

**Appendix D:
Biological Technical Memorandum (D.1)
Wetlands Waterbody Delineation Report (D.2)**

Biological Technical Memorandum

To: H Cycle

From: TRC Companies

Subject: Desktop Review and Site Biological Reconnaissance Survey, Pittsburg, CA

Date: October 12, 2023

Project No.: 557647.0000

Enclosures: Attachment 1 – Representative Photos
Attachment 2 - Federal and State Sensitive Species identified as Potentially Occurring in The Study Area

1.0 Introduction

TRC conducted a special-status species and sensitive habitats assessment for H Cycle, LLC (H Cycle). H Cycle proposes to construct a new renewable hydrogen production facility (Project) in Pittsburg, California. The Project is located in the City of Pittsburg, Contra Costa County, California. Pittsburg is an industrial suburb located south of Suisun Bay in the San Francisco Bay Area's East Bay region. The Project is located within Township 2 North, Range 1 East, Section 3. The Project encompasses approximately 24.8 acres of an inactive industrial facility (Figure 1).

This assessment evaluates the proposed Project and surrounding environs for the possible presence of special-status species and sensitive habitats subject to federal or state jurisdiction. Measures are identified in this memorandum to avoid potential impacts to sensitive biological resources. The Study Area for this habitat assessment includes the Project plus a 150-foot buffer around the Project.

2.0 Methods

2.1.1 Desktop Review

Prior to the biological field survey, publicly available natural resources data sets containing relevant information for the project vicinity were reviewed and a list of potential special-status species identified for the project vicinity was compiled. Special-status species and sensitive habitats include:

- federal and state-listed endangered and threatened species,
- federal designated critical habitats
- state designated sensitive natural communities,
- federal and state candidates for listing,
- species proposed for listing,



- state species of special concern,
- species protected under other regulations (e.g., the Migratory Bird Treaty Act),
- species listed as rare or endangered by the California Native Plant Society, and
- species that receive special consideration during environmental review under the California Environmental Quality Act (CEQA).

The list of species and habitats was compiled using the following sources:

- California Natural Diversity Database (CNDDDB; CDFW 2023),
- United States Fish & Wildlife Service (USFWS) Information for Planning and Consultation (IPaC; USFWS 2023), and
- California Native Plant Society (CNPS 2023).

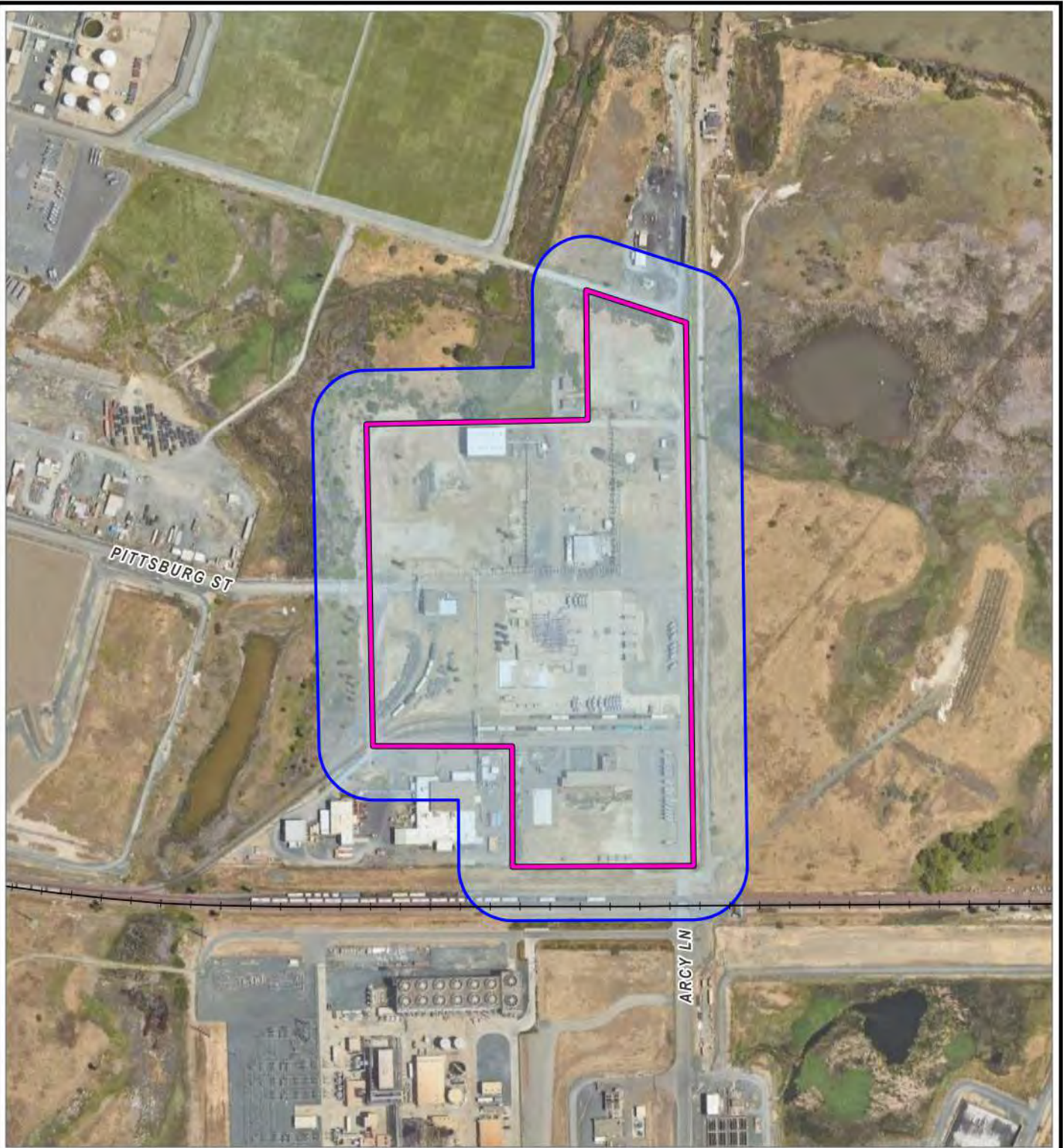
2.1.2 Field Survey

The field survey is a pedestrian site reconnaissance of the Study Area and surrounding environment. It is a rapid assessment to identify and characterize Study Area habitats and to document species and/or species indicators observed to be present at the time of field survey. The field survey is used to determine the Study Area's potential to support special-status species and sensitive habitats.

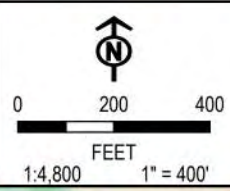


Figure 1 Study Area Overview Map

COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N; MAP ROTATION: 0
 - SAVED BY: SRAY ON: 10/4/2023, 17:01:04 PM; FILE PATH: V:\H-CYCLE\557647_PITTSBURG\APPROX\CORTEVA BIO AND WETLANDS REPORT\APRX_LAYOUT_NAME-FIG 1 BIO REPORT OVERVIEW



- BNSF RAILWAY
- 150' STUDY AREA
- PROPOSED PROJECT AREA



PROJECT:		H-CYCLE RENEWABLE HYDROGEN PRODUCTION PROJECT	
TITLE:		BIO REPORT OVERVIEW FIGURE	
DRAWN BY:	S. RAY	PROJ. NO.:	557647.0000.0000
CHECKED BY:	B. KIDDER	FIGURE 1	
APPROVED BY:	E. BERGQUIST		
DATE:	OCTOBER 2023		
		6 EXECUTIVE CIRCLE SUITE 200 IRVINE, CA 92614 PHONE: 949.727.9336	
FILE:	CORTEVA BIO AND WETLANDS REPORT		

BASE MAP: GOOGLE EARTH AND THEIR DATA PARTNERS
 DATA SOURCES: TRC, RAILROADS: CALIFORNIA OPENDATA PORTAL,
 OPENSTREETMAP



3.0 Results

3.1 Desktop Review

The desktop review of publicly available natural resources data sets identified 47 species with potential to occur in the vicinity of the project site. Attachment 2 summarizes the special-status species identified with potential to occur in the project vicinity along with their listing status, habitat association, and field survey results. The Project is located within an area designated by the USFWS as critical habitat for the delta smelt.

3.2 Field Survey

The Study Area included the Project plus a 150-foot buffer of surrounding habitats. TRC Biologist Tanessa Hartwig performed a field survey on August 25, 2023. The survey was conducted between 7:00 a.m. and 1:30 p.m. on foot using binoculars for identification of birds and wildlife beyond clear view by the unaided eye. Weather conditions consisted of mostly clear skies, a light breeze, and temperatures between 64 and 82° F.

The proposed Project site is an inactive industrial facility with rail yard constructed on historically placed fill material. The site is developed with gravel, unpaved, and impervious work areas, rail unloading sidings, industrial process equipment, paved vehicle staging and storage lots, and office structures present. Maintained gravel and dirt access roads are present on site. Industrial stormwater containment and treatment controls are not present allowing untreated stormwater or uncontained process waters to exit the site into the adjacent upland and wetland habitats.

The Project site is flat and appears to be built on historically placed fill material above the elevation of the surrounding estuarine wetlands (Google Earth Pro 2023). The surrounding landscape is flat with elevations in and adjacent to the Study Area of approximately 10 to 25 feet above mean sea level. Surrounding land use includes developed industrial lands to the south and west of the Project. The New York Slough, Corteva Wetlands Preserve, and Kirker Creek/Dowest Slough are estuarine wetlands immediately adjacent to the north, east, and west of the Project.

Noise and disturbance levels were low to moderate with anthropogenic noise from the railroad and industrial facilities to the south and west.

Vegetation Communities

The Project is located within the Level III region of Central California Foothills and Coastal Mountains and Level IV Ecoregion of Suisun Terraces and Low Hills (USGS 2016). The Central California Foothills and Coastal Mountains ecoregion is characterized as having a Mediterranean climate of hot dry summers and cool moist winters. The vegetation associated with this ecoregion is primarily chaparral and oak woodlands. Suisun Terraces and Low Hills ecoregion occurs on mostly Quaternary alluvium, surrounding Suisun Bay, upland from the lower part of the Delta (US EPA 2016).



Vegetation within the Study Area is primarily ruderal weeds and invasive species that include alkali mallow (*Malvella leprosa*), bristly ox-tongue* (*Helminthotheca echioides*), Canada horseweed (*Erigeron canadensis*), fivehorn smotherweed* (*Bassia hyssopifolia*) sea fig* (*Carpobrotus chilensis*), stinkwort* (*Dittrichia graveolens*), telegraph weed (*Heterotheca grandiflora*), and Mexican fan palm* (*Washingtonia robusta*). Coyote brush (*Baccharis pilularis*) was also observed within the project site. Non-native plants are marked with an asterisk.

A combination of native and non-native vegetation is located along and just outside of the Study Area's northern border. Native shrubs and trees include coast live oak (*Quercus agrifolia*) and coyote brush. Non-native shrubs and herbs include Himalayan blackberry* (*Rubus armeniacus*), short podded mustard* (*Hirschfeldia incana*), and perennial pepperweed* (*Lepidium latifolium*).

Off-site estuarine wetlands are present within Study Area to the north, east, and west of the Project. Since they were mostly behind fenced areas, these wetlands were observed mostly with binoculars. Off-site wetlands were comprised primarily of cattails (*Typha* sp.), common reed (*Phragmites* sp.), and bulrushes (*Schoenoplectus* sp.). At the edges of the wetlands, black willow (*Salix goodingii*), perennial pepperweed*, salt grass (*Distichlis spicata*), and alkali mallow (*Malvella leprosa*) were observed, among other native and non-native species.

Wildlife Observations

Wildlife observations within the survey area and vicinity included California harvester ant (*Pogonomyrmex californicus*), common green darner (*Anus junius*), American crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna*), California scrub jay (*Aphelocoma californica*), great egret (*Ardea alba*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), turkey vulture (*Cathartes aura*), and wild turkey (*Meleagris gallopavo*). Non-native species observed included Eurasian collared dove* (*Streptopelia decaocto*), European starling* (*Sturnus vulgaris*), and a possible nutria* (*Myocastor coypus*) that had been predated or scavenged by a coyote (*Canis latrans*), based on scat found nearby.

Other evidence of wildlife presence observed during the field survey included small animal burrows, bird nests, and owl pellets (Attachment 1). The small animal burrow entrances measured approximately 2 inches diameter in a crushed gravel surface and approximately 4-5 inches diameter in loose soils next to work area concrete slab. The burrows may continue and possibly under the work area concrete slab. Two abandoned buildings within the Project showed signs of avian use. One building contained an old passerine nest. The second building contained numerous barn owl pellets that appeared to be one to two years old, based on pellet aging guidelines (Barn Owl Trust 2023).

3.2.1.1 Sensitive Species and Habitats

No special-status species were observed during the August 25, 2023 field survey.

The Site is located within the USFWS Designated Critical Habitat for delta smelt (Federally Threatened, State Endangered), an anadromous fish endemic to the upper reaches of the San Francisco Bay-Delta Estuary. There is suitable estuarine wetland and slough habitat for delta smelt and longfin smelt (State Threatened) adjacent to the Project. The species are known to inhabit tidally influenced sloughs and edgewater.



Wetland-Associated Special-Status Species

The adjacent wetlands and waterbodies provide potential habitat to wetland-associated species in and immediately adjacent to the Study Area. The wetlands could potentially be habitat for federally and state listed species that occur in marshes, brackish marshes and wetlands. Federally listed species that have an unlikely to low potential of occurring in these wetlands include soft salty bird's-beak (*Chloropyron molle* ssp. *molle*), giant garter snake (*Thamnophis gigas*), salt marsh harvest mouse (*Reithrodontomys raviventris*), San Joaquin kit fox (*Vulpes macrotis mutica*) and California Ridgeway's rail (*Rallus longirostris obsoletus*). State listed species with a low potential to occur in this area include longfin smelt (*Spirinchus thaleichthys*). CNPS and CNDDB species with low potential to occur in the Study Area include Bolander's water hemlock (*Cicuta maculata* var. *bolanderi*), Delta mudwort (*Limosella australis*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Mason's lilaepsis (*Lilaeopsis masonii*), small spikerush (*Eleocharis parvula*), and Suisun Marsh aster (*Symphotrichum lentum*). A determination of potential for occurrence of the wetland-related species is summarized in Attachment 2.

Western Pond Turtle (Federally Proposed Threatened, State Species of Special Concern)

Western pond turtle is known to occur within 0.5 mile east and west of the Study Area. Wetlands adjacent to the Project provide suitable wetland habitat, and upland areas adjacent to and within the Project provide suitable habitat for nesting and estivation.

Migratory Birds

Potential nesting habitat for protected migratory bird species occurs in the on-site structures, dirt and gravel surfaces, scattered trees and shrubs throughout the Study Area, and the neighboring undeveloped estuarine habitats. Special-status migratory bird species having a potential to occur or nest in the Study Area are summarized in Attachment 2.

Burrowing Owl (State Species of Special Concern)

There is a low potential for burrowing owl to nest in open, dry ruderal habitat present in the Study Area, including the identified burrow sites within the industrialized but inactive Project. Presence of California ground squirrel was not confirmed within the Study Area, however several small mammal burrows were observed in the Study Area. Although a few burrows were potentially large enough for burrowing owl (4.5 inches), no burrows showed signs of use by burrowing owl (e.g., pellets, decorations, white wash, and so on). One small mammal burrow, determined inactive based on the presence of cobwebs across the entrance hole, was observed within the Project (Attachment 1, Photo 7). The grassland was viewed only through binoculars; however the vegetation was dense and tall. There are burrowing owl observations on the broader landscape with the nearest reported hotspot occurring approximately 2.7 miles south in the Black Diamond Mines Regional Preserve (eBird 2023).

White-tailed Kite (California Fully Protected Species)

There are multiple white-tailed kite observations in the Study Area vicinity with the nearest reported hotspot occurring approximately 1 mile southwest within Los Medanos Lake (eBird 2023). The scattered open-grown trees within and adjacent to the Study Area provide a low potential for white-tailed kites to nest in them.



Suisun Song Sparrow (Species of Special Concern)

Suisun Song Sparrow is known to occur in many marshes in the Suisun Bay (Shuford and Gardali 2008), and have been observed within 0.5 mile of the Study Area. Potential habitat occurs in the wetlands east and west of the Project.

3.2.2 Conclusions and Recommendations

Based on the field investigation, the developed but inactive industrial Project site would be well-suited for the Project to avoid and minimize the impacts to special status species from the construction and operation of a renewable hydrogen processing facility. The following habitats were identified within or adjacent to the Study Area that could result in the need for consultation, approval, or permit:

- Trees, shrubs, and other vegetation within and adjacent to the Study Area may contain active bird nests during nesting season.
- There is a low potential of burrowing owl nesting or foraging activity within the Study Area.
- There is a low potential for white-tailed kite nesting activity in the few trees adjacent to the Study Area.
- There is a moderate potential for western pond turtle activity in the adjacent wetlands and ruderal and natural upland areas with uncompacted soils within the Study Area. Because most soils within the Project are compacted over paved, the potential for pond turtle activity within the Project is low. If the Project provides fencing and/or biological monitors during periods of likely pond turtle movement, the Project's effects on pond turtles would be negligible. May through July typically captures the pond turtle nesting season; however, consultation with CDFW is recommended to determine local seasonal movements, including overland movements for estivation. Alternatively, surveys could be conducted to confirm presence of pond turtle in the vicinity.
- The estuarine wetlands and waters within and adjacent to the Study Area could provide habitat for aquatic associated special-status species. If no ground disturbing activities would occur that directly impact wetlands or waters, then the Project would avoid direct impacts to aquatic associated species. Construction related indirect impacts (air quality, water quality, noise, etc.) would be avoided using pollution prevention best management practices as required by local and state regulations. Operations related impacts would be minimized or avoided through project engineering design, operations environmental management plans and procedures, and best management practices. Based on these anticipated criteria, the Project's effects on aquatic and wetland-associated species would likely be negligible.

If no ground-disturbing activities in or adjacent to mapped wetlands or waterbodies will occur and industrial stormwater controls and BMPs are implemented, a letter requesting concurrence with the finding that federally listed species may be affected but are not likely to be adversely affected by the Project may be submitted to the USFWS. If adjacent areas may be disturbed by



the Project, TRC recommends that presence-absence surveys be conducted by a qualified biologist according to USFWS or CDFW-accepted protocols.

The federal Migratory Bird Treaty Act protects migratory birds and their eggs and nests from hunting, capturing, killing or other taking, and the California Fish and Game Code and AB 454 prohibit these actions even if incidental to otherwise lawful activities. Therefore, compliance with existing laws protecting migratory birds and raptors would protect nesting birds. TRC recommends that a pre-construction survey for active bird nests, including Suisun song sparrow, burrowing owl, and white-tailed kite, be conducted in the area surrounding the development by a qualified biologist if construction, including staging, is to begin during nesting season (February 1 to August 31), and before work is re-initiated during nesting season if work has been discontinued for more than 14 days. Pre-construction surveys should include abandoned structures. If an active nest is identified in proximity to the work area, recommendations of a qualified biologist should be implemented following CDFW guidance to ensure compliance with applicable laws.

4.0 REFERENCES

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Attachment 1 – Representative Photos


**Appendix B
Photo Log**

Photo 1: Example of ruderal areas on Project Site – looking north



Photo 2: Dowest Slough/Kirker Creek – looking northeast (Photo Date 8/25/2023)



Project No.	Photographs Taken By:	Page No.	Client:	Project Name	
557647	Tanessa Hartwig	1 of 3	H-Cycle	Renewable Hydrogen Production Project	


**Appendix B
Photo Log**

Photo 3: Non-jurisdictional ditch – looking north (Photo Date 8/25/2023)



Photo 4: Site overview – looking southwest (Photo Date 8/25/2023)



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557647	Tanessa Hartwig	2 of 3	H-Cycle	Renewable Hydrogen Production Project	


**Appendix B
Photo Log**

Photo 5: View of Corteva Wetlands – looking northeast (Photo Date 8/25/2023)



Photo 6: Site overview – looking south (Photo Date 8/25/2023)



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557647	Tanessa Hartwig	3 of 3	H-Cycle	Renewable Hydrogen Production Project	


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Photo 7: Inactive California ground squirrel (*Ostospermophilus beecheyi*) burrow in Project Area, looking southwest



Photo 8: Predated/Scavenged rodent (possible nutria [*Myocastor coypus*])



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557647	Tanessa Hartwig	4 of 3	H-Cycle	Renewable Hydrogen Production Project	


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Photo 9: Mammal burrow with coyote scat outside the burrow entrance, located in Project adjacent habitat.



Photo 10: Harvester ants



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Appendix B
Photo Log

Photo 11: Small burrow in soils near the Project.



Photo 12: Site overview through north central section of the Project existing conditions.



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Photo 13: Site overview of northeast section of Project existing conditions.




Photo 14: View of adjacent habitat east of the Project.



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557647	Tanessa Hartwig	8 of 3	H-Cycle	Renewable Hydrogen Production Project	



Attachment 2 – Federal and State Sensitive Species identified as Potentially Occurring in The Study Area



Federal and State Sensitive Species identified as Potentially Occurring in The Study Area

Species Name	Status ¹	Habitat Requirements	Potential for Occurrence
Plants			
Abrams' lupine, <i>Lupinus albifrons</i> var. <i>abramsii</i>	CNPS/3.2	Broad-leafed upland forest, Chaparral, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Alkali milk-vetch, <i>Astragalus tener</i> var. <i>tener</i>	CNPS/1B.2	Playas, Valley and foothill grassland, Vernal pools	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Antioch Dunes buckwheat, <i>Eriogonum nudum</i> var. <i>psychicola</i>	CNPS/1B.1	Inland dunes	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Antioch Dunes evening-primrose, <i>Oenothera deltoides</i> ssp. <i>howellii</i>	CNPS/1B.1, FE, CE	Inland dunes	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Bearded popcornflower, <i>Plagiobothrys hystriculus</i>	CNPS/1B.1	Valley and foothill grassland, Vernal pools	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Big tarplant, <i>Blepharizonia plumosa</i>	CNPS/1B.1, CNDDB	Valley and foothill grassland	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Bolander's water-hemlock, <i>Cicuta maculata</i> var. <i>bolanderi</i>	CNPS/2B.1, CNDDB	Marshes and swamps	Low: No suitable habitat for this species exists on the proposed development; however habitat does exist on adjacent land. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Colusa grass, <i>Neostapfia colusana</i>	FT	Vernal pools	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Contra Costa goldfields, <i>Lasthenia conjugens</i>	CNPS/1B.1, FE	Cismontane woodland, Playas, Valley and foothill grassland, Vernal pools	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.



Species Name	Status ¹	Habitat Requirements	Potential for Occurrence
Contra Costa wallflower, <i>Erysimum capitatum</i> var. <i>angustatum</i>	CNPS/1B.1, FE, CE	Inland dunes	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Crownscale, <i>Atriplex coronata</i> var. <i>coronata</i>	CNPS/4.2	Inhabits chenopod scrub, valley and foothill grassland, and vernal pools.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Delta mudwort, <i>Limosella australis</i>	CNPS/2B.1, CNDDDB	Inhabits marshes, swamps, and riparian scrub.	Low: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Delta tule pea, <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	CNPS/1B.2, CNDDDB	Grows in marshes and swamps.	Low: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Diamond-petaled California poppy, <i>Eschscholzia rhombipetala</i>	CNPS/1B.1	Found in valley and foothill grassland.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Dwarf downingia, <i>Downingia pusilla</i>	CNPS/2B.2	Found in valley and foothill grassland and vernal pools.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Fragrant fritillary, <i>Fritillaria liliacea</i>	CNPS/1B.2	Grows in cismontane woodland, Coastal prairie, Coastal scrub, and Valley and foothill grassland.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Hogwallow starfish, <i>Hesperervax caulescens</i>	CNPS/4.2	Inhabits valley and foothill grassland, and vernal pools.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Hoover's cryptantha, <i>Cryptantha hooveri</i>	CNPS/1A	Inhabits inland dunes and Valley and foothill grassland.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Keck's checkerbloom, <i>Sidalcea keckii</i>	CNPS/1B.1, FE	Grows in cismontane woodland and Valley and foothill grassland	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.



Species Name	Status ¹	Habitat Requirements	Potential for Occurrence
Mason's lilaepsis, <i>Lilaeopsis masonii</i>	CNPS/1B.1, CR	Found in marshes, swamps, and riparian scrub.	Low: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Mt. Diablo buckwheat, <i>Eriogonum truncatum</i>	CNPS/1B.1	Grows in chaparral, Coastal scrub, and Valley and foothill grassland.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
San Joaquin spearscale, <i>Extriplex joaquinana</i>	CNPS/1B.2	Inhabits chenopod scrub, Meadows and seeps, Playas, and Valley and foothill grassland.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Small spikerush, <i>Eleocharis parvula</i>	CNPS/4.3	Found in marshes and swamps.	Low: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Small-flowered morning- glory, <i>Convolvulus simulans</i>	CNPS/4.2	Grows in chaparral, Coastal scrub, and Valley and foothill grassland.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Soft salty bird's-beak, <i>Chloropyron molle ssp.</i> <i>molle</i>	CNPS/1B.2, FE, CR	Found in marshes and swamps.	Low: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Stinkbells, <i>Fritillaria agrestis</i>	CNPS/4.2	Grows in chaparral, Cismontane woodland, Pinyon and juniper woodland, and Valley and foothill grassland.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Suisun Marsh aster, <i>Symphyotrichum lentum</i>	CNPS/1B.2, CNDDDB	Found in marshes and swamps.	Low: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Sweet marsh ragwort, <i>Senecio hydrophiloides</i>	CNPS/4.2	Found in lower montane coniferous forest, and Meadows and seeps.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Invertebrates			



Species Name	Status ¹	Habitat Requirements	Potential for Occurrence
California linderiella, <i>Linderiella occidentalis</i>	CNDDB	Occurs in vernal pool habitats in the Central Valley of California.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Delta green ground beetle, <i>Elaphrus viridis</i>	FT	Occurs in vernal pool habitats	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Lange's metalmark butterfly, <i>Apodemia mormo langei</i>	FE	Inhabits stabilized dunes along the San Joaquin River.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
vernal pool fairy shrimp, <i>Branchinecta lynchi</i>	FT	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
vernal pool tadpole shrimp, <i>Lepidurus packardii</i>	FE	Inhabits vernal pools and swales in the Sacramento valley containing clear to highly turbid water.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Fish			
Delta smelt, <i>Hypomesus transpacificus</i>	CE, FT	Tidally influenced areas of the Sacramento-San Joaquin Delta.	Moderate: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Longfin smelt, <i>Spirinchus thaleichthys</i>	CT	Found in the open water of freshwater and saltwater estuaries.	Moderate: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.
Amphibians			



Species Name	Status ¹	Habitat Requirements	Potential for Occurrence
California red-legged frog, <i>Rana draytonii</i>	CDFG, FT	Associated with quiet perennial to intermittent freshwater ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation; may disperse through upland habitats after rains.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
California tiger salamander, <i>Ambystoma californiense</i>	FT	Lowland species restricted to annual grasslands and foothill oak savanna and woodland regions where its breeding habitat occurs. Breeding habitat consists of temporary ponds or pools, some permanent waters, and rarely slower portions of streams.	None: No suitable habitat for this species exists on the proposed development areas or adjacent land.
Reptiles			
Giant garter snake, <i>Thamnophis gigas</i>	CT, FT	Prefers freshwater wetland and low gradient streams. This species has adapted to drainage canals and irrigation ditches.	Low: Wetlands mapped in the Study Area provide potential habitat. Has occurred along the San Joaquin River within 3 miles east of the Project. If industrial stormwater controls and BMPs are put in place, this species would not be affected by the Project.



Species Name	Status ¹	Habitat Requirements	Potential for Occurrence
Northern California legless lizard, <i>Anniella pulchra</i>	CNDDDB	Inhabits sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks.	Low: According to CNDDDB, species occurred in Study Area historically (1940's) and is presumed extant. However, very little suitable habitat for this species exists on the proposed development area.
Western pond turtle, <i>Emys marmorata</i>	CNDDDB	Prefers rivers, creeks, small lakes and ponds, marshes, irrigation ditches, and reservoirs.	Moderate: Wetlands mapped in the Study Area provide potential habitat. According to the CNDDDB, the species has been observed within about 0.5 mile downstream and upstream of the Project. If present, pond turtles may use uncompacted soils and organic litter adjacent to the Project for nesting or estivation, including the site's uncompacted fill soils observed around the Project edge.
Mammals			
Salt marsh harvest mouse, <i>Reithrodontomys raviventris</i>	FE, CE	Prefers salt and brackish marshes.	Unlikely: Wetlands mapped in the Study Area may provide potential habitat, however species prefers pickleweed marshes. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project.



Species Name	Status ¹	Habitat Requirements	Potential for Occurrence
San Joaquin kit fox, <i>Vulpes macrotis mutica</i>	FE	Prefers open habitat such as grasslands, scrublands, and meadows.	Unlikely: Nearest CNDDDB record is almost 3 miles to the south. Species can use small remnants of habitat within urban development; however extensive burrow systems of the right size (> 7 inches) were not observed.
Birds			
Burrowing owl, <i>Athene cunicularia</i>	CNDDDB	Breeds in grasslands, rangelands, agricultural areas, deserts, vacant lots in urban areas, or any other open, dry area with low vegetation.	Low: Most soils are compacted or paved within the Project; however some pre-existing burrows exist in Study Area. Ground squirrels were not observed during the field survey. The nearest CNDDDB record is within 1 mile, but species may be extirpated. More recent occurrences within about 2 miles have been recorded in eBird (eBird 2023)
California Ridgeway's rail, <i>Rallus obsoletus obsoletus</i> [<i>R. longirostris obsoletus</i>]	FE	Breeds in clumps of vegetation or in shrubs in tidal salt and brackish marshes.	Low: Wetlands mapped in the Study Area provide potential habitat. If industrial stormwater controls and BMPs put in place, this species would not be affected by the Project. Nearest CNDDDB record is 8 miles west.
California least tern, <i>Sterna antillarum browni</i>	FE	Nests on the ground in beaches, mudflats, and sand dunes, usually near shallow estuaries and lagoons with access to the near open ocean.	None: No suitable nesting habitat for this species exists on the proposed development areas or adjacent land.
Suisun song sparrow, <i>Melospiza melodia maxillaris</i>	CNDDDB	Nests in tidal salt and brackish marshes.	Moderate: Wetlands mapped in the Study Area provide potential habitat. Nearest CNDDDB record is within 0.5 mile. If industrial stormwater controls and BMPs are put in place, this species would not be affected by the Project.
White-tailed kite, <i>Elanus leucurus</i>	CFP	Nests in open-country trees growing in isolation, or at the edge of or within a forest.	Low: There are a few potential nest trees along the edges of the study area. No nests were observed in any of the trees.



Status:

F = Federal; **C** = California; **CFP** = California Fully Protected Species; **T** = Threatened; **E** = Endangered;

R = Rare; **C** = Candidate; **CNPS** = California Native Plant Society RPR 1–4;

CDFG = California Department of Fish and Game Species of Concern;

CNDDDB = tracked by CNDDDB, but no formal status



Wetland and Waterbody Delineation Report

October 6, 2023

Renewable Hydrogen Production Project

Prepared for:

HC (Contra Costa)
Concord, CA

Prepared by:

TRC
Fort Collins, CO



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Acronyms and Abbreviations

Notation	Definition
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
FAC	Facultative Wetland Plant
FEMA	Federal Emergency Management Agency
FIRM	FEMA Flood Insurance Rate Maps
GPS	Global Positioning System
MLRA	Major Land Resource Area
NHD	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary high-water mark
Project	H Cycle LLC's Renewable Hydrogen Production Project
Project Area	Location of H Cycle LLC's Renewable Hydrogen Production Project
RWQCB	California Regional Water Quality Control Board
TRC	TRC Environmental Corporation
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WETS	Climate Analysis for Wetlands Tables
WOTUS	Waters of the U.S.

1.0 Introduction

TRC Environmental Corporation (TRC) conducted a wetland and waterbody delineation for HC (Contra Costa), LLC (HC [Contra Costa]) for a potential new renewable hydrogen production facility in Pittsburg, California, referred to herein as the Renewable Hydrogen Production Project (Project). A wetlands and waterbodies investigation was conducted on August 25, 2023 by Tanessa Hartwig.

The objective of the wetland and waterbody investigation was to identify and delineate the spatial extent and location of wetlands, streams, and other aquatic resources within the Project Area (Figure 1). Aquatic resources that are considered Waters of the U.S. are subject to regulation under Section 404 of the Clean Water Act (CWA). The jurisdictional regulatory authority of these resources is the U.S. Army Corps of Engineers (USACE) San Francisco District (San Francisco Regulatory Office) and the San Francisco Bay (2) Regional Water Quality Control Board. In addition to the federal authority, project actions that have the potential to alter or impact wetlands, waters, and/or riparian zones in the state of California must also comply with California Fish and Game Code Rule 1602.

This report summarizes the:

- desktop analyses performed prior to the field survey,
- results of the wetland and waterbody field investigation, and
- provides TRC's professional opinion on the expected jurisdictional status of any delineated features in the Project Area.

1.1 Project Location

The Project is located in the City of Pittsburg, Contra Costa County, California. Pittsburg is an industrial area located south of Suisun Bay in the San Francisco Bay Area's East Bay region. The Project is located within Township 2 North, Range 1 East, Section 3. The Project Area encompasses approximately 24 acres of an inactive industrial facility (Figure 1, Appendix A).

2.0 Regulatory Background

Waters of the U.S. (WOTUS) are protected under Section 404 of the CWA. Any activity that involves the discharge of dredged or fill material into Waters of the U.S. is subject to regulation by the USACE. WOTUS are defined to encompass navigable waterways; interstate waters; all other waters where their use, degradation, or destruction could affect interstate or foreign commerce; tributaries of any of these waters; and wetlands that meet any of these criteria or are adjacent to any of these waters or their tributaries. Wetlands and waters were identified and delineated pursuant to the EPA definition for WOTUS in effect at the time of the field investigation (August 25, 2023). On August 29, 2023, the EPA revised the definition of WOTUS based on the U.S. Supreme Court ruling in the *Sackett v. Environmental Protection Agency*. Results of the field investigation as they pertain to the August 29, 2023 revised WOTUS rule will be discussed in the Results below.

The California Regional Water Quality Control Board (RWQCB) regulates activities that could degrade water quality including stormwater discharges from construction, industrial, and municipal activities, dredge and fill activities, and the CWA Section 401 certification program. A CWA Section 401 Water Quality Certification is required for dredged or fill material into Waters

of the U.S. All waters within the State of California are subject to State jurisdiction and the RWQCB can, and typically does, require a State permit for dredge or fill in State waters if they do not otherwise have authority under the federal CWA Section 401. Waters of the State are defined as

any surface water or groundwater, including saline waters, within the boundaries of the state. Waters of the state includes all waters of the U.S. The following wetlands are waters of the state:

1. *Natural wetlands,*
2. *Wetlands created by modification of a surface water of the state, and*
3. *artificial wetlands that meet any of the following criteria:*
 - a. *Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;*
 - b. *Specifically identified in a water quality control plan as a wetland or other water of the state;*
 - c. *Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or*
 - d. *Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):*
 - i. *Industrial or municipal wastewater treatment or disposal,*
 - ii. *Settling of sediment,*
 - iii. *Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,*
 - iv. *Treatment of surface waters,*
 - v. *Agricultural crop irrigation or stock watering,*
 - vi. *Fire suppression,*
 - vii. *Industrial processing or cooling,*
 - viii. *Active surface mining – even if the site is managed for interim wetlands functions and values*

California Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the California Department of Fish and Wildlife (CDFW) before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river,

stream, or lake. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Impacts that meet the requirements listed above for CDFW regulation would require permitting through CDFW.

3.0 Survey Methods

3.1 Desktop Review

Prior to conducting the field investigation, TRC reviewed the following sources publicly available natural resources datasets:

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) digital wetland mapping portal (USFWS 2023),
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) digital waterway mapping portal (USGS 2023),
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2023),
- USGS digital 7.5-minute topographic quadrangle map for Antioch North, 38121-A7 (USGS 1978),
- FEMA Flood Insurance Rate Maps (FIRM) 06013C0138G and 06013C0139G (FEMA 2015)
- Google Earth current and historic aerial imagery (Google 2023)

TRC screened aerial and historic imagery, ranging from 1939-2023, for indicators of hydrologic activity and saturation (wetness signatures) which could indicate the presence of unmapped wetlands (Google Earth Pro 2023). In addition, TRC reviewed precipitation data from approximately 90 days prior to the field investigations using data obtained from a nearby weather stations (Concord Buchanan Field, California). Antecedent precipitation data were compared with the 30-year average precipitation data from the same location to determine if hydrologic conditions at the time of the field investigation were normal, wetter, or drier than normal (NOAA 2022).

3.2 Wetlands

The wetland delineation and determination was conducted in accordance with the *United States Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1* (USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0* (USACE 2008), and relevant guidance documents (USACE 1991a, b; 1992).

On-site wetland determinations were made using the three criteria (vegetation, soil, and hydrology) and technical approach defined in the Regional Supplement. According to the procedures described therein, areas that, under normal circumstances, reflect a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology (e.g., inundated or saturated soils) are considered wetlands. The geospatial boundary of each wetland was mapped using a Global Positioning System (GPS)-enabled tablet. Each wetland feature was assigned a unique feature identification number with a "W" prefix. A Wetland Determination Data Form was completed for each wetland and its associated upland data point. Upland data points were

assigned a unique feature ID number with a “U” prefix. Representative photos were taken of all identified features.

Wetlands and waters were identified and delineated pursuant to the EPA definition for WOTUS in effect at the time of the field investigation (August 25, 2023). The USACE criteria for determining regulatory jurisdiction of wetlands and waters was revised on August 29, 2023. The revisions for wetlands evaluate its physical connection to a jurisdictional water but remove the significant nexus criteria. Wetlands identified as having no downstream connection to jurisdictional waters are deemed non-jurisdictional by the USACE. Wetlands may still be jurisdictional and regulated by the State of California under California Fish and Game Code Rule 1602. Aerial imagery was used to supplement field observations for the determination of downstream connectivity where public access was not available outside the Project Area.

For NWI-identified features where wetland indicators were absent, sample plots and/or representative photos were taken. These areas are classified as uplands.

3.3 Waterbodies

Based on the USACE’s *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008), delineated waterbodies were identified by the presence of bed, bank, and/or other OHWM indicators. Common identifiable indicators of an OHWM include open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; disturbance to, or lack of, terrestrial vegetation; presence of litter and debris; and watermarks indicative of inundation during high water conditions. The OHWM typically represents the potential limits of USACE jurisdiction.

The geospatial boundary of each waterbody was mapped using a GPS-enabled tablet. Each waterbody feature was assigned a unique feature identification number with an “S” prefix. An Arid West Ephemeral and Intermittent Stream OHWM Datasheet was completed for each feature. Representative photos were taken of all identified features.

For NWI- and NHD-identified stream features where OHWM indicators were absent, photo points and representative photos were taken. These areas are classified as uplands.

4.0 Results

Desktop review and field survey results are presented in the following discussion.

4.1 Precipitation

The National Oceanic and Atmospheric Administration (NOAA) Agricultural Applied Climate Information System was used to obtain historical and antecedent rainfall data for the USDA NRCS Climate Analysis for Wetlands (WETS) Tables and NOAA Regional Climate Centers. Historical rainfall records from the Concord Buchanan Field, California weather station were used to determine the normality of rainfall prior to and during the field survey. Normality of precipitation was evaluated using the Direct Antecedent Rainfall Evaluation Method (Table 1; NOAA 2022). The region of Contra Costa County was determined to be drier than normal for the August 2023 field survey.

Table 1. Rainfall Summary for Contra Costa County

Prior Month		WETS Rainfall Percentile (inches)		Evaluation Month: August 2023			
		30 th	70 th	Measured Rainfall (inches)	Condition ^a	Month Weight ^b	Score ^c
Three months prior to August 25th, 2023, Survey Date							
1 st	July	0.00	0.00	0.00	1	3	3
2 nd	June	0.00	0.04	0.01*	1	2	2
3 rd	May	0.10	0.34	0.46	3	1	3
Sum				0.47			8
Description ^d		Dry					

^a Condition values are 1 for < 30th percentile, 2 for between 30th and 70th percentiles, and 3 for > 70th percentile.

^b Month Weight is 3 for the most recent month, 2 for the prior month, and so on.

^c Score is the product of the Condition and Month Weight values.

^d Drier than normal (sum of score = 6-9), normal (sum of score = 10-14), wetter than normal (sum of score = 15-18).

*These months had trace amounts of precipitation.

Source: NOAA 2022, NOAA 2023; Site: Concord Buchanan Field, California.

4.2 Land Use and Vegetation

The Project Area is located on privately owned land in the industrial zone of the City of Pittsburg. The property is built out with an inactive industrial facility and rail yard. Surrounding land use includes developed industrial lands to the south and west of the Project Area. The New York Slough, Corteva Wetlands Preserve, and Kirker Creek/Dowest Slough are estuarine wetlands present immediately adjacent to the north, east, and west of the Project Area.

The Project Area is developed with gravel and impervious work areas, rail unloading sidings, industrial process equipment, paved vehicle staging and storage lots, and office structures. Above-ground industrial stormwater containment and treatment controls are not observably present.

Vegetation within the Project Area is primarily ruderal weeds and invasive species that include alkali mallow (*Malvella leprosa*), bristly ox-tongue* (*Helminthotheca echioides*), Canada horseweed (*Erigeron canadensis*), fivehorn smotherweed* (*Bassia hyssopifolia*) sea fig* (*Carpobrotus chilensis*), stinkwort* (*Dittrichia graveolens*), telegraph weed (*Heterotheca grandiflora*), and Mexican fan palm* (*Washingtonia robusta*). Coyote brush (*Baccharis pilularis*) was also observed within the project site. A combination of native and non-native vegetation is located along the Site's north border, just outside of the project area. Native shrubs and trees include coast live oak (*Quercus agrifolia*) and coyote brush. Non-native shrubs and herbs include Himalayan blackberry* (*Rubus armeniacus*), short podded mustard* (*Hirschfeldia*

incana) and perennial pepperweed* (*Lepidium latifolium*). Non-native plants are marked with an asterisk.

The topography of the Project Area is flat and appears to be built on fill material above the elevation of the surrounding estuarine wetlands (Google Earth Pro 2023). The elevation of the Project Area is approximately 10 to 25 feet above mean sea level. The Project Area is located within the Level III region of Central California Foothills and Coastal Mountains and Level IV Ecoregion of Suisun Terraces and Low Hills (USGS 2016). The Central California Foothills and Coastal Mountains ecoregion is characterized as having a Mediterranean climate of hot dry summers and cool moist winters. The vegetation associated with this ecoregion is primarily chaparral and oak woodlands. Suisun Terraces and Low Hills ecoregion occurs on mostly Quaternary alluvium, surrounding Suisun Bay, upland from the lower part of the Delta (USGS 2016).

4.3 Soils

According to the NRCS Soil Survey map, three mapped soil units are located within the Project Area (Table 2; Figure 3, Appendix A). The National Technical Committee for Hydric Soils defines hydric soils as “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.” The major and minor components of a soil map unit are classified as to how likely they are to be hydric and are rated on a range from hydric to nonhydric. The Joice muck soil series is classified as hydric and not prime farmland. The remaining soils are classified as nonhydric and prime farmland if irrigated.

Table 2. Mapped Soils in the Project Area

Map Unit Symbol	Soil Series Name	Drainage Class	Prime Farmland	Hydric Rating	% of Project Area
Cc	Clear Lake clay, 0 to 15 percent slopes, MLRA* 15	Poorly drained	Prime farmland if irrigated	No*	43
Ja	Joice muck, MLRA 16	Very poorly drained	Not prime farmland	Yes	4
RbC	Rincon clay loam, 2 to 9 percent slopes, MLRA 14	Well drained	Prime farmland if irrigated	No	53

*MLRA: Major Land Resource Area

4.4 Wetlands and Waterbodies

4.4.1 Desktop Analysis

According to the NWI and NHD data sets, no wetlands or waters occur within the Project Area. The NWI maps estuarine wetlands immediately adjacent to the north, east, and west of the

Project Area (Figure 2, Appendix A; USFWS 2023; USGS 2023). A review of Google Earth aerial imagery shows the estuarine wetlands as well as Kirker Creek / Dowest Slough watercourse (Google Earth Pro 2023).

4.4.2 Wetlands

The field survey found no wetlands in the Project Area. Off-site estuarine wetlands are present within 150 feet to the north, east, and west of the Project Area. One sample plot was completed in a low-lying depression within the Project Area to confirm the presence/absence of the three wetland criteria in the depression (Appendix A, Figure 4). The plot did not have hydrophytic vegetation or hydric soil and was determined to not be a wetland. Representative photos are included in Appendix B. Representative photo locations are shown in Appendix A, Figure 4.

4.4.3 Waterbodies

Field surveys identified no jurisdictional watercourses within the Project Area (Appendix A, Figure 4). The field survey identified Kirker Creek and Dowest Slough immediately west of the Project Area. Representative photos are included in Appendix B.

A non-jurisdictional ditch was observed on the southeast side of the Project Site. The ditch was concave in form and seemed to drain water from both the north and south into a culverted area. No OHWM, bed and bank, change in soil characteristics, or other physical indicators were observed within the ditch. Some perennial pepperweed (Facultative Wetland Plant [FAC]) was observed in the lower elevations of the ditch.

5.0 Conclusions and Recommendations

A wetland and waterbody field investigation was conducted on August 25th, 2023. This region of Contra Costa County was calculated to have received below normal precipitation for the three months prior to the field survey. Potential impacts to on-site and off-site identified wetlands and waterbodies will be evaluated during the Project design and permitting phase.

Based on field observations, no wetlands or waterbodies were identified within the Project Area. As such, the Project is not anticipated to be subject to U.S. Clean Water Act Section 404 regulation. A consultation with the San Francisco Bay Regional Water Quality Control Board and CDFW is recommended to determine state jurisdiction and permitting requirements for the adjacent off-site wetlands and waterbodies.

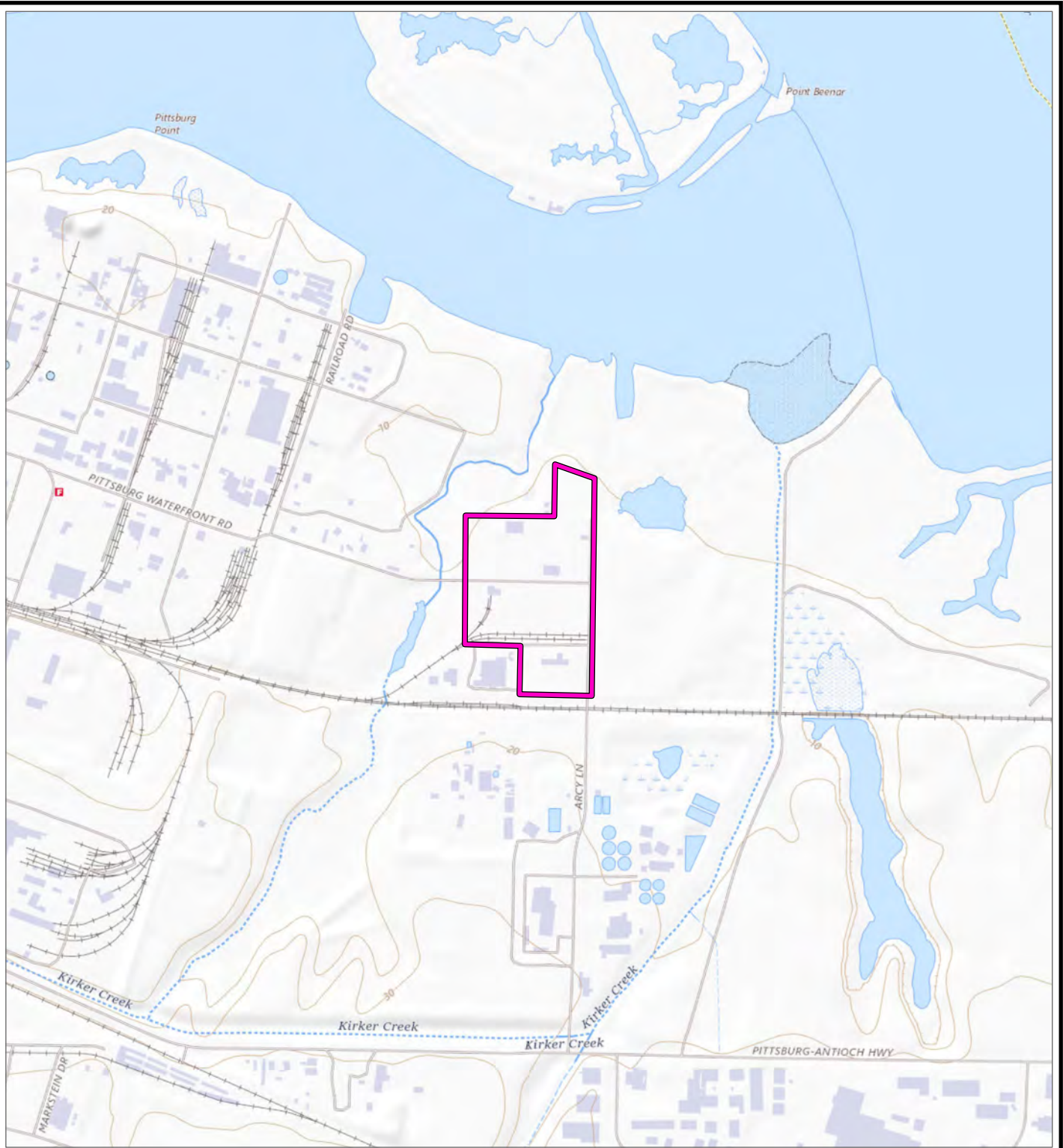
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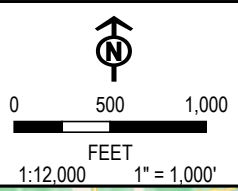
Appendix A. Figures

Appendix B. Data Forms and Representative Photographs

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 PROPOSED PROJECT AREA



PROJECT: **H-CYCLE RENEWABLE HYDROGEN PRODUCTION PROJECT**

TITLE: **PROJECT OVERVIEW MAP**

DRAWN BY: S. RAY

PROJ. NO.: 557647.0000.0000

CHECKED BY: B. KIDDER

APPROVED BY: E. BERGQUIST

FIGURE 1

DATE: OCTOBER 2023

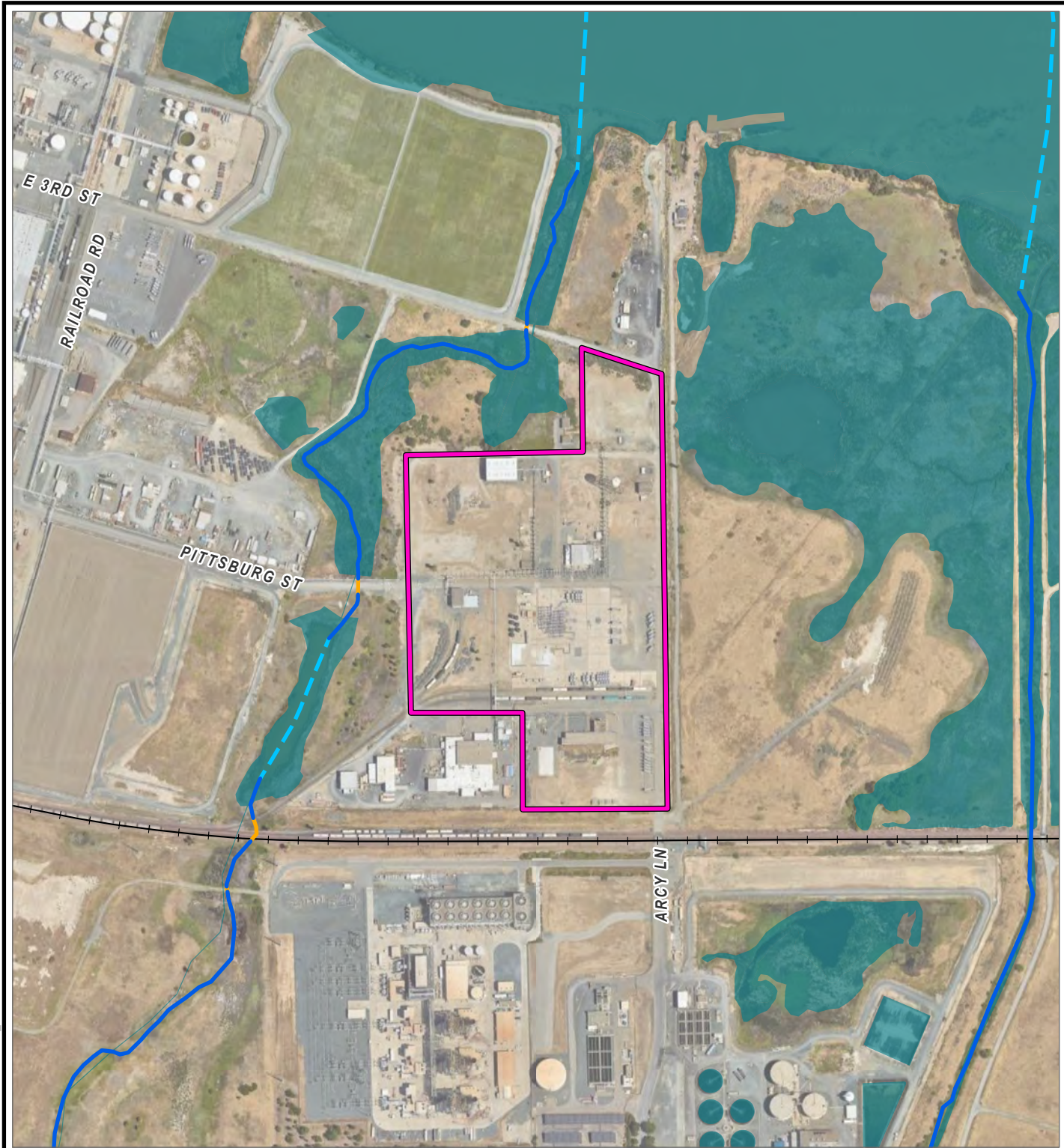


6 EXECUTIVE CIRCLE
 SUITE 200
 IRVINE, CA 92614
 PHONE: 949.727.9336

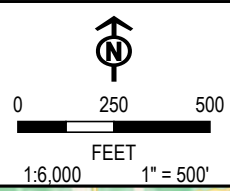
BASE MAP: USGS TOPOGRAPHIC MAP
 DATA SOURCES: TRC

FILE: CORTEVA BIO AND WETLANDS REPORT

COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N; MAP ROTATION: 0
 - SAVED BY: S RAY ON 10/4/2023, 14:01:40 PM; FILE PATH: T:\1-PROJECTS\H-CYCLES\57647_PITTSBURG\2-APRXCORTEVA\BIO AND WETLANDS REPORT\APPX; LAYOUT NAME: FIG 2 NWI AND NHD MAP WET REPORT



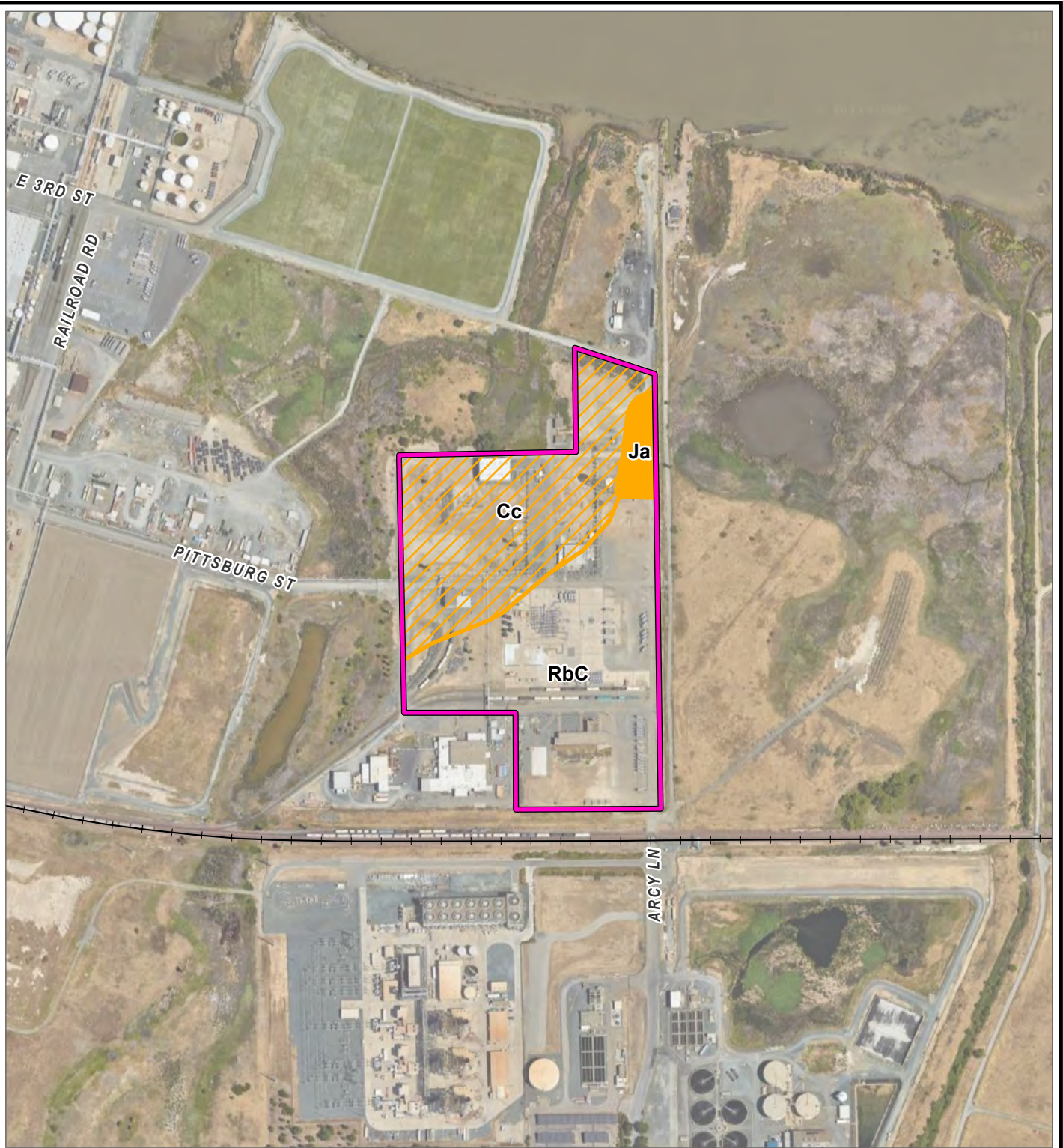
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- CONNECTOR
- STREAM/RIVER
- + + + BNSF RAILWAY
- PROPOSED PROJECT AREA
- WETLANDS



PROJECT:		H-CYCLE RENEWABLE HYDROGEN PRODUCTION PROJECT	
TITLE:		NWI AND NHD MAP	
DRAWN BY:	S. RAY	PROJ. NO.:	557647.0000.0000
CHECKED BY:	B. KIDDER	FIGURE 2	
APPROVED BY:	E. BERGQUIST		
DATE:	OCTOBER 2023		
		6 EXECUTIVE CIRCLE SUITE 200 IRVINE, CA 92614 PHONE: 949.727.9336	
FILE:		CORTEVA BIO AND WETLANDS REPORT	

BASE MAP: GOOGLE EARTH AND THEIR DATA PARTNERS
 DATA SOURCES: TRC, RAILROADS: CALIFORNIA OPENDATA PORTAL,
 OPENSTREETMAP, NATIONAL WETLANDS INVENTORY

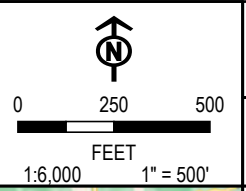
COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N; MAP ROTATION: 0
 - SAVED BY: SRAY ON 10/04/2023, 14:01:40 PM; FILE PATH: T:\1-PROJECTS\H-CYCLE\557647_PITTSBURG\2-APRXCORTEVA BIO AND WETLANDS REPORT\APPX; LAYOUT NAME: FIG 3 SOILS MAP WET REPORT



- BNSF RAILWAY
- NON-HYDRIC (0%)
- PREDOMINANTLY NON-HYDRIC (1% - 33%)
- HYDRIC (100%)
- PROPOSED PROJECT AREA

NOTES:
 Cc = CLEAR LAKE CLAY, 0 TO 15 PERCENT SLOPES, MLRA 15
 Ja = JOICE MUCK, MLRA 16
 RbC = RINCON CLAY LOAM, 2 TO 9 PERCENT SLOPES, MLRA 14

BASE MAP: GOOGLE EARTH AND THEIR DATA PARTNERS
 DATA SOURCES: TRC, RAILROADS: CALIFORNIA OPENDATA PORTAL,
 OPENSTREETMAP, NATIONAL WETLANDS INVENTORY



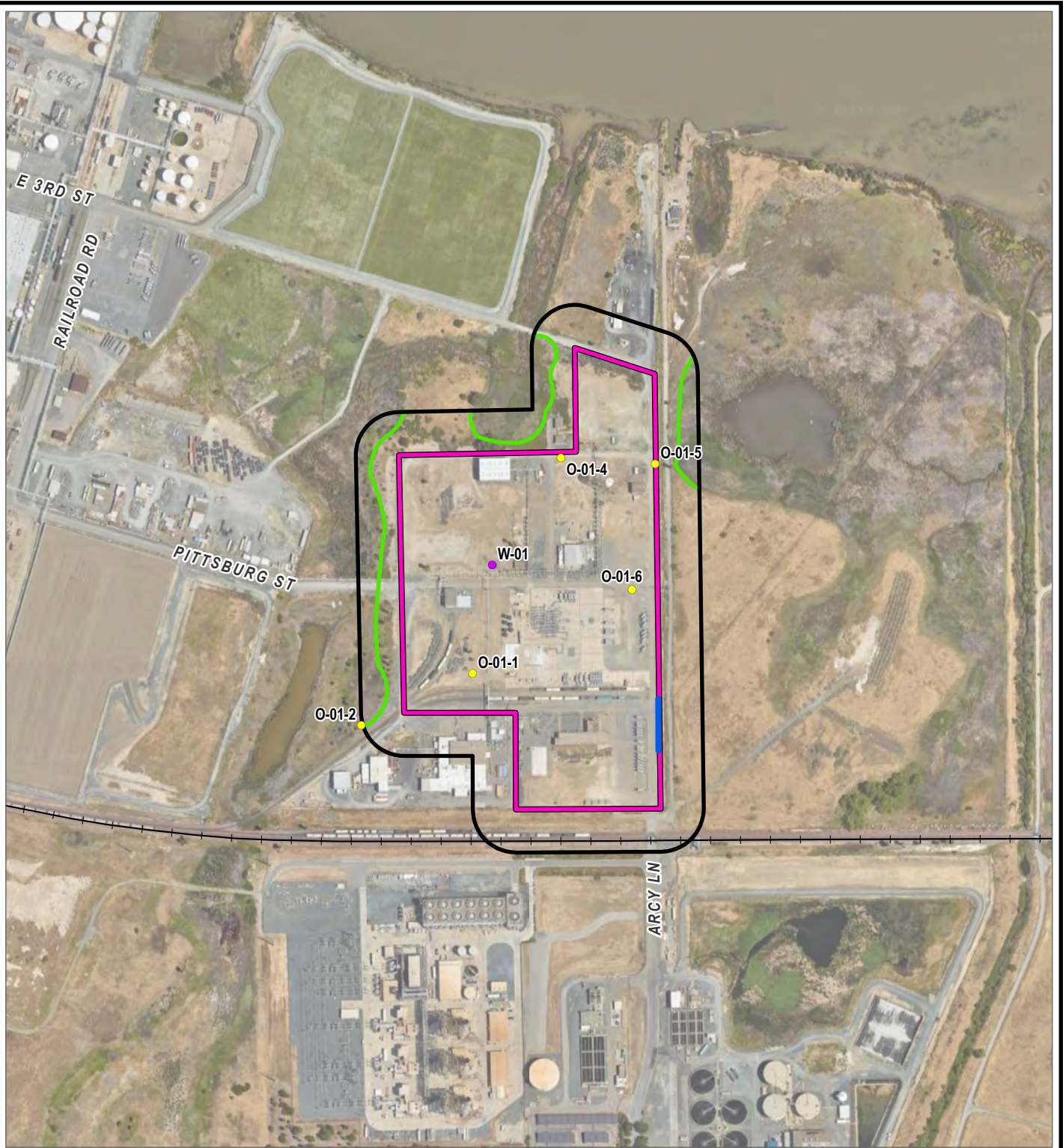
PROJECT: **H-CYCLE RENEWABLE HYDROGEN PRODUCTION PROJECT**

TITLE: **SOILS MAP**

DRAWN BY: S. RAY	PROJ. NO.: 557647.0000.0000
CHECKED BY: B. KIDDER	FIGURE 3
APPROVED BY: E. BERGQUIST	
DATE: OCTOBER 2023	


	6 EXECUTIVE CIRCLE SUITE 200 IRVINE, CA 92614 PHONE: 949.727.9336
	FILE: CORTEVA BIO AND WETLANDS REPORT

COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N; MAP ROTATION: 0
 -- SAVED BY: S.RAY ON 10/04/2023, 14:36:03 PM; FILE PATH: T:\1-PROJECTS\H-CYCLE\557647_PITTSBURG\2-APRXCORTEVA\BIO AND WETLANDS REPORT\APPRX. LAYOUT NAME: FIG 4 FIELD RESULTS MAP WET REPORT





- PHOTO POINT
- WETLAND PLOT
- APPROXIMATE WETLAND BOUNDARY
- +— BNSF RAILWAY
- DRAINAGE DITCH (NON-JURISDICTIONAL)
- 150' PROPOSED PROJECT AREA BUFFER
- PROPOSED PROJECT AREA

BASE MAP: GOOGLE EARTH AND THEIR DATA PARTNERS
 DATA SOURCES: TRC, RAILROADS: CALIFORNIA OPENDATA PORTAL, OPENSTREETMAP



0 250 500
 FEET
 1:6,000 1" = 500'



PROJECT:		H-CYCLE RENEWABLE HYDROGEN PRODUCTION PROJECT	
TITLE:		FIELD RESULTS MAP	
DRAWN BY:	S. RAY	PROJ. NO.:	557647.0000.0000
CHECKED BY:	B. KIDDER	FIGURE 4	
APPROVED BY:	E. BERGQUIST		
DATE:	OCTOBER 2023		
		6 EXECUTIVE CIRCLE SUITE 200 IRVINE, CA 92614 PHONE: 949.727.9336	
FILE:		CORTEVA BIO AND WETLANDS REPORT	

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: H Cycle Cortevea site City/County: Pittsburg, Contra Costa County Sampling Date: 2023-08-25

Applicant/Owner: H Cycle State: California Sampling Point: W-TSH-01_UPL-1

Investigator(s): Tanessa Hartwig, TSH Section, Township, Range: 2 North, 1 East

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1 to 3

Subregion (LRR): LRR C Lat: 38.0216827298 Long: -121.8445567042 Datum: WGS84

Soil Map Unit Name: Clear Lake clay, 0 to 15 percent slopes, MLRA 15 NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

Remarks:
Covertypes is UPL. Area is upland, not all three wetland parameters are present. Entire site is historically disturbed but does not appear to be recently disturbed..

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	0 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	1 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	0 (A/B)
4. _____	_____	_____	_____		
	0	= Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply By:
2. _____	_____	_____	_____	OBL species	0 x 1 = 0
3. _____	_____	_____	_____	FACW species	0 x 2 = 0
4. _____	_____	_____	_____	FAC species	0 x 3 = 0
5. _____	_____	_____	_____	FACU species	6 x 4 = 24
	0	= Total Cover		UPL species	36 x 5 = 180
Herb Stratum (Plot size: 3 meters)				Column Totals	42 (A) 204 (B)
1. <i>Euphorbia maculata</i>	30	Yes	UPL	Prevalence Index = B/A =	4.9
2. <i>Baccharis pilularis</i>	6	No	UPL		
3. <i>Erigeron canadensis</i>	6	No	FACU		
4. <i>Carex sp.</i>	3	No	NI		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
	45	= Total Cover			
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:	
1. _____	_____	_____	_____	_____ Dominance Test is >50%	
2. _____	_____	_____	_____	_____ Prevalence Index is ≤ 3.0 ¹	
	0	= Total Cover		_____ Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet)	
				_____ Problematic Hydrophytic Vegetation ¹ (Explain)	
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
% Bare Ground in Herb Stratum <u>50</u>		% Cover of Biotic Crust <u>0</u>		Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Remarks:

Vegetation Photos



resource overview, facing north. Note darker soils within potential resource



reduced *Baccharis pilularis*



soil cracks and *Euphorbia maculata*



Carex sp.

Soil Photos



soil from pit



soil pit



soil crust close up



resource overview and soil crust


**Appendix B
Photo Log**

Photo 1: Example of ruderal areas on Project Site – looking north



Photo 2: Dowest Slough/Kirker Creek – looking northeast (Photo Date 8/25/2023)



Project No.	Photographs Taken By:	Page No.	Client:	Project Name	
557647	Tanessa Hartwig	1 of 3	H-Cycle	Renewable Hydrogen Production Project	


**Appendix B
Photo Log**

Photo 3: Non-jurisdictional ditch – looking north (Photo Date 8/25/2023)



Photo 4: Site overview – looking southwest (Photo Date 8/25/2023)



Project No.	Photographs Taken By:	Page No.	Client:	Project Name	
557647	Tanessa Hartwig	2 of 3	H-Cycle	Renewable Hydrogen Production Project	

**Appendix B
Photo Log**

Photo 5: View of Corteva Wetlands – looking northeast (Photo Date 8/25/2023)



Photo 6: Site overview – looking south (Photo Date 8/25/2023)



Project No.	Photographs Taken By:	Page No.	Client:	Project Name	
557647	Tanessa Hartwig	3 of 3	H-Cycle	Renewable Hydrogen Production Project	