### 5.5.5 Footpath

Trail improvements proposed along the footpath will result in some impacts to wetlands and the sensitive dunemat/northern foredune grassland habitat (Table 3).

Approximately 169 sq. ft. of salt marsh along the western side of the north slough will be impacted to expand the width of the footpath (Figure 3).

Impacts will occur to the sensitive dunemat/northern foredune grassland habitat both within the existing footpath and potential impact zone (Figure 3). Approximately 987 sq. ft. of dunemat/ northern foredune habitat will be impacted along the existing footpath; an additional 3,373 sq. ft. of this sensitive habitat will be impacted due to trail widening. Therefore, a total of approximately 4,260 sq. ft. (0.1 acre) of dunemat/northern foredune grassland will be impacted along the footpath.

The proposed trail improvements along the footpath will impact approximately 73 sq. ft. of wetlands within the existing footpath and approximately 467 sq. ft. of wetlands within the impact zone (Figure 3). Therefore, a total of approximately 540 sq. ft. of freshwater emergent wetlands will be impacted along the footpath for the proposed trail improvement project.

A small section of willows, approximately 758 sq. ft., will be impacted along section 24 of the footpath (Figure 3).

### 5.5.6 Railroad to Pound Road Parking Lot

Proposed trail improvements from the railroad to Pound Road parking lot does not appear to require any woody vegetation trimming or removal but is likely to result in impacts to salt marsh located down slope from the existing trail, within the impact zone. Proposed trail improvements along segment 27 north and 27 south may impact approximately 425 sq. ft. of salt marsh (Figure 5).

### 5.5.7 Pound Road Parking Lot to Herrick Avenue Park and Ride

Freshwater and salt marsh wetlands are located throughout this portion of the study area or immediately adjacent to it. A significant area of salt marsh habitat is located to the south of Pound Road. This area is frequently inundated by brackish/estuarine water from a network of tidal channels south of Pound Road. The majority of the salt mash is located outside the study area (Figure 5) but a small portion could be impacted if the new trail segment from the Pound Road Parking lot to the Herrick Avenue Park and Ride is located along the southern shoulder of Pound Road. The amount of impact will have to be determined once the final trail alignment is determined. Vegetation clearing within this portion of the study area appears to be limited to the west side of Pound Road, just north of the Herrick Avenue Park and Ride, if the new trail segment is constructed there.

Two brackish wetland pockets are located along the western and eastern sides of Pound Road (Figure 5). If the new trail segment is located along the southern/western side of Pound Road, the smaller of the two wetland pockets will be impacted. Final wetland impacts for this section of the study area will need to be determined once the final trail layout is designed.

### 5.5.8 Total Wetland Impacts

Based on the above, approximately 11,178 sq. ft. (0.26 acres) of freshwater wetland will be impacted and approximately 911 sq. ft. of salt marsh will be impacted by the proposed trail improvement project. The combined total wetland impacts in the study area are approximately 12,089 sq. ft. (0.28 acres).

# 6.0 Recommendations

## 6.1 Special Status Plant and Wildlife Species

There are currently high quality wildlife viewing opportunities throughout the ERWT. The proposed project provides numerous opportunities to promote bird watching within and adjacent to the study area and increase awareness of the importance of the ERWT for wildlife. Opportunities include, but are not limited to, bird watching stations and informational wildlife signs along the footpath and the main trail.

The ERWTIP is expected to result in an increase of use in this area so it is imperative that educational information be placed throughout trail area that directs people to keep themselves and their pets on designated trails to prevent impacts to the surrounding pristine habitat and abundant wildlife use. Additionally, the City should continue to detour/remove human encampments that degrade the habitat and wildlife use in the area.

Aside from increasing educational signs about wildlife use and protection within the area, limiting human encampments, and installing signage that directs users and their pets to stay on designated trail paths, the only other wildlife recommendation for the Phase II study area is in regards to northern red-legged frogs. Measures should be taken during trail construction improvements, particularly within the portions of the study area identified as wetlands, that if any northern red-legged frogs are encountered they be relocated to similar habitat in the vicinity to avoid impacts to this species.

During construction operations on the footpath, Best Management Practices (BMPs) should be utilized to avoid indirect impacts to the Point Reyes bird's-beak and Humboldt Bay owl's clover that are located in the salt marsh adjacent to the designated trail. BMPs include, but are not limited to, erosion control and construction exclusion fencing to define and restrict the construction footprint which will, in turn, reduce the potential for direct or indirect impacts from occurring to the special status species located adjacent to that portion of the study area.

To the extent possible, the Lyngbye's sedge that is located adjacent to the edge of pavement along Pound Road should be avoided. If that occurrence cannot be avoided, if this location is the least environmentally damaging for the placement of the new trail segment, then the occurrence should be transplanted to suitable habitat within the project area that is outside of potential impacts. The City should coordinate with California Department of Fish and Game regarding appropriate transplanting procedures, if the occurrence needs to be relocated.

## 6.2 Wetland/ESHA Recommendations

Wetlands should be avoided to the extent possible; however, portions of the main trail and footpath cannot be improved as proposed without resulting in impacts. SHN recommends coordinating with resource/jurisdictional agencies to verify wetland boundaries and to determine wetland mitigation ratios and suitable areas for conducting wetland restoration within the ERWT area for mitigating wetland impacts to a less than significant level.

Improvements to the footpath will result in impacts to the dunemat/northern foredune habitat, sections which consist of a fairly intact native species composition. Improving similar habitat that is degraded due to a predominance of exotic species may offset impacts to the dunemat/northern foredune habitat. Non-native species eradication in conjunction with a long-term management plan for the ERWT area that seeks to limit human encampments and exotic species establishment/spread within the area, is highly encouraged.

In areas where the existing trail is as wide as the proposed improvement width, or close to it, the existing trail width should be used rather than implementing improvements if those improvements would result in a wetland impact, such as in the area of the north slough. The existing trail appears to be wide enough to accommodate a multi-use trail without impacting the north slough.

The existing trail over the south slough is very narrow and needs significant improvement to meet trail improvement standards. In order to limit impacts, SHN recommends installing a bridge constructed out of transparent materials that limits shading and impacts to the wetland resources within that area.

Based on sensitive natural resources that have been identified and mapped from the Pound Road Parking Lot to Herrick Avenue Park and Ride (Figure 5), placement of the trail along the south side and corresponding west side of Pound Road to the Park and Ride will avoid most impacts with the possible exception of Lyngbye's sedge and salt marsh habitat. Extensive salt marsh habitat is located south of Pound Road, but there appears to be an ample amount of upland habitat, which does not contain special status species that would accommodate the new trail segment along the south and west sides of Pound Road up to the Herrick Avenue Park and Ride. There are a number of mitigation opportunities in the area immediately adjacent to this area if the new trail segment does result in wetland impact. Those opportunities include, but are not limited to, eradication of exotic plant species and restoring degraded salt marsh habitat.

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Reference: 006107.100

October 31, 2007

Mr. Gary Bird
City of Eureka
531 K Street
Eureka, CA 95501-1146

**Subject: Wetland Delineation for Phase II of the Elk River Trail Improvement Project, Eureka, California**

Dear Mr. Bird:

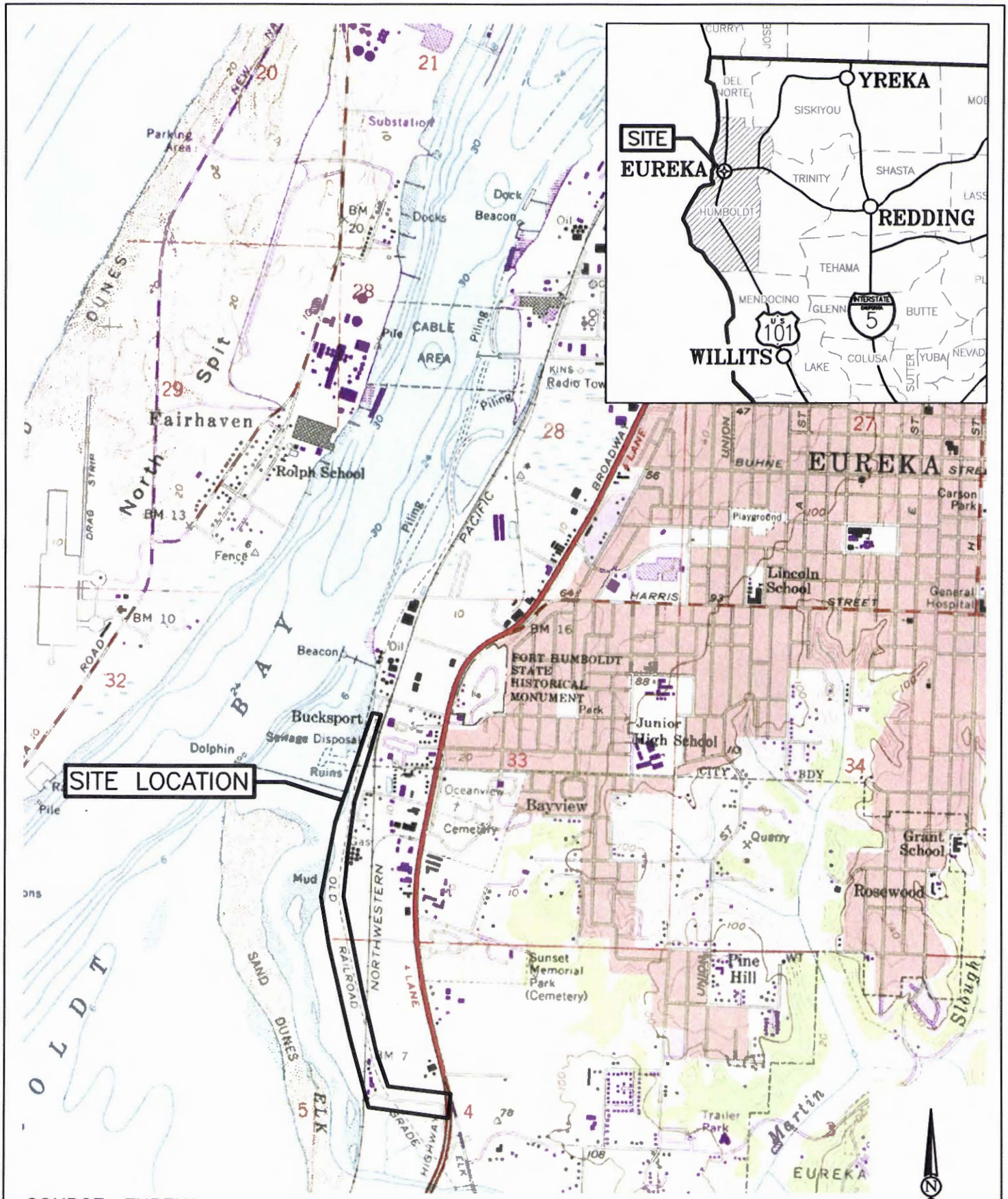
On June 19, July 20, August 2, and October 4, 2007, SHN Consulting Engineers & Geologists, Inc. (SHN) conducted site reconnaissance to complete a wetland delineation within the city limits of Eureka, California (west ½ of Section 33, Township 5 North, Range 1 West Humboldt Base Meridian; Figure 1). The study area includes the existing Elk River Wildlife Trail (ERWT), the terminus of which is located adjacent to the Eureka wastewater treatment plant extending south to the Herrick Avenue Park and Ride (Figure 1). The study area is located adjacent to the Elk River Estuary and includes the main trail segment of the ERWT south to the railroad tracks, a footpath located off the northern section of the main trail, the trail segment from the railroad to Pound Road, and both sides of Pound Road south to the Herrick Avenue Park and Ride (Figure 2). A 2002 aerial photograph obtained from the City of Eureka (City) was used as the base map for fieldwork and reporting.

## 1.0 Introduction

This wetland delineation was conducted in accordance with the U.S. Army Corps of Engineers (ACOE) 1987 *ACOE Wetland Delineation Manual* (Environmental Laboratories, 1987), *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone* (California Coastal Commission, 1994), and the City of Eureka General Plan Policy Document (City of Eureka, 1999).

Under Section 404 of the Clean Water Act, waters of the United States (including associated wetlands) are placed under federal jurisdiction of the ACOE. Furthermore, within California's coastal zone, the Coastal Act as administered by the California Coastal Commission (CCC) and local lead agencies affords wetlands additional protection and regulation. As stated in the 1987 *ACOE Wetland Delineation Manual* (Environmental Laboratories, 1987) and discussed further in the California Coastal Commission's *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone* (California Coastal Commission, 1994), specific criteria are used to identify wetlands or determine wetland status, including: hydrophytic vegetation, hydric soils, and wetland hydrology.

The objective of this wetland delineation was to identify and delineate all wetlands within the study area using the specific criteria, as stated above. The following definitions are from ACOE (Environmental Laboratories, 1987) unless specified otherwise. Hydrophytic vegetation is dominated by plant species known to be adapted to wetland sites, as specified in the regional index




SOURCE: EUREKA USGS 7.5 MINUTE QUADRANGLE

1"=2000'±



| | | |
|---|---|---|
| SHN Consulting Engineers & Geologists, Inc. | City of Eureka<br>Elk River Trail Improvement Project Phase II<br>Eureka, California | Site Location Map<br>Wetland Delineation<br>SHN 006107.100 |
| | October 2007 | 006107.100-LOCATION | Figure 1 |

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(Region 0) (Reed, 1988). Hydric soils have characteristics that developed in a reducing atmosphere, which exists when periods of prolonged soil saturation result in anaerobic conditions within the upper 12 inches of the soil profile. Hydric soils support the growth and regeneration of hydrophytic vegetation. Wetland hydrology is the sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation. Wetland hydrology is demonstrated through direct or indirect evidence of flooding, ponding, or saturation for a significant portion of the growing season (Environmental Laboratories, 1987; California Coastal Commission, 1994). Wetlands identified in this report had the presence of all three indicators. Refer to Section 4.3.2 of this report for other regulated/sensitive habitats that were delineated.

## 2.0 Environmental Setting

The study area is located on primarily undeveloped land in the southwest portion of Eureka. For organizational purposes, portions of the study area are referenced as: 1) the main trail segment 2) footpath, 3) railroad to Pound Road Parking Lot, and 4) Pound Road Parking Lot south to the Herrick Avenue Park and Ride (Figure 2). Assessors Parcel Numbers (APNs) that correspond with the four sections of the study area are as follows:

- Main trail segment: APNs 019-331-02, 019-331-09, 019-271-04, and 302-171-01
- Footpath: APN 019-331-08
- Railroad to Pound Road Parking Lot: APNs 302-171-23, 302-181-02, 302-181-31
- Pound Road Parking Lot south to the Herrick Avenue Park and Ride: APNs 302-181-31, 302-171-37

Habitats within the project area consist of uplands and wetlands, with several corresponding vegetation communities in each. Upland communities include disturbed and dunemat. Wetland communities consist of a variety of Estuarine intertidal and subtidal wetlands and Palustrine scrub-shrub and Palustrine emergent wetlands. The wetland community names are consistent with National Wetland Inventory (NWI) classification system (see section 3.2).

Eureka has a wet maritime climate. The average annual precipitation is 38.10 inches and the average annual air temperature is 53.2 degrees Fahrenheit (NOWData-NOAA online weather data, 2007).

## 3.0 Survey Methodology

The existing ERWT (hereafter, main trail) was systematically surveyed from the northern parking lot, south to the Herrick Avenue Park and Ride. The main trail was delineated into segments based on natural breaks in the vegetation communities or canopy cover. Each representative section, which included the four sections identified above, was visually assessed and quantified. Important resource variables included the presence of wetlands, Environmentally Sensitive Habitat Areas (ESHA), special status plant species, important wildlife areas, or the degree to which vegetation would be affected to allow for trail improvements, including but not limited to widening. This

SCALE
1"=250'

EXPL

report only includes the findings of the wetland delineation and impacts to ESHA. Refer to SHN 's *Biological Assessment for Phase II of the Elk River Wildlife Trail Improvement Project* (2007) for results of the other investigations.

The area of potential effects was assessed along the main trail segment using a 14-foot PVC pipe (i.e., measuring rod) which represented the desired/hypothetical trail width with an additional six feet added to each end of the measuring rod to represent the actual or potential disturbance area (26-foot total width).

The footpath trail was assessed for a 4-foot trail width, with four feet added at each end of the shortened measuring rod to represent the potential or actual disturbance area (12 feet total width). The study areas were defined based on the recommendations included in the *Elk River Access Project Recommendations* (RCAA, 2002), SHN's knowledge of the trail area, and coordination with the City of Eureka. The measuring rod was not used for the portion of the study area from the Pound Road parking lot to the Herrick Park and Ride because a study area could not be defined due to existing site constraints, such as fencing; however, sensitive resources were evaluated and mapped in that portion of the project area.

Each trail segment was quantified by walking the representative trail with the measuring rod centered on, and perpendicular to the trail, with the exception of the portion from the Pound Road parking lot to the Herrick Avenue Park and Ride. Where the measuring rod (or additional 6-feet {main trail} or 4-feet {foot path}) intercepted one of the aforementioned important resource variables, each was noted, mapped, and quantified to the degree possible, with some limited trimming to clearing large diameter stems. To the extent possible (i.e., based on canopy closure), a Trimble GeoXT hand-held Global Positions System (GPS) was used to map and quantify the existing trail, the presence of wetlands, and ESHA. Collected GPS data was post processed and differentially corrected for sub-meter accuracy and overlaid on the City's 2002 aerial photo.

## 3.1 Soils

Elevations within the study area range from sea level to approximately 15 feet above Mean Sea Level (MSL). Soil types for the study area are described in the *Soils of Western Humboldt County California* (McLaughlin and Harradine, 1966) as Sand Dune (SD), Bayside silty clay loam (Ba6), and may include portions of Residential, business, and industrial uses (UI). According to McLaughlin and Harradine (1966), Bayside silty clay loam is formed in very low-lying areas, is very poorly drained and is often affected by salts, and the surface horizon frequently puddles. Stabilized sand dunes consist of sands, which are not presently moving with the wind, and consist of an upland species composition. Soils characterized as residential, business, and industrial uses are originated from a variety of soils types but their origin composition has been altered due to development.

## 3.2 National Wetland Inventory

The U.S. Fish and Wildlife Service is the federal agency responsible for tracking wetland trends as well as maintaining a reliable inventory through its National Wetland Inventory (NWI; USDI,

1987). The NWI can be queried for specific locations throughout the United States to aid federal, state, and local agencies in making informed decisions concerning wetlands. The study area has both freshwater and estuarine wetland habitat types (Figure 3):

### 3.2.1 Freshwater Wetlands

According to the NWI[1] (USDI, 1987), portions of the study area and areas immediately adjacent to it contain a mix of freshwater wetland types:

- PEM/SS1C: Palustrine Emergent, Scrub-Shrub, Broadleaved deciduous, and Seasonally Flooded. This wetland type is a combination of two common freshwater wetlands in the Eureka area, Palustrine emergent seasonally flooded wetland that is dominated by herbaceous species and Palustrine scrub-shrub seasonally flooded wetland that is dominated by broadleaved deciduous trees and shrubs.
- PEM1/UBHx: Palustrine, emergent, persistent, unconsolidated bottom, permanently flooded, excavated. This permanently inundated wetland includes the wastewater treatment ponds. Vegetation consists of subemergent hydrophytes such as cattails (*Typha latifolia*), common tule (*Scirpus acutus* var. *occidentalis*), and pondweeds (*Potamogeton* spp.).
- PSS/EM1A: Palustrine scrub-shrub, emergent, persistent, temporarily flooded. This freshwater type contains a mix of broadleaved trees and shrubs and herbaceous hydrophytes, portions of the habitat may be periodically inundated.
- PEM1CD: Palustrine, emergent, persistent, seasonally flooded, well drained. This habitat is dominated by herbaceous hydrophytes and is inundated during the wet season but dry during summer months.

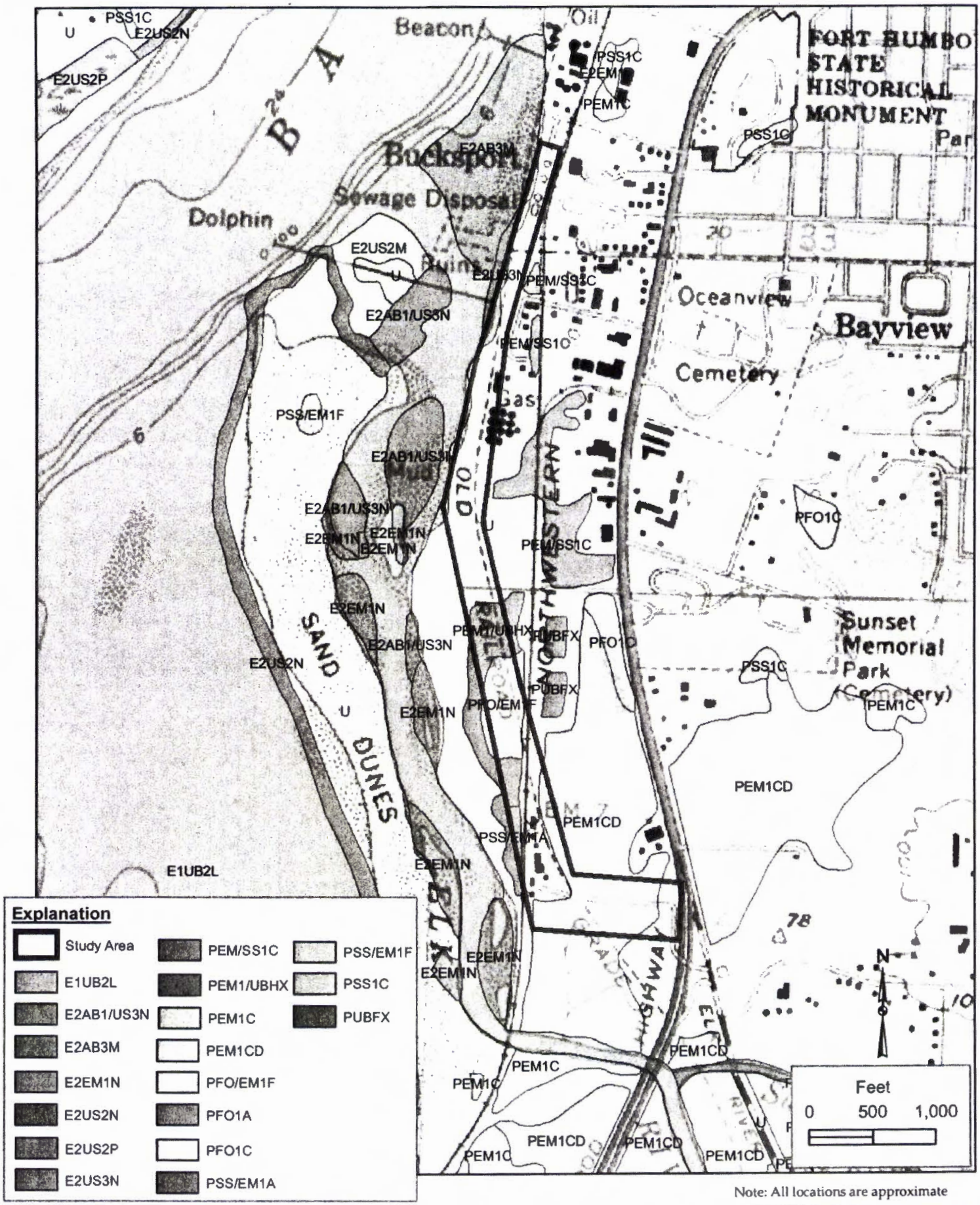
Habitat along the main trail segment primarily consists of Palustrine scrub-shrub with smaller sections of upland habitat and emergent wetlands. Emergent wetlands that are seasonally inundated are scattered throughout the Elk River trail area, but are generally located beyond the boundaries of the Phase II study area.

### 3.2.2 Estuarine Wetlands

The NWI (USDI, 1987) identifies several wetland class and sub-class types within the estuary and mouth of Elk River. The following four types apply to the study area and areas immediately adjacent to it:

- E2AB3M: Estuarine, intertidal, aquatic bed, rooted vascular, and irregularly exposed. The NWI identifies the tidally influenced wetlands in the northern portion of the study area as this type (Figure 3). This estuarine wetland is typical of salt marshes that are located near the Ordinary High Water Mark (OHWM) and are dominated with saline tolerant herbaceous hydrophytes and are regularly inundated.

[1] NWI maps are an excellent reference point for the presence or absence of wetlands; however, the resolution of the NWI tends to be on a macro scale, and can underestimate the full extent of a given wetland or miss wetlands that are dominated by herbaceous vegetation.




Note: All locations are approximate

Consulting Engineers & Geologists, Inc.

City of Eureka
Elk River Trail Improvement Project Phase II
Eureka, California

NWI Map
SHN 006107.100

November 2007 | NWI_MAP



Figure 3