

**DRAFT
INITIAL STUDY/MITIGATED NEGATIVE
DECLARATION**

**PG&E PIPELINE MAINTENANCE PROJECTS
EUREKA, CALIFORNIA**

R-354 FRESHWATER SLOUGH 8" PIPELINE DECOMMISSIONING

**R-519 RYAN SLOUGH 4" PIPELINE CROSSING REPLACEMENT AND
DECOMMISSIONING**

RT-102 RYAN CREEK 12" PIPELINE EXPOSURE REMEDIATION

PROJECT NO. 1702-2341

Prepared for:

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APRIL 2020



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LIST OF ACRONYMS

°C	Degrees Celsius
°F	Degrees Fahrenheit
AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
ACM	Asbestos containing materials
AE	Agricultural Exclusive
AG	Agricultural Grazing
AMM	Applicant Proposed Minimization Measure
A/P	Alquist-Priolo
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BSA	Biological Study Area
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEMA	California Emergency Management Authority
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geologic Society
CH ₄	Methane
CNDDB	California Natural Diversity Database
CNEL	Community Noise Level Equivalent
CNG	Compressed natural gas
CNPPA	California Native Plant Protection Act

CNPS	California Native Plant Society
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
County	Humboldt County
CWPP	Humboldt County Community Wildfire Protection Plan
CZMA	Coastal Zone Management Act
dB	Decibel
DBH	Diameter at breast height
DMV	Department of Motor Vehicles
DOGGR	Division of Oil, Gas, and Geothermal Resources
DOT	Department of Transportation
DPM	Diesel particulate matter
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
eDNA	Environmental DNA
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
ESU	Evolutionary Significant Unit
F&G Code	California Fish and Game Code
FC	Federal Candidate Species
FHWA	Federal Highway Administration
FE	Federally Endangered
FP	Fully Protected
FRAP	Fire and Resource Assessment Program
FT	Federally Threatened
FTA	Federal Transit Administration
GHG	Greenhouse Gases
GVWR	Gross vehicle weight rating

H ₂ S	Hydrogen Sulfide
HBF	Humboldt Bay Fire
HBHRC	Humboldt Bay Harbor, Recreation and Conservation District
HDVIP	Heavy Duty Vehicle Inspection Program
HHLA	Healthy Heart and Lung Act
HWMA	Humboldt Waste Management Authority
HWY 101	U.S. Highway 101
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITP	Incidental Take Permit
JPA	Joint Powers Authority
L123	Longitude, 123 (Project Contractor)
Leq	Energy Equivalent Sound Level
Ldn	Day-Night Average Sound Level
Lmax	Maximum Sound Level
LNG	Liquefied natural gas
LOS	Level of Service
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MP	milepost
MTCO _{2e}	Metric Tons of CO ₂ equivalent
MTCO _{2e} /yr	Metric Tons of CO ₂ equivalent per year
NAHC	Native American Heritage Commission
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NCAB	North Coast Air Basin
NCRWQCB	North Coast Regional Water Quality Control Board
NCUAQMD	North Coast Unified Air Quality Management District
NMFS	National Marine Fisheries Service
N ₂ O	Nitrous oxide

NO	Nitric Oxide
NOAA	National Oceanic and Atmospheric Administration
NOx	Oxides of Nitrogen
NR	Natural Resources
NRCS	Natural Resources Conservation Service
NRLF	Northern Red-Legged Frog
NSA	National Stocks Assessment
NSPS	New Source Performance Standards
NWI	National Wetland Inventory
NWIC	Northwestern Information Center
NWP	Nationwide Permit
NWPRR	Northwestern Pacific Railroad
O ₃	Ozone
OHWM	Ordinary High Water Mark
OSCRP	Oil Spill Contingency and Response Plan
PFE	Proposed for Listing as Endangered
PFT	Proposed for Listing as Threatened
PG&E	Pacific Gas and Electric
PM ₁₀	Particulate matter less than ten microns in size
PM _{2.5}	Particulate matter with a diameter of 2.5 microns or less
PPM	parts per million
ppt	parts per thousand
ppv	peak particle velocity
psi	pounds per square inch gauge
PT	Pilot tube
RCEA	Redwood Coast Energy Authority
RCNM	Roadway Construction Noise Model
RL	Residential Low Density
ROC	Reactive Organic Compounds
ROG	Reactive Organic Gases
ROW	Right-of-Way

RWQCB	Regional Water Quality Control Board
SO ₂	Sulfur Dioxide
SCE	Candidate-Endangered Species
SCT	Candidate-Threatened Species
SE	State Endangered Species
SRA	State Responsibility Areas
SSC	Species of Special Concern
ST	State Threatened Species
TAC	Toxic air contaminants
THPO	Tribal Historic Preservation Officer
TMDL	Total Maximum Daily Load
TNW	Traditional Navigable Waters
TPH	Total Petroleum Hydrocarbon
UCMP	UC Museum of Paleontology
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Society
μPa	microPascals
vdB	Vibration decibels
VMT	Vehicles miles traveled
WEAP	Worker Education Awareness Program
WPT	Western Pond Turtle

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

Project Title: PG&E Pipeline Maintenance Project - R-354, R-519, and RT-102 (Project)

Lead Agency:

Humboldt Bay Harbor, Recreation and Conservation District (HBHRCD)
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Eureka, California 95501

Contact Person:

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Title: Deputy Director
Phone: 707-443-0801
e-mail: awagschal@humboldtby.org

Project Applicant:

Pacific Gas and Electric Company (PG&E)
4040 West Lane, Building #9 (113C)
Stockton, California 95204

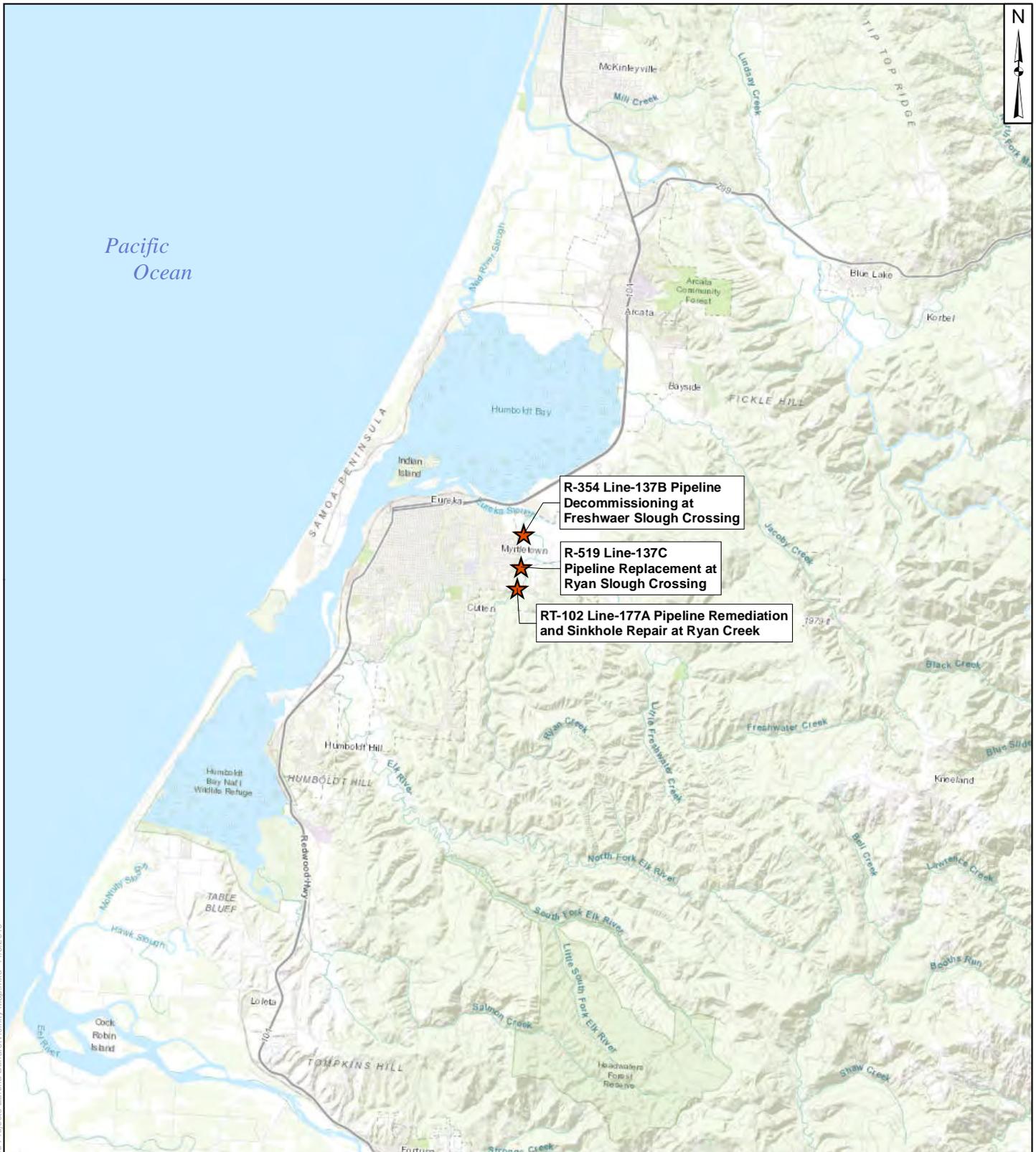
Contact Person:

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Senior Land Planner
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1.2 PROJECT LOCATION

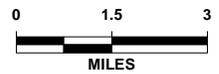
The Project includes proposed pipeline maintenance at three separate locations (identified by PG&E as R-354, R-519, and RT-102) along the eastern boundary of the City of Eureka, California within Humboldt County (Figure 1.2-1). The R-354 Project site is located furthest north along Freshwater Slough approximately 0.5 miles upstream from its confluence with Eureka Slough. The R-519 Project site crosses Ryan Slough, just north of the Myrtle Avenue Bridge. The RT-102 Project site is located west of Mitchell Road along Ryan Creek within the McKay Community Forest. Figure 1.2-2 identifies the three individual Project sites.

Surrounding land uses include concentrated residential development generally to the west within the City of Eureka, and undeveloped agricultural/forest land generally to the east within Humboldt County.



LEGEND:

★ Project Site Location



Source: Esri Online Topo Basemap
 Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
 Notes: This map was created for informational and display purposes only.



PROJECT NAME: PG&E PIPELINE MAINTENANCE PROJECTS EUREKA, CALIFORNIA	
PROJECT NUMBER: 1702-2341	DATE: November 2019

PROJECT LOCATION

**FIGURE
1.2-1**

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Source: Esri Online Imagery Basemap, County of Humboldt
 Notes: This map was created for informational and display purposes only.



PROJECT NAME: PG&E PIPELINE MAINTENANCE PROJECTS EUREKA, CALIFORNIA	
PROJECT NUMBER: 1702-2341	DATE: November 2019

PROJECT SITE LOCATIONS

FIGURE
1.2-2

1.3 PROJECT OBJECTIVES

The Project objectives are maintenance of three pipeline areas by either permanently decommissioning and replacing previously retired natural gas pipelines and/or reducing pipeline exposure due to erosion; thereby improving the operating condition and safety of the system in each area.

1.4 PUBLIC REVIEW AND COMMENT

Pursuant to the California Environmental Quality Act (CEQA) Guidelines sections 15072 and 15073, a lead agency must issue an Initial Study/Mitigated Negative Declaration (IS/MND) in draft form for a minimum 30-day public review period. Agencies and the public have the opportunity to review and comment on the draft document. Responses to written comments received by the HBHRCD during the public review period would be incorporated into the Final MND. In accordance with State CEQA Guidelines section 15074, subdivision (b), the HBHRCD would review and consider the proposed Final MND, together with any comments received during the public review process, prior to taking action on the MND and Project.

1.5 APPROVALS AND REGULATORY REQUIREMENTS

The following approvals and regulatory requirements (Table 1.5-1) are necessary for the implementation of the proposed Project:

**Table 1.5-1. Anticipated Regulatory Requirements for
 PG&E Pipeline Maintenance Projects**

Agency	Permit/Approval	R-354	R-519	RT-102
Federal Agencies				
U.S. Army Corps of Engineers (ACOE)	Section 404 Clean Water Act and/or Section 10 Rivers and Harbors Act	NWP-12 (Utility Line Activities) NWP 13 (Bank Stabilization)	NWP-12 (Utility Line Activities)	NWP-7 (Outfall Structures) NWP-12 (Utility Line Activities) NWP-33 (Temp Construction, Access, Dewatering)
U.S. Fish and Wildlife Service (USFWS)	Federal Endangered Species Act	Section 7 Consultation	Section 7 Consultation	Section 7 Consultation
National Marine Fisheries Service (NMFS)	Federal Endangered Species Act / Essential Fish Habitat Review (Magnuson-Stevens Act)	Section 7 Consultation / Essential Fish Habitat (EFH) Review	Section 7 Consultation / EFH Review	Section 7 Consultation / EFH Review
State Agencies				
California Coastal Commission (CCC)	Coastal Zone Management Act	Coastal Development Permit	Coastal Development Permit	Coastal Development Permit
California Department of Fish and Wildlife (CDFW)	Section 1600 California Fish and Game Code	Streambed Alteration Agreement	Streambed Alteration Agreement	Streambed Alteration Agreement
Regional Water Quality Control Board (RWQCB)	Section 401 Clean Water Act / Porter-Cologne Water Quality Act	Water Quality Certification	Water Quality Certification/Surface Water Discharge Permit	Water Quality Certification
Local Agencies				
Humboldt Bay Harbor Recreation and Conservation District (HBHRCD)	California Harbors and Navigation Code	Harbor District Permit	Harbor District Permit	N/A (located outside of regulatory jurisdiction)

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2.0 PROJECT DESCRIPTION

The proposed Project includes work activities at three separate locations as outlined below:

- R-354 (Line 137B) Freshwater Slough Crossing Decommissioning
- R-519 (Line 137C) Ryan Slough Crossing Replacement
- RT-102 (Line 177A) Ryan Creek Erosion Remediation

Table 2.0-1 provides a summary of the proposed pipeline maintenance projects. Preliminary design reports prepared by the Project design and construction contractor (Longitude 123, 2019) for each of the Project maintenance sites are included as Appendix A.

Table 2.0-1. Project Component Summary

	R-354 Pipeline Crossing Decommissioning	R-519 Pipeline Crossing Replacement	RT-102 Erosion Remediation
Current Site Condition	<ul style="list-style-type: none"> • 8-inch Pipeline • Original 2008 Crossing Retired In-Place • Pipeline Exposed • Northern Crossing Eroding 	<ul style="list-style-type: none"> • 4-inch Pipeline • Exposed on Slough Bed Where It Crosses Ryan Slough 	<ul style="list-style-type: none"> • 12-inch Pipeline • Pipeline Located Within Earthen Berm in Retired Railroad Right-of-Way (ROW) • Pipeline Exposed by Stormwater
Project Location	Freshwater Slough - Upstream from Eureka Slough Confluence	Ryan Slough - North Side of Myrtle Avenue	Ryan Creek - (No Water Crossing)
Project Coordinates	Latitude 40.795669° W Longitude 124.120192° N	Latitude 40.785448° W Longitude 124.119062° N	Latitude 40.77828° W Longitude 124.1211° N
Proposed Project Repairs	<ol style="list-style-type: none"> 1. Slurry Existing Pipeline 2. Abandon South Landing In-Place 3. Abandon In-Place Slough Crossing Portions of Pipeline Buried Greater than 5-Feet Below Slough Bed 4. Remove North Landing Down to 5-Feet Below Slough Bed 5. Abandon North Landing Through Levee and Into Adjacent Field 	<ol style="list-style-type: none"> 1. Replace 4-inch Pipeline Across Ryan Slough (>10-Feet Beneath Slough Bed) 2. Existing Pipeline Crossing to be Decommissioned and Removed in its Entirety 	<ol style="list-style-type: none"> 1. Excavate Berm 2. Cut/Remove Redwood Road Foundation from Under Pipeline 3. Install Concrete Box Culvert Under Pipeline 4. Backfill with Engineered Fill and Native Soils 5. Reconstruct Berm Over Pipeline to Match Adjacent Contours

Table 2.0-1. Project Component Summary

	R-354 Pipeline Crossing Decommissioning	R-519 Pipeline Crossing Replacement	RT-102 Erosion Remediation
	6. Shoreline Stabilization Mats (ECONcrete) Added to Northern Levee Bank		

2.1 R-354 (LINE 137B) MAINTENANCE PROJECT

PG&E intends to decommission the previously retired 8-inch diameter Line 137B Freshwater Slough crossing under the slough bed. A summary of the R-354 Project site and proposed repair methodology is provided in the following sections.

2.1.1 Project Setting/Background

2.1.1.1 Physical Setting

The R-354 Project site is located in Humboldt County where the retired PG&E Line L-137B gas transmission pipeline crosses underneath Freshwater Slough approximately 25 feet east (or upstream) of Christie Bridge (Figure 2.1-1). The Project site is in a rural setting at the termination of Park Street, a partially paved, two-lane road. The nearest home is located approximately 150 feet south of the planned southern worksite.

The northern shoreline at the Project site is bordered by an earthen levee which has experienced significant erosion of the waterside slope. The southern shoreline has no levee and consists of a mud bank. The slough is approximately 125 feet in width at this location and its maximum water depth is approximately 6 feet at mean high water.

2.1.1.2 Existing Facilities Description

The retired L-137B crossing is comprised of 8-inch diameter (nominal), 0.188-inch wall, steel pipe coated with approximately 0.5-inch of somastic anti-corrosive coating. The construction of this crossing began in April 1957, became operational in December 1958, and with final construction was completed in January 1960. The pipeline crossing was retired in 2008 when it was replaced by a new horizontally directionally bored crossing located upstream of the original crossing.

The retired crossing passes underneath the southern shoreline at a depth of approximately 8 to 12 feet and is buried across the slough to a depth of approximately 9 to 13 feet. At the northern shoreline the pipeline turns vertically and rises up through the slough bed and lays on the eroded waterside slope of the levee. During the 2008 crossing retirement work, a section of pipe approximately 4 feet in length was cut out of the pipeline above the waterline on the northern shoreline. The lower end of the crossing was terminated at the water line and capped with a steel plate fitted with a 2-inch capped port. The upper end of the crossing, protruding out of the levee wall, was also capped with a steel plate fitted with a 2-inch capped port.



Source: Longitude 123, Inc.
 Notes: This map was created for informational and display purposes only.



PROJECT NAME: PG&E PIPELINE MAINTENANCE PROJECTS EUREKA, CALIFORNIA	
PROJECT NUMBER: 1702-2341	DATE: June 2019

R-354 PROJECT SITE LOCATION

FIGURE
2.1-1

The remnants of a reinforced concrete cutoff wall (anti-seepage wall) that at one time was located in the centerline of the crown of the levee is now laying on the eroded bank of the waterside slope of the northern levee. At the northern shoreline, the upper end of the exposed pipeline passes through the crown of the levee at a depth of approximately 1 foot, then turns down at an angle following the landside slope of the levee to a depth of approximately 9 feet below the levee crown, then turns horizontally at a depth of approximately 5 feet below the field behind the levee.

Christie Bridge is located approximately 25 feet downstream of the pipeline crossing. The bridge is wooden with eight sets of three wooden piers and spans approximately 134 feet across the slough, roughly perpendicular to the river flow. A composite wood and reinforced concrete bridge abutment support the northern landing of the bridge and the abutment is protected with reinforced concrete wingwalls on either side. A sinkhole measuring approximately 1 foot in diameter is visible directly behind the approximate center of the reinforced concrete abutment. A coniferous tree is growing behind the east wingwall and leaning towards the slough and over the wingwall.

The southern landing of the bridge is supported by a reinforced concrete abutment and the shoreline upstream, beneath and downstream of the south abutment is protected with riprap and placed rubble. The north levee has no revetment or erosion protection and appears to be approximately 50 percent the size of its original prism profile due to severe scour of the waterside slope of the levee. Figure 2.1-2 provides a photographic representation of current site conditions at the R-354 Project site.



Figure 2.1-2. Photograph of R-354 Project Site

Southern Worksite. The southern worksite would be located where the retired crossing is currently terminated. This area consists of a relatively flat dirt lot that borders the east side of Park Street just south of the bridge. This dirt lot measures approximately 100 feet by 120 feet (12,000 square feet) in size and has been heavily disturbed by the landowner. The equipment laydown area supporting the work at this southern worksite would be located within this lot. Within the worksite, the pipeline appears to be buried approximately 12 feet deep at the access point.

The retired pipeline crossing terminates at this location where the existing pipeline was cut to tie-in to the new horizontal directionally drilled crossing. Construction vehicle access to the worksite is directly from Park Street and there is sufficient space for vehicle turnaround or pull-through without disturbance to neighboring roads, drives and structures.

Northern Worksite. The northern worksite would consist of several irregularly shaped areas totaling approximately 15,000 square feet. This worksite would start underwater at the waterside toe of the levee and cover approximately 150 linear feet of the waterside slope and crown of the levee and include a portion of the pasture behind the levee, bordered by the access road and excluding the wetlands located directly behind the levee. Activities within this work area would include staging of mobile equipment to support pigging/flushing and cementing of the retired crossing, underwater pipeline excavation and removal, excavation and removal of the pipeline through the levee and pasture, placement of shoreline stabilization mats (ECONcrete) on the northern levee bank, and support of the abutment sinkhole remediation. Heavy equipment and vehicle traffic will not use the Christie Bridge over Freshwater Slough. Any equipment required in the northern worksite will use the northern access route.

Freshwater Slough Underwater Worksite. The planned in-water work at the shoreline worksite would take place just offshore of the shoreline in the slough bank and bed in approximately 6 feet of water. The underwater operation at the northern shoreline would be supported from the crown of the levee at the northern worksite. Working from the northern levee, the vertical pipeline riser would be excavated to a depth of approximately 7 feet below the slough bed and the pipe riser cut and removed at an elevation 5 feet or greater below the slough bed elevation. The pipeline would have been filled with cement prior to this operation so the submerged pipe end would not be capped. The slough bed composition is assumed to consist of mud and silt. Underwater crews can access the water at this worksite by walking down the northern or southern shoreline into the water and returning to land by the same method. All in-water work, including slough bed excavation and underwater cutting of the pipeline, would be performed by divers using underwater tools.

2.1.2 Project Work Activities

The R-354 Project would be conducted in the following primary steps as further described in Sections 2.1.2.1 through 2.1.2.3.

- **Preliminary Work Activities:** Field surveys including baseline pre-Project geophysical debris survey of the Freshwater Slough bed and pre-Project biological surveys.

- **Decommission Retired Crossing:** Pig and flush pipeline and grout with cement.
- **Pipeline Removal:** Removal of exposed pipe riser protruding up from the slough bed at the northern shoreline and removal of the pipeline segment running through the northern levee.
- **Levee Bank Armor Repair:** Removal of the concrete cutoff remnants and installation of shoreline stabilization mats on the northern bank and backfill of the pothole behind the northern bridge abutment.

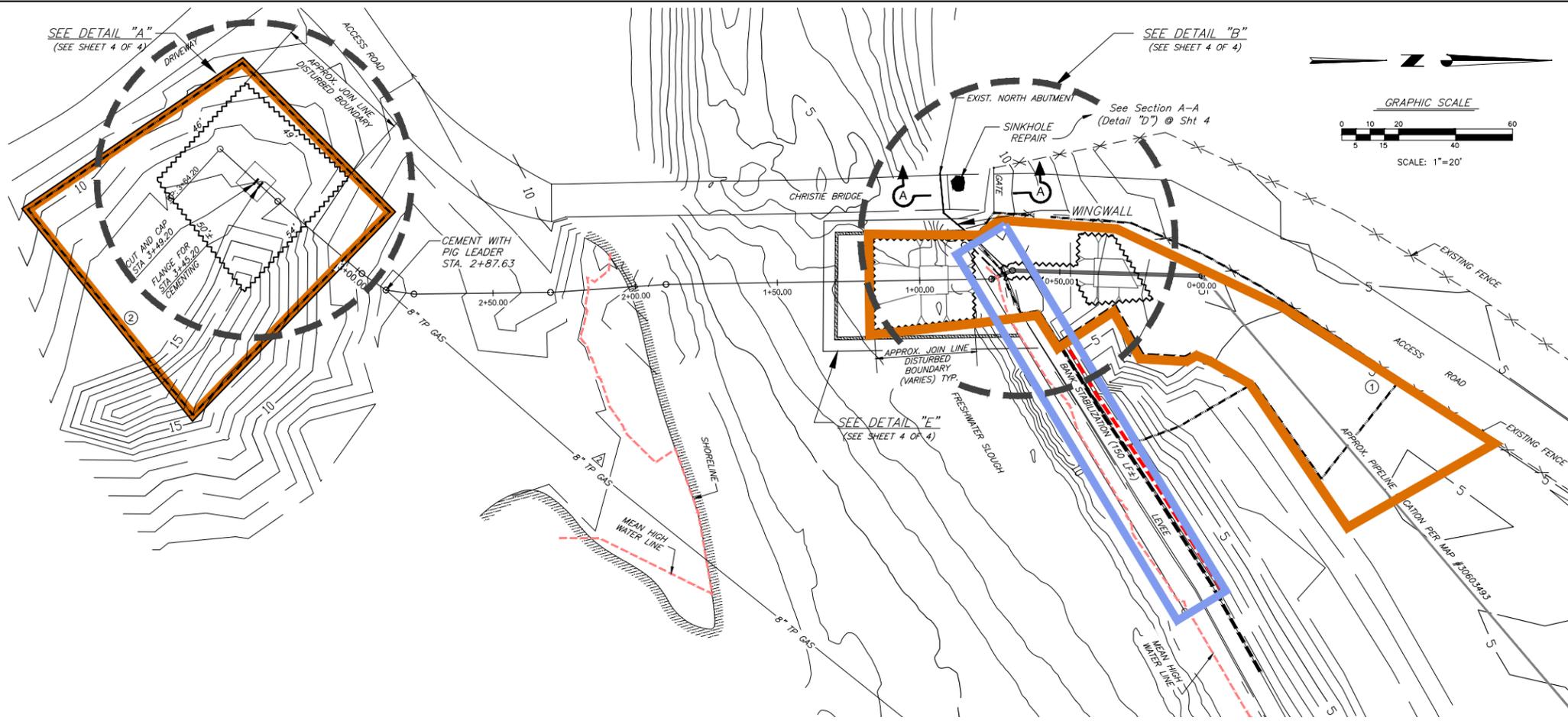
Figure 2.1-3 provides a Site Plan and Profile for the R-354 maintenance Project. The R-354 Project repairs are partially based upon an Engineering Report prepared by Kleinfelder, 2017 including a hydrology, hydraulics, and stream bed loading analysis that is included as an attachment to the R-354 Project design plans (Longitude 123, 2019 – Appendix A).

2.1.2.1 Decommission Retired Crossing

Pigging and Flushing. Before the southern pipeline portion can be opened to the slough it must be pigged and flushed to ensure that total petroleum hydrocarbon (TPH) levels in the pipeline are less than 15 parts per million (PPM). This would be accomplished by pressing a medium density polyethylene pig through the pipeline segment from the southern end of the pipeline segment to the northern end of the pipeline segment. The polyethylene pig would be pressed through the pipeline segment with approximately 900 gallons of freshwater supplied by truck at the southern worksite. Once the pig has been pressed through the pipeline crossing, the crossing would be flushed with additional freshwater as needed to ensure that the TPH level of the water is found to be less than 15 PPM (certified by a licensed State laboratory). The wastewater would be captured by a vacuum truck at the northern worksite and transported to an approved offsite treatment and disposal facility.

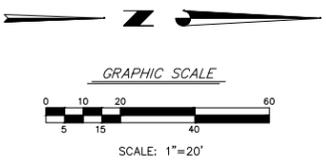
The pigging and flushing operations are conducted at low pressures; therefore, the risk of release of flush water to the waterway is minimal. The maximum allowable operating pressure of the deactivated 8-inch nominal diameter pipeline to be pigged and flushed is 350 pounds per square inch gauge (psi). The maximum pressure for pigging and flushing operations is estimated to be approximately 90 psi.

Cementing. Once the pipeline segment flush water has been certified at less than 15 PPM, the pipeline segment would be filled with cement slurry. Approximately 5 cubic yards (one Ready-Mix truckload) would be required.



SURVEY DATA:
 BENCHMARK: LV0643
 DATUM: NAVD83
 ELEVATION: 9.09 FT
 SURVEY DATE: NOVEMBER 2018

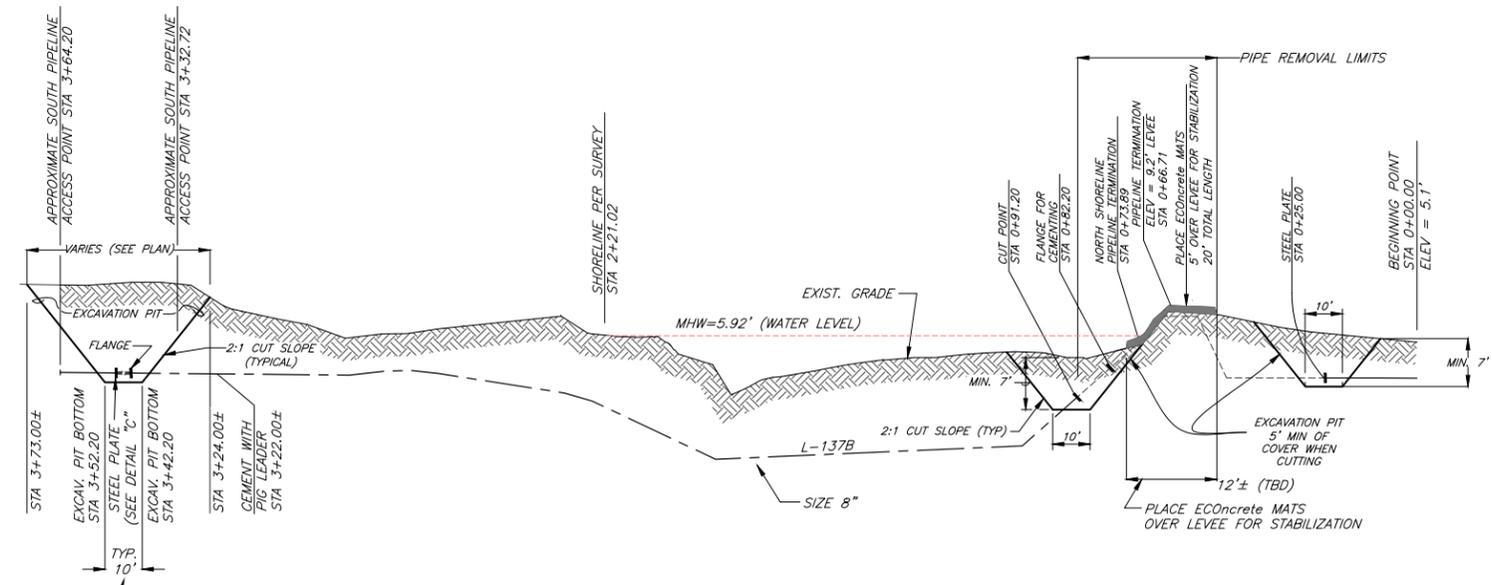
NOTES:
 1) TOPOGRAPHIC SURVEY WAS CONDUCTED BY KELLY-O'HEARN ASSOCIATES.
 2) TOPOGRAPHIC SURVEY WAS MERGED WITH BATHYMETRIC SURVEY CONDUCTED BY eTRAC INC.
 3) REFER TO SHEET 4 OF 4 FOR MISCELLANEOUS CONSTRUCTION DETAILS AND NOTES.



LEGEND

- PROPOSED LAYDOWN AREA
- PROPOSED DISTURBED AREA
- - - R-354 ALIGNMENT - RETIRED
- LEVEE ALIGNMENT
- - - APPROXIMATE EXCLUSION AREA
- - - MEAN HIGH WATER LINE
- JOIN LINE OF TOP OF BANK & EXCAVATION PIT (±)
- TEMPORARY IMPACT AREA
- PERMANENT IMPACT AREA

AREA FOR IMPACT LIMITS	
PERMANENT IMPACT AREA	3000 SQ. FT.
① TEMPORARY IMPACT AREA	7869 SQ. FT.
② TEMPORARY IMPACT AREA	8376 SQ. FT.



- R-354 ORDER OF COMPLETION**
- 1) PIG AND FLUSH 8" PIPE FROM STA 3+45.20 TO STA 0+82.20.
 - 2) CEMENT 8" PIPE FROM STA 3+45.20 TO STA 0+82.20, INSTALL STEEL PLATES ON REMAINING ENDS, BACKFILL WITH SPOILS AND NATIVE SOILS.
 - 3) EXCAVATE SLOUGH BED, CUT AND REMOVE 8" PIPE FROM STA 0+91.20 TO STA 0+82.20, BACKFILL WITH CRUSHED ROCK.
 - 4) SLIT TRENCH LEVEE CROWN FROM STA 0+73.89 TO STA 0+40.00 AND EXCAVATE WORKING AREA FROM STA 0+40.00 TO STA 0+10.00.
 - 5) CUT AND REMOVE 8" PIPE FROM STA 0+73.89 TO STA 0+25.00, INSTALL STEEL PLATE ON REMAINING END, BACKFILL WITH SPOILS AND NATIVE SOILS.

NOTE: THE BOTTOM OF THE EXCAVATION PIT SHALL BE 10' WIDE AND BELOW THE EXISTING 8" PIPE BEING ABANDONED, PLACE FLANGE ON NORTH PIPE END FOR CEMENT SLURRY INJECTION (WITH PIG LEADER)

SCALES: 1" = 20' (HORIZ)
 1" = 10' (VERT)

Z:\GIS\Projects\GIS Maps\Map Project\PG&E Pipeline Projects\Eureka\Project Description\R-354 Project Site Plan and Profile.mxd 10/29/2019

Source: YCE Incorporated 11/2019, Longitude 123, Inc. 11/2019
 Coordinate System: NAD 1983 StatePlane California 1 FIPS 0401 Feet
 Notes: This map was created for informational and display purposes only.

<p>ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS</p>	PROJECT NAME: PG&E R-354 PIPELINE COMMISSIONING PROJECT EUREKA, CA	R-354 PROJECT SITE PLAN AND PROFILE	FIGURE 2.1-3
	PROJECT NUMBER: 1702-2341		

The cementing operations are conducted at low pressures; therefore, the risk of release of cement to the waterway is minimal. The maximum allowable operating pressure of the deactivated 8-inch nominal diameter pipeline to be pigged, flushed and cemented is 350 psi. The pump used for cementing the pipeline would be limited to a maximum of 150 psi, though the pressure on the pipeline during cementing would be much less.

Once the cement slurry in the pipeline segment has cured sufficiently (approximately 48 hours), the southern flanged pipe end would be cut off by oxy-acetylene torch. The end would be capped with a welded 0.5-inch A36 steel plate. The excavations at the southern end of the pipeline segment would be backfilled, compacted, and returned to pre-Project contours and the crossing would be abandoned in-place.

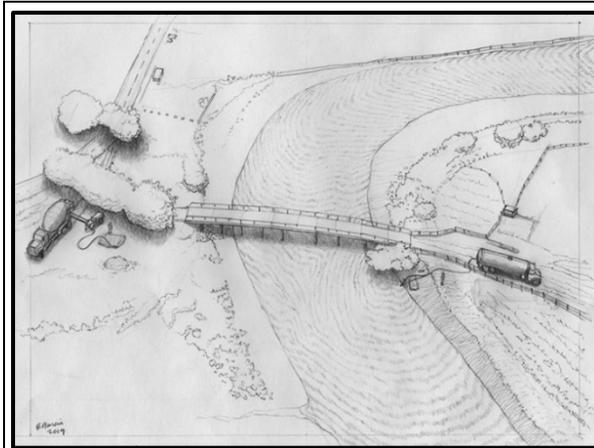
2.1.2.2 Pipeline Removal

Pipeline removal would begin once the pipeline crossing has been cleaned and cemented. The focus of this phase would be the removal of the exposed pipe riser protruding up from the slough bed at the northern shoreline and the removal of the pipeline segment running through the northern levee.

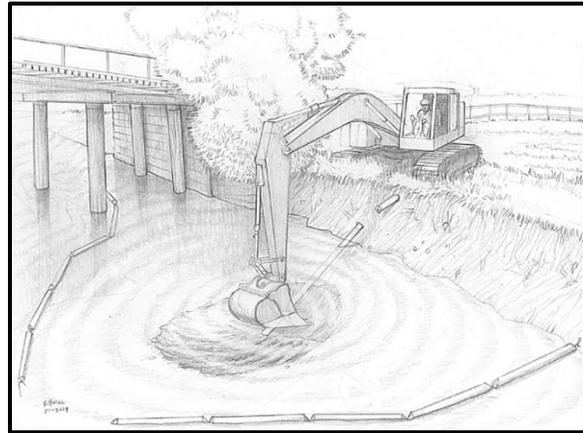
Underwater Pipeline Riser Removal. Once the cementing of the southern pipeline segment is complete, the exposed pipeline riser protruding up from the slough bed at the northern shoreline would be removed in the following primary steps:

- A dive spread (personnel and equipment) will be setup at the southern worksite along the slough shoreline.
- An excavator working from the north bank of the slough would excavate the riverbed around the vertical pipe riser to a point approximately 7 feet below the surface of the slough bed to allow divers to cut the pipeline at least five feet below the mudline (Figure 2.1-4).
- Once the excavation around the pipeline has been established, the divers would remove a ring of weight coating from the pipeline at an elevation approximately 1 to 2 feet above the bottom of the trench floor. The divers would cut the steel pipe at this location using underwater cutting equipment. Approximately 120 cubic yards of ¾-inch crushed, washed rock will be placed at the bottom of the excavation to cover the segment of pipeline to be retired in place and promote restoration of the contours to pre-project condition. The upper portion of the underwater excavation will be allowed to backfill by natural hydrogeomorphic processes to maintain a natural substrate on the bottom of the slough.

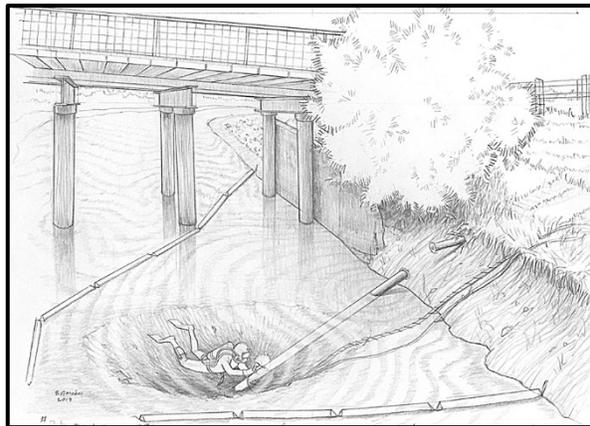
Onshore, construction equipment located on the northern bank above the exposed pipeline segment would support the pipeline section above the cut during cutting operations and recover it to the bank upon completion (Figure 2.1-4). The cut segment would be set on the upper bank and transported by truck to approved offsite disposal.



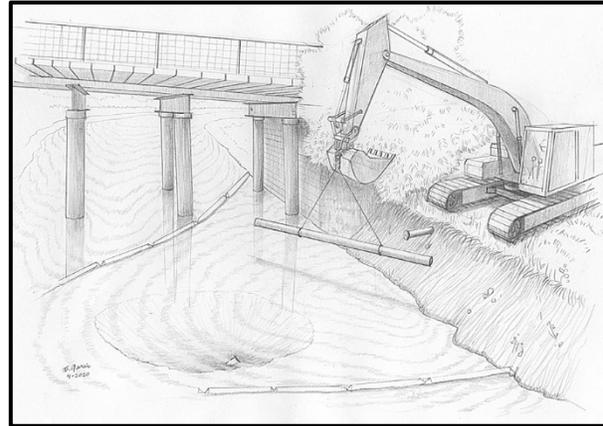
Step 1 - Installation of Cement Slurry



Step 2 -Excavate to Uncover Pipeline Protruding from Slough Bed



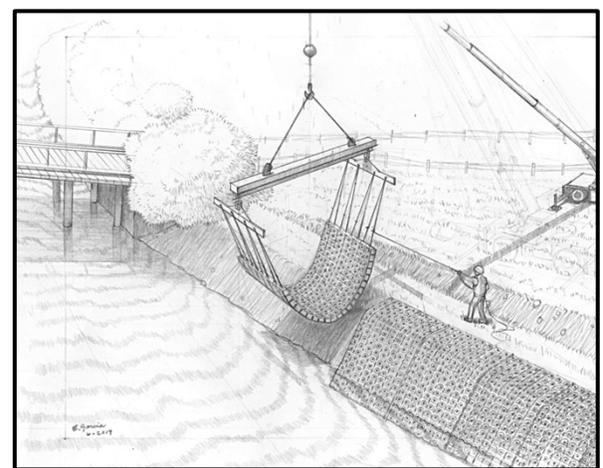
Step 3 - Diver Cuts Pipeline at Least 5 Feet Below Mudline



Step 4 -Excavator Recovering the Cut Pipe Section



Step 5 - Terrestrial Excavation



Step 6 - Installation of Shoreline Mats

**Figure 2.1-4. Decommissioning and Removal - Construction Depiction
(Longitude 123, 2019)**

Northern Pipeline Segment Removal. Once the removal of the exposed underwater riser segment is complete, the northern pipeline segment running through the northern levee would be removed as follows:

- Excavate a slit trench approximately 50 feet long through the crown of the northern levee and adjacent pasture to uncover the pipeline segment (Figure 2.1-4).
- At the northern end of the slit trench, excavate a bell hole and cut the pipeline segment. Remove the 50-foot section of pipeline from the crown of the levee, cut into truckable sections and transport by truck to an approved offsite disposal facility. A 0.5-inch A36 steel plate cap would be welded on the end of the remaining pipeline running north.

The slit trench would be backfilled across the crown of the levee and the bell hole in 6-inch lifts using the spoils from the trench excavation and compacted to 90 percent. Additional native backfill would be trucked in if needed to augment the original excavation spoils. The top six inches of topsoil will be stockpiled separately and replaced on top after backfill of the excavation and excavation area will be returned to pre-removal contours.

2.1.2.3 Levee Bank Armor Repair

This phase would begin upon completion of the decommissioning and pipeline segments removal. The focus of this phase would be the removal of the concrete cutoff remnants, installation of the shoreline stabilization mats on the northern bank, and the backfill of the pothole behind the northern bridge abutment.

Shoreline Stabilization Mats Installation. Shoreline stabilization mats (ECONcrete) would be installed on the waterside slope and over the crown of the northern levee (refer to Figure 2.1-5 for an example of these stabilization mats). The mats have been designed with chemical and physical properties to enhance the ability of the mattress to encourage growth of marine flora and fauna, increase species richness, and reduce the dominance of invasive species to elevate biodiversity. The mats are expected to extend approximately 150 feet from the eastern edge of the bridge abutment wing-wall. The ECONcrete mats are 8 feet wide by 18.75 feet long and would be placed side by side over the 150-foot length of the 2,850 square feet repair area (Figure 2.1-4). The mats are articulated and would generally contour to the as-found waterside slope. The mats would lay over the crown of the levee to reduce terrestrial erosion and secure the mats in-place.



Source: EConcrete webpage, 2019

Figure 2.1-5. Shoreline Stabilization Mat (Example)

Abutment Backfill. Once the shoreline stabilization mats are installed, the existing void behind the northern bridge abutment would be filled with concrete slurry in accordance with the approved backfill design (Figure 2.1-3).

2.1.3 Equipment/Personnel Requirements

Repair activities at the R-354 Project site are anticipated to be completed within approximately 42 days as follows:

• Pre-Construction Surveys:	5 Days
• Site Mobilization:	10 Days
• Pigging/Flushing Activities:	4 Days
• Cementing:	2 Days
• Crossing Removal:	9 Days
• Northern Shoreline Remediation:	8 Days
• Demobilization:	1 Day
• Post-Project Surveys:	3 Days
TOTAL -	42 Days

Equipment. The primary equipment requirements for the R-354 maintenance Project are summarized in Table 2.1-1. Refer to Appendix A for Equipment Specifications Information.

Table 2.1-1. R-354 Primary Project Equipment List

Equipment Type	Horsepower	Hours/Day	# of Days
<i>Pigging/Flushing</i>			
Excavator	310	12 Hours	4
Wheel Loader	150	12 Hours	4
Flushing Pump	17	12 Hours	2
Vacuum Truck	225	12 Hours	2
Diving Spread	90	12 Hours	2
<i>Cementing</i>			
Cement Truck	300	12 Hours	2
Cement Pump	85	12 Hours	2
<i>Crossing Removal</i>			
Excavator	310	12 Hours	9
Diving Spread	90	12 Hours	3
<i>Northern Shoreline Remediation</i>			
Excavator	310	12 Hours	10
Mat Delivery Truck	260	12 Hours	5
Crane	220	12 Hours	10
Cement Truck	300	12 Hours	1
Dump Truck	475	12 Hours	1

Personnel. It is estimated that a maximum of approximately ten persons would be required for the proposed work activities as detailed in Table 2.1-2.

Table 2.1-2. Personnel Requirements

Title	Number
Construction Manager	1
Equipment Operator	2
Laborer	2
Diving Supervisor	1
Diver	2
Diver Tender	2
TOTAL	10

2.2 R-519 (LINE 137C) MAINTENANCE PROJECT

As part of the collective Project, PG&E also intends to replace and decommission the existing 4-inch diameter Line 137C (L-137C) Ryan Slough crossing that is currently exposed in the slough bed. A summary of the R-519 Project site and proposed repair methodology is provided in the following sections.

2.2.1 Project Setting/Background

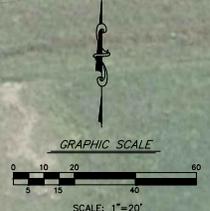
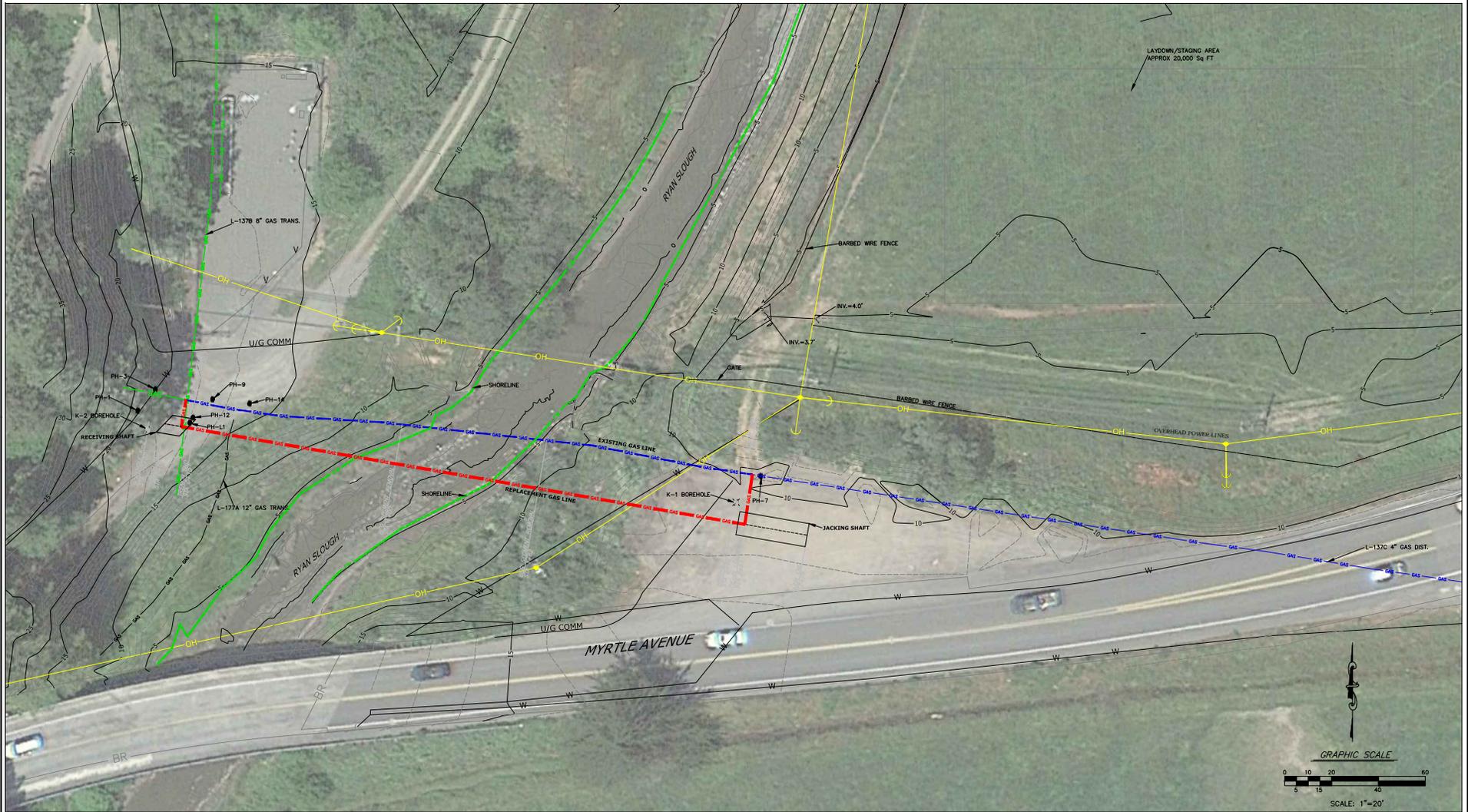
2.2.1.1 Physical Setting

The R-519 Project site is located in Humboldt County where L-137C crosses the Ryan Slough, just to the north of the Myrtle Avenue Bridge (Figure 2.2-1). The Project site is located approximately 1.32 miles south of Humboldt Bay and along the north side of Myrtle Avenue. The general worksite is in a rural setting alongside Myrtle Avenue, a relatively busy, paved two lane highway that runs in an east-west direction. The nearest residence is located approximately 150 feet west of the planned west worksite and is relatively hidden from the worksite by mature trees and vegetation.

2.2.1.2 Existing Facilities Description

East Worksite. The planned worksite on the east side of the slough consists of a relatively flat, triangularly shaped gravel area that borders the north side of Myrtle Avenue. This east worksite would serve as the site of a 10 foot by 30 foot by 30-foot-deep jacking shaft that would be constructed and utilized to install the new crossing. This gravel area measures approximately 7,000 square feet in size. The available work area in this turnoff is, apparently, frequently impacted by the dumping of trash and yard waste on the turnoff where it borders the top bank of Ryan Slough. These large mounds of debris would need to be hauled off by the contractor to provide access to the eastern shoreline of the slough during the decommissioning of the retired pipeline crossing.

Z:\GIS\Projects\GIS Maps\Map Project\PG&E Pipeline\Projects Eureka\Bunde\IMDR-519 Project Site Location_Landscape.mxd 6/26/2019



Source: Longitude 123, Inc.
Notes: This map was created for informational and display purposes only.



PROJECT NAME: PG&E PIPELINE MAINTENANCE PROJECTS EUREKA, CALIFORNIA	
PROJECT NUMBER: 1702-2341	DATE: June 2019

R-519 PROJECT SITE LOCATION

FIGURE
2.2-1

Utilities passing under or over this gravel area consist of the existing Line 137C on the north edge of the gravel area, a water line that runs parallel to Myrtle Avenue on the south side of the gravel area, a telecommunications line that runs roughly parallel to the slough within the western section of the gravel area, and an overhead electric line that clips the northwest corner of the gravel triangle.

West Worksite. The west end of the proposed crossing is located on a narrow access road that runs from Myrtle Avenue, north to PG&E's valve lot and connects to Oakridge Terrace to the north. This west worksite would serve as the site of an approximately 10 foot by 10 foot by 38-foot-deep receiving shaft that would be constructed and utilized to install the new crossing. There is another unnamed access road that proceeds northeast from the clearing in front of the valve lot that appears to provide access to a structure. The access road and a small clearing are located at the top of a steep bluff 15 to 20 feet above and to the west of Ryan Slough.

There are numerous existing utilities on the west end of the proposed crossing. These include a set of overhead electrical lines that cross the slough toward the north end of the clearing as well as the southern tip of the valve lot. There are also several active gas transmission lines and a water line that cross the west end of the proposed crossing. Underground, the clearing is impacted by Line 137C, Line 177A, a 12-inch pipeline, a waterline aligned on the western edge of the clearing, and an unknown 0.5-inch line that runs at an angle through the south side of the clearing and the northeast corner of the shaft. Due to these existing utility restrictions at the Project site, the smaller of the two shafts, the receiving shaft, would be constructed at the western worksite.

East Meadow Laydown Site. An approximately 30,000 square feet laydown area may be established in the meadow bordering the north side of the east worksite. This meadow is accessed through a gated entrance at the north side of the east worksite.

Ryan Slough and Shorelines. According to PG&E survey data, the L-137C crossing at Ryan Slough is approximately 50 feet in width, shoreline to shoreline, and water depth of approximately 3 to 5 feet deep at its deepest point. The existing L-137C crossing is exposed intermittently on the slough bed across the slough. On the east shoreline the bank rises to approximately 8 feet in elevation above the waterline. On the west shoreline the bank rises on a relatively steep grade to an elevation of approximately 13 feet above the waterline.

As shown in Figure 2.2-2, both banks are covered with vegetation from waterline to the top of the sloped banks. The water in the slough is typically extremely muddy with zero feet of underwater visibility. Ryan Slough drains into Humboldt Bay and is driven by local rain, drainages, creeks, ditches and tidal influences. In periods of extreme high tide, brackish water enters Ryan Slough and water flow in the slough may be reversed. Water current velocities in the slough are unknown but believed to be minimal.

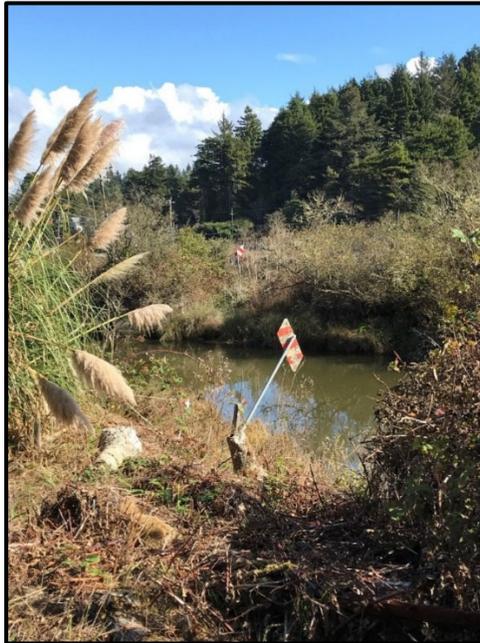


Figure 2.2-2. R-519 Retired Pipeline Crossing Across Ryan Slough

Existing Crossing Alignment. The horizontal alignment of the pipeline on the eastern approach generally runs along the boundary of the gravel area and the fence lined boundary of the meadow at the east side of Ryan Slough and north of Myrtle Avenue. Burial depth through this area runs between 3 to 9 feet deep with the deepest point where the crossing passes under the east bank of Ryan Slough.

The pipeline decreases in cover as it passes underneath the east bank until it becomes exposed near the underwater toe at the east bank. Across the slough, the pipeline is intermittently exposed on the slough bed before entering the west bank of the slough near its underwater toe and rising underneath the sharply graded bank. Burial depth as it passes underneath the west bank of the slough range up to approximately 7 feet deep. As the pipeline passes underneath the access road and clearing on the westside, the depth of cover over the pipeline is reduced to approximately 3 to 4 feet of cover. The composition of the coating of the existing crossing is unknown at the time of this writing and it is not known if there is any weight coating, somastic coating, or other pipe coating.

2.2.1.3 Feasibility Evaluation

Geotechnical Investigation (Kleinfelder, 2013). The R-519 Project repairs are partially based upon a Geotechnical Investigation Report prepared by Kleinfelder that is included as an attachment to the R-519 Project design plans (Longitude 123, 2019 – Appendix A). The purpose of the study was to evaluate the subsurface conditions near the Project alignment in order to characterize the subsurface materials likely to be encountered during a trenchless installation.

Two geotechnical borings were drilled to evaluate the ground conditions to be expected along the trenchless crossing beneath Ryan Slough. Overall, based on the findings from the two geotechnical borings, the vertical alignment of the new crossing should be located at the -17-foot elevation. This elevation places the crossing within dense silty/clayey sand and medium stiff fat clay, ideal conditions for pilot tube installations, while avoiding the potentially challenging clayey sand with gravel layer that was encountered in boring K-2 at elevation -19.5 feet.

Based on the Kleinfelder geotechnical report, the anticipated groundwater elevation is approximately +5 feet, which is the surveyed water level in the slough at the time the borings were drilled. With the bore profile located at elevation -17 feet, it is anticipated that there would be approximately 23 feet of groundwater head above the bore.

It was concluded in this investigation based upon field investigation, laboratory testing, and review of surface topography that a trenchless crossing is technically feasible at the proposed R-519 Project site.

2.2.2 Project Work Activities

The R-519 maintenance Project would be conducted in the following primary steps as further described in Sections 2.2.2.1 through 2.2.2.2.

- **Preliminary Work Activities:** Field surveys including baseline pre-Project topographic, geophysical debris survey of Ryan Slough bed, and pre-Project biological surveys would be conducted.
- **Construct New Crossing:** Vertical shafts would be constructed on either side of Ryan Slough and the new crossing would be installed under the slough from the east to the west shaft using the pilot tube (PT) method. The crossing would then be tied into the existing pipeline on either side of the Slough. This phase would also involve backfill and decommissioning of the two trenches, dewatering, and site restoration activities. Section 2.3.2.1 provides a detailed summary of the steps required for pipeline construction activities.
- **Decommission Retired Crossing:** The pipeline would be pigged and flushed and grouted with cement. Section 2.3.2.2 provides a detailed summary of the steps required for decommissioning of the retired pipeline crossing.

Figure 2.2-3 provides a Site Plan and Profile for the R-519 maintenance Project. The R-519 Project repairs are partially based upon an Engineering report prepared by Kleinfelder (2013) including a hydrology, hydraulics, and stream bed loading analysis and evaluation of trenchless methodology prepared by Bennett Trenchless (2017) that are included as an attachment to the R-519 Project design plans (Longitude 123, 2019 - Appendix A).

2.2.2.1 New Crossing Construction

In this phase, vertical shafts would be constructed on either side of the slough. The new crossing would be installed under the slough from the east shaft to the west shaft using the pilot tube method, and the new crossing would be tied into the existing pipeline on either side of the slough (Figure 2.2-3). This phase would also involve backfill and decommissioning of the two trenches and site restoration. Primary activities associated with new crossing construction are further described in the following sections.

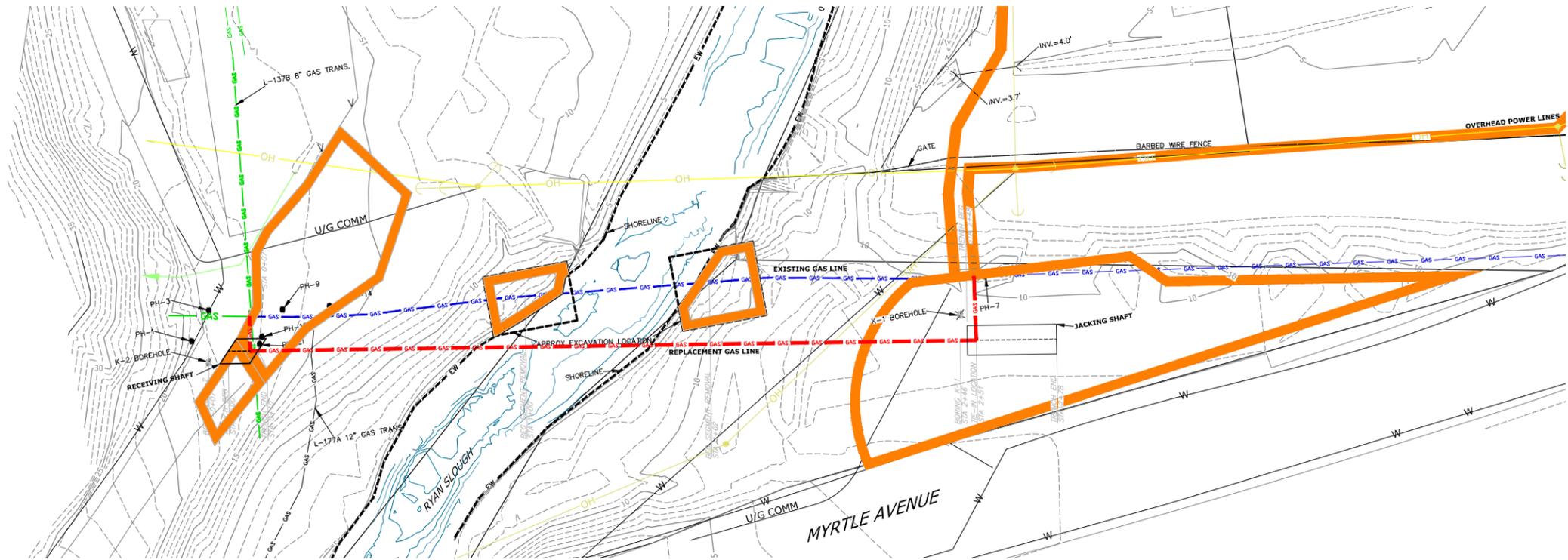
Shaft Construction. The western shaft would be placed near the western edge of the access road and the overall new crossing length is approximately 240 feet from eastern face of the western shaft to the western face of the east shaft.

The outside dimensions (footprint) of the western shaft (receiving shaft) would be 10 feet by 10 feet with a 6-inch sheet pile wall around the perimeter, depending on the final shaft construction means and methods selected. The depth of this shaft shall be approximately 38 feet from ground surface. As the “receiving” shaft in the pilot tube installation, the pilot tubes, measuring 2.5 feet in length, are pushed from the “jacking” shaft on the eastern shoreline into this receiving shaft on the western shoreline. The 2.5-foot pilot tubes are disassembled inside the receiving shaft as they are pushed into the receiving shaft by the product pipe that would follow the jacking of the assembled pilot tube.

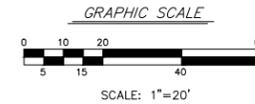
The outside dimension (footprint) of the eastern shaft (jacking shaft) at the east site would measure approximately 10 feet by 30 feet and the depth of the shaft would be approximately 30 feet below ground level. This shaft would be used as the “jacking shaft” in the pilot tube installation. The pilot tube and jacking system equipment would be set up at the bottom of this shaft and the pilot tube would be assembled and pressed through the soil to the western shaft from this eastern shaft. The 30-foot width of this shaft enables the use of 20-foot-long product line pipe joints in the construction of the new crossing. Drilling fluids would not be used in the pilot tube method.

The 10 foot by 30-foot jacking shaft (eastern shaft) would be constructed of steel sheet pile reinforced with internal support beams and terminating in a cement floor to minimize groundwater intrusion. The 10 foot by 10 foot receiving shaft may be constructed of steel sheet pile, or, if constructed by auger method, a corrugated steel pipe. In either case, the bottom of the receiving shaft shall also terminate in a cement floor to minimize groundwater intrusion.

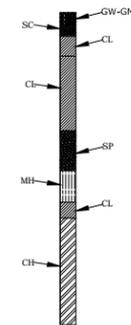
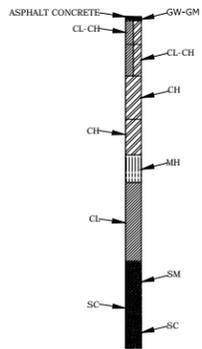
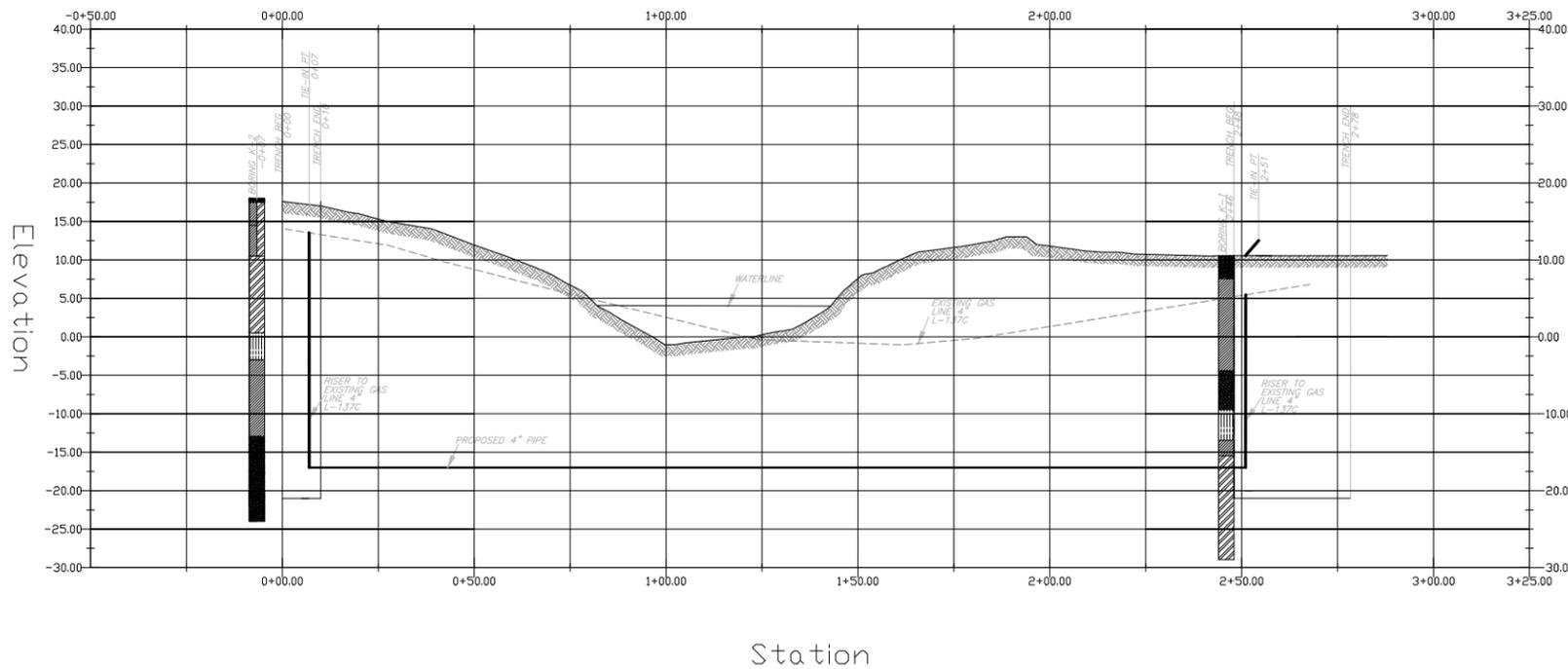
Shaft construction at both shaft sites shall start with vacuum excavation of the footprint of the shaft to a depth of 8 feet below ground level. This would be done to ensure that any undetected underground utilities passing through the planned shaft sites are located without damaging them. However, both shaft sites have been carefully surveyed and the northern and eastern boundary (12 foot by 12 foot “L”) of the receiving shaft (west side) vacuum excavated to a depth of 6 feet in the May 2017 pothole survey and there is a high level of confidence that both shaft locations would be free of underground utilities with the exception of the 0.5-inch pipe of unknown type that was found in the northeastern corner of the planned receiving shaft location. This 0.5-inch pipe would be removed to facilitate the construction of the receiving shaft.



PROFILE VIEW AT REPLACEMENT ALIGNMENT
 HORIZONTAL: 1" = 20'
 VERTICAL: 1" = 10'



Map Legend	
	EXISTING GAS LINE
	PROPOSED GAS LINE
	BOREHOLE
	BOREHOLES K-1 & K-2
	TOPOGRAPHY LINE
	BATHY LINE
	SHORELINE
	OVERHEAD ELECTRICAL LINE
	ELECTRICAL POLE
	U/G COMM
	PT
	BEG
	TEMPORARY IMPACT AREA
	PERMANENT IMPACT AREA



NOTES:
 BORING HOLE LOCATION AND SOIL INFORMATION
 OBTAINED FROM BORING LOG K-1 AND BORING
 LONG K-2 CONDUCTED BY KLEINFELDER ON
 11/27/12

F:\GIS\Projects\GIS Maps\Map Project\PG&E Pipeline Projects\Eureka\Project Description\R-519 Project Site Plan and Profile.mxd 10/29/2019

Source: YCE Incorporated 11/2019, Longitude 123, Inc. 11/2019
 Coordinate System: NAD 1983 StatePlane California 1 FIPS 0401 Feet
 Notes: This map was created for informational and display purposes only.



PROJECT NAME:
 PG&E R-519 LINE 137C REMEDIATION PROJECT
 EUREKA, CA
 PROJECT NUMBER:
 1702-2341
 DATE:
 October 2019

**R-519 PROJECT SITE PLAN
 AND PROFILE**

**FIGURE
 2.2-3**

Once the vacuum excavation at both sites is completed, the receiving shaft would be constructed using steel sheet pile and the jacking shaft would be constructed using steel sheet pile or augured corrugated pipe (Figure 2.2-4). Excavated materials would be stored near the shafts within the identified temporary impact areas. The same materials will be used to backfill the shafts during decommissioning.

Crossing Installation. The pilot tube would be pressed through the soil at a depth of approximately -17-foot elevation from the jacking shaft to the receiving shaft (Step 2 - Figure 2.2-4). Once the pilot tube reaches the receiving shaft, 20-foot-long joints of product line would be assembled to follow the pilot tube. The 20-foot-long joints would be welded together inside the jacking shaft as they are pressed through the bore. The ends of the completed crossing would terminate approximately 2 feet inside each shaft. The pilot tube method leaves the interior of the installed crossing pipe free of soil and ready for use. The pilot tube method of pipeline installation does not require the use of drilling fluid; therefore, there is no risk of inadvertent returns (frac-out) of drilling fluids to the waterway using this process.

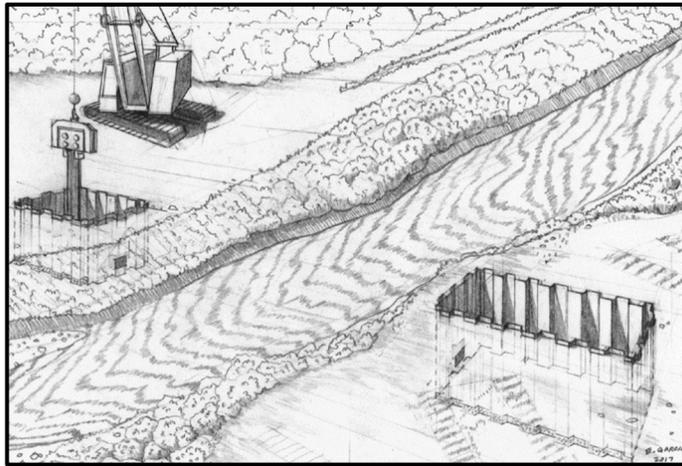
Dewatering. Dewatering would occur either directly from the excavations or utilizing dewatering wells. Groundwater would be placed in frac tanks to allow solids to settle. Groundwater would then be filtered and discharged to both the sanitation sewer system and/or Ryan Slough. Discharge to the sanitation sewer would utilize one of several available manholes on the western side of Ryan Slough, or at an approved off-site manhole location. Discharge to Ryan Slough would use the northwestern stormwater drain inlet which leads to an outfall for Ryan Slough, which would require a Surface Water Discharge Permit from the RWQCB.

Crossing Tie-In. Welded ells (L's) and vertical risers would be welded to the two horizontal pipe ends in the two shafts to bring the new crossing up both shafts to the elevation of the existing underground L-137C (Step 3 - Figure 2.2-4). Horizontal crossover piping would be installed to connect the risers to the existing pipeline in open cut trenches.

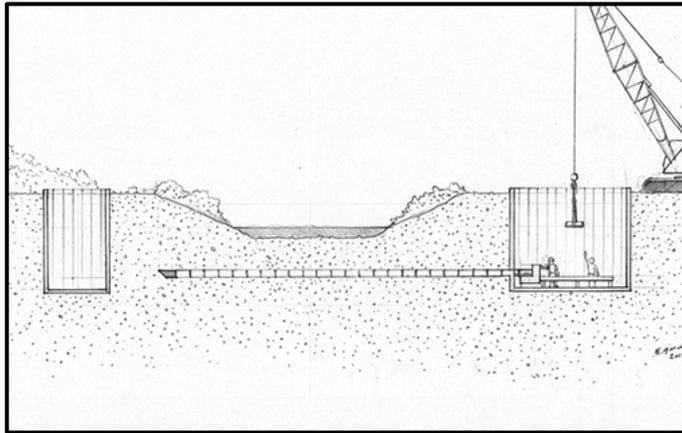
Shaft Decommissioning. Once the tie-ins are completed at both ends, the shafts would be decommissioned. Shaft decommissioning shall consist of backfilling the shafts with compacted soil or slurry up to approximately 10 feet below ground level and then cutting and removing the remaining sheet pile or corrugated pipe wall and completing the backfill to ground level.

2.2.2.2 Decommissioning of Retired Crossing

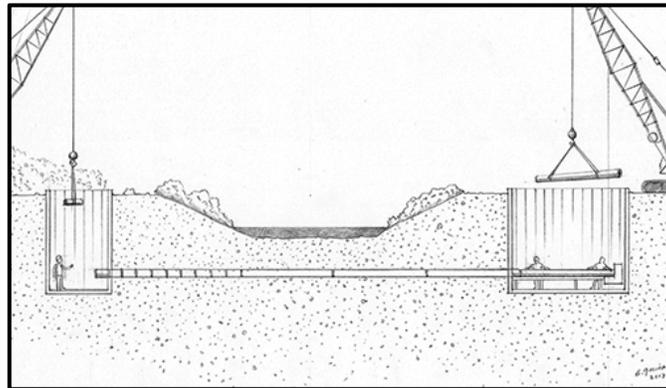
Once the new crossing has been installed, the retired crossing would be decommissioned as further described in the following sections.



Step 1 – Excavate the Jacking Shaft and Recovering Shaft



Step 2 – Drive Pilot Tube from Jacking Shaft to Receiving Shaft (Pilot Tube Method) at Elevation at Least 10 Feet Below Slough Bed



Step 3 – Follow Pilot Tube with Replacement Pipeline and Construct Vertical Pipeline Risers to Tie into Existing Pipeline

Figure 2.2-4. Pilot Tube Method Crossing Installation – Construction Depiction
(Longitude 123, 2019)

Pigging and Flushing. Before the retired crossing pipeline can be opened to the slough it must be pigged and flushed to ensure that TPH levels in the pipeline are less than 15 PPM. This would be accomplished by pressing a soft pig through the pipeline from the western end at the tie-in cut point to the eastern end at the eastern tie-in cut point. The soft pig would be pressed through the pipeline with freshwater supplied by truck. Once the pig is through, the pipeline would be flushed until the TPH level of the water is found to be less than 15 PPM (certified by a licensed State laboratory). The wastewater would be captured by a vacuum truck and transported to an approved offsite treatment and disposal facility. Total flush water volume is estimated at less than 500 gallons.

The pigging and flushing operations are conducted at low pressures; therefore, the risk of release of flush water to the waterway is minimal. The maximum allowable operating pressure of the deactivated 4-inch nominal diameter pipeline to be pigged and flushed is 167 psi. The maximum pressure for pigging and flushing operations is estimated to be approximately 140 psi.

Cementing. The final disposition of the retired crossing shall consist of one underground segment of pipe on either shoreline, filled with cement, and abandoned in place with welded steel plate caps on the landward ends. To accomplish this, the entire retired crossing would be filled with cement and then the exposed crossing segment on the slough bed, with cement filling, would be removed.

The cementing operations are conducted at low pressures; therefore, the risk of release of cement to the waterway is minimal. The maximum allowable operating pressure of the deactivated 4-inch nominal diameter pipeline to be pigged, flushed and cemented is 167 psi. The pump used for cementing the pipeline would be limited to a maximum of 150 psi, though the pressure on the pipeline during cementing would be much less.

Excavate and Expose. Following typical pipeline river crossing decommissioning protocols applicable to California waters, the retired pipeline crossing would be excavated into each shoreline to a point where the retired crossing has a minimum of 5 feet of ground cover over both shore landings. These two excavations would take place from the banks on the two shorelines using long-reach excavators. Spoils would be stored onsite for backfill and the top six inches of soil will be stockpiled separately for replacement on top of backfilled excavations. Water turbidity at the shoreline may be mitigated through the use of turbidity curtains, a turbidity shield, and/or turbidity monitoring during the excavation and backfill work, if determined to be necessary.

Cut/Remove. Once the retired pipeline crossing has been exposed into the bank of each shoreline, divers would cut the pipeline inside the two excavations at a point where the remaining pipe ends are located at a vertical elevation at least 5 feet below the ground surface. Divers would connect a crane of sufficient capacity, located on the eastern shoreline, to the cut end of the pipeline crossing inside the eastern shoreline excavation and the crane would lift and strip the pipeline crossing out of the slough bed. The recovered pipeline crossing segment would be placed on the gravel turnout at the east worksite and the pipe would be cut into truckable segments and transported to an approved offsite disposal facility.

Backfill and Compact. The remaining shoreline excavations would be backfilled in 6-inch lifts using the excavation spoils and compacted to 90 percent compaction. The excavated areas would be backfilled and compacted and topsoil replaced to return the banks to pre-construction contours at those excavation locations. Additional native backfill would be trucked to the site to augment the original excavation spoils as necessary.

2.2.3 Equipment/Personnel Requirements

Repair activities at the R-519 maintenance Project site are anticipated to be completed within approximately 111 days as follows:

- Pre-Construction Surveys: 30 Days
- Site Mobilization: 5 Days
- Replacement Crossing Installation: 56 Days
- Original Crossing Decommissioning: 18 days
- Post-Construction Surveys: 2 Days

TOTAL: 111 Days

Equipment. The primary equipment requirements for the R-519 maintenance Project are summarized in Table 2.2-1. Refer to Appendix A for Equipment Specifications Information.

Table 2.2-1. R-519 Project Equipment List

Equipment Type	Horsepower	Hours/Day	# of Days
<i>Replacement Crossing Installation:</i>			
Vacuum Excavator	310	12 Hours	8
Excavator	310	12 Hours	30
Wheel Loader	150	12 Hours	30
Crane	220	12 Hours	30
Welding Truck	325	12 Hours	14
Pilot Tube Spread	50	12 Hours	2
<i>Original Crossing Decommissioning</i>			
Excavator	310	12 Hours	15
Wheel Loader	150	12 Hours	15
Flushing Pump	17	12 Hours	2
Vacuum Truck	225	12 Hours	2
Cement Truck	300	12 Hours	2
Cement Pump	85	12 Hours	2
Diving Spread	90	12 Hours	4

Personnel. It is estimated that a maximum of approximately 13 persons would be required for the proposed work activities as detailed in Table 2.2-2.

Table 2.2-2. Personnel Requirements

Title	Number
Construction Manager	1
Equipment Operator	3
Mechanic	1
Laborer	3
Diving Supervisor	1
Diver	2
Diver Tender	2
TOTAL	13

2.3 RT-102 (LINE R-177A) MAINTENANCE PROJECT

PG&E also intends to remediate the erosion issues resulting from water flowing across an earth berm that runs along the west side of Ryan Creek. The erosion has created three sinkholes in the berm and has uncovered a section of the R-177A natural gas pipeline (Figure 2.3-1), a 12-inch diameter steel pipeline that runs longitudinally inside the berm. The remediation work would involve terrestrial excavation and reconstruction of the berm at the RT-102 Project site.



Figure 2.3-1. Sinkhole and Pipeline Exposure at RT-102 Project Site

2.3.1 Project Setting/Background

2.3.1.1 Physical Setting

This Project is located in Humboldt County, California where L-177A runs in an earth berm along the west side Ryan Creek at MP 191.67, just to the west of Mitchell Road (Figure 2.3-2). The Project site is located in the Ryan Creek Watershed approximately 1.1 miles upstream of the Ryan Slough/Freshwater Slough confluence. The nearest residential structure is located approximately 900 feet east of the planned worksite.

2.3.1.2 Existing Facilities Description

Ryan Creek is confined in a narrow deeply incised, low gradient channel with steep and heavily vegetated banks. The stream channel is about 30 feet wide and about 6 feet deep. The wetted channel is completely full at high tide and nearly dewatered at low tide. The creek banks and bottom are primarily mud, and the water is turbid with visibility typically limited to a few inches.

The berm includes the remains of a railroad track foundation (no track present) and was used as an off-road vehicle access road by Green Diamond Resource Company. The berm is an earthen structure built on top of what appears to be a redwood timber foundation, which lies approximately 5 feet below the original railroad grade (Figure 2.3-3). This redwood timber foundation is believed to be an old roadway. Steeply wooded hills rise to the west of the berm and a seasonal creek coming off of the hills conveys storm water across and under the berm at the site.

The timber foundation appears to be essentially a timber deck consisting of a redwood planking base, redwood beam joists, and a redwood planking top. The timber foundation appears to be open between joists and has apparently served as a de facto conduit for storm water runoff to flow from the seasonal hillside stream (small tributary to Ryan Creek), underneath the berm, and into Ryan Creek. The timber foundation has apparently degraded and created holes or gaps in this underlying decking that is allowing the storm water runoff to wash away the soil overburden that rests on the deck and create the observed sinkholes.

Within the boundaries of the flow from the seasonal creek (small tributary to Ryan Creek) across the berm there are three sinkholes caused by water flowing across the top of the berm and through the redwood foundation under the berm and into Ryan Creek. Within the center sinkhole the L-177A pipeline is exposed. Within the eastern-most sinkhole the decayed redwood foundation is visible. The western-most sinkhole is not as deep or exposed as the other two sinkholes. The work site would span the berm from east to west to a depth below the existing redwood foundation. Additional excavation and backfill may be required on the east and west side of the berm for grading purposes.

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Source: Longitude 123, Inc.
Notes: This map was created for informational and display purposes only.



PROJECT NAME:
PG&E PIPELINE MAINTENANCE PROJECTS
EUREKA, CALIFORNIA

PROJECT NUMBER:
1702-2341

DATE:
November 2019

RT-102 PROJECT
SITE LOCATION

FIGURE
2.3-2



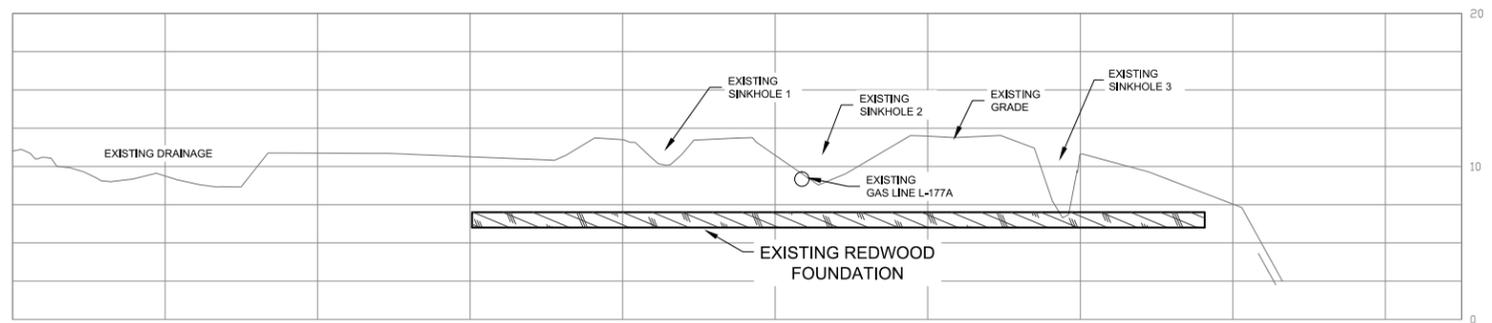
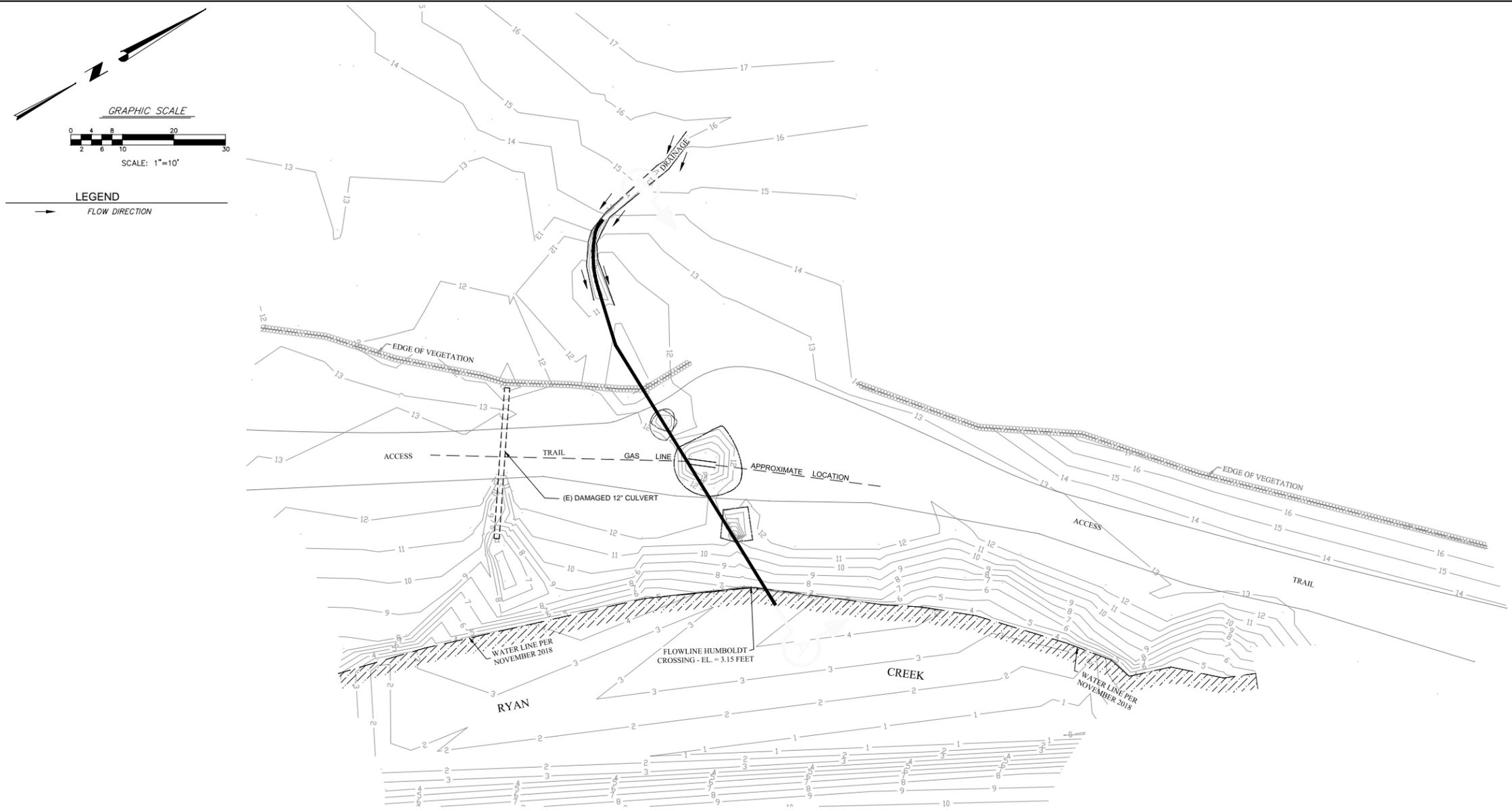
Figure 2.3-3. Redwood Timber Foundation Proposed for Removal

Berm Worksite. The planned worksite on the berm consists of a relatively flat, rectangular-shaped dirt and light vegetation area. This work area measures approximately 60 feet wide by 150 feet long (9,000 square feet) in size (Figure 2.3-4). The equipment laydown area would be included in this location along the road on the top of the berm. Within the worksite area an approximately 4,626 square foot area would be excavated to access the berm to a depth below the existing redwood foundation (approximately 5 feet below the top of the berm). No structures are located within the worksite area. Construction vehicle primary access to the worksite is from Myrtle Road south along the cleared PG&E pipeline easement. A private property owners' driveway will provide access from Myrtle Avenue to the PG&E easement.

2.3.2 Project Work Activities

The RT-102 maintenance Project would be conducted in the following primary steps as further described in Sections 2.3.2.1 through 2.3.2.4 and depicted in Figures 2.3-5 through 2.3-7. Refer to the Project design plans (Longitude 123, 2019 - Appendix A) for additional detail.

- **Preliminary Work Activities:** Field surveys would be completed including baseline pre-Project topographic and pipeline location/depth of burial as well as pre-Project biological surveys. If the small tributary to Ryan Creek has flowing water at the time of construction, a temporary diversion would be installed to divert surface flows around the work area.



SECTION A-A
 SCALES: 1"=5'

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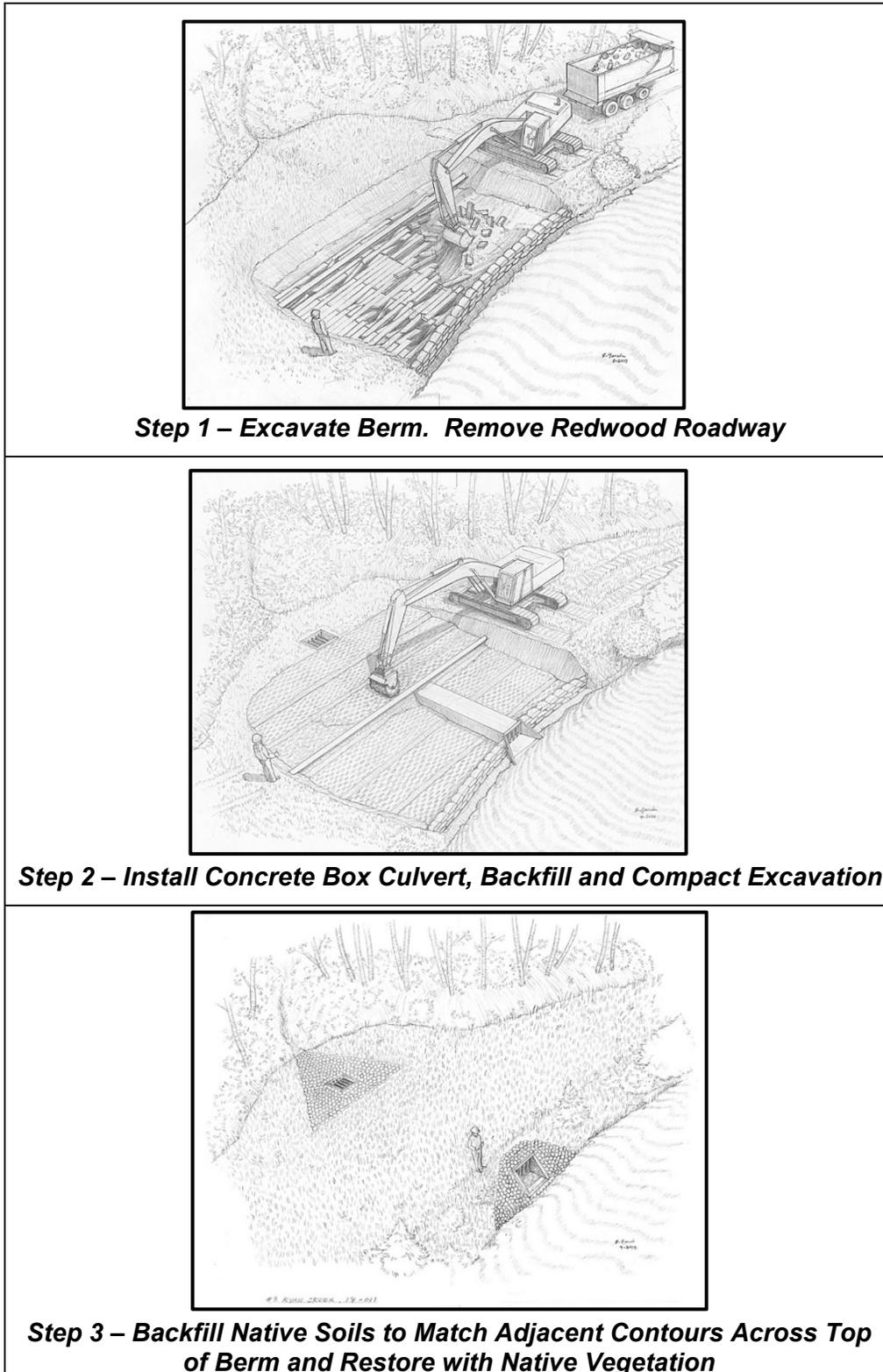
Source: YCE Incorporated 11/2019, Longitude 123, Inc. 11/2019
 Coordinate System: NAD 1983 StatePlane California 1 FIPS 0401 Feet
 Notes: This map was created for informational and display purposes only.



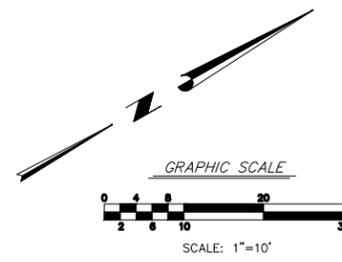
PROJECT NAME: PG&E RT -102 REMEDIATION PROJECT EUREKA, CA	
PROJECT NUMBER: 1702-2341	DATE: October 2019

**RT-102 PROJECT SITE PLAN
AND PROFILE**

**FIGURE
2.3-4**

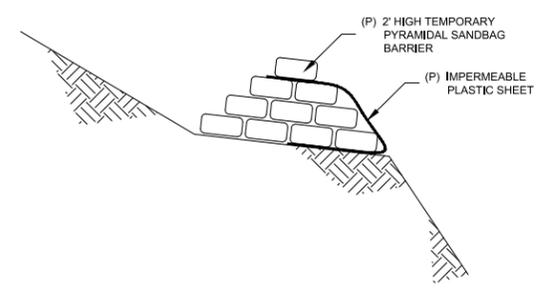
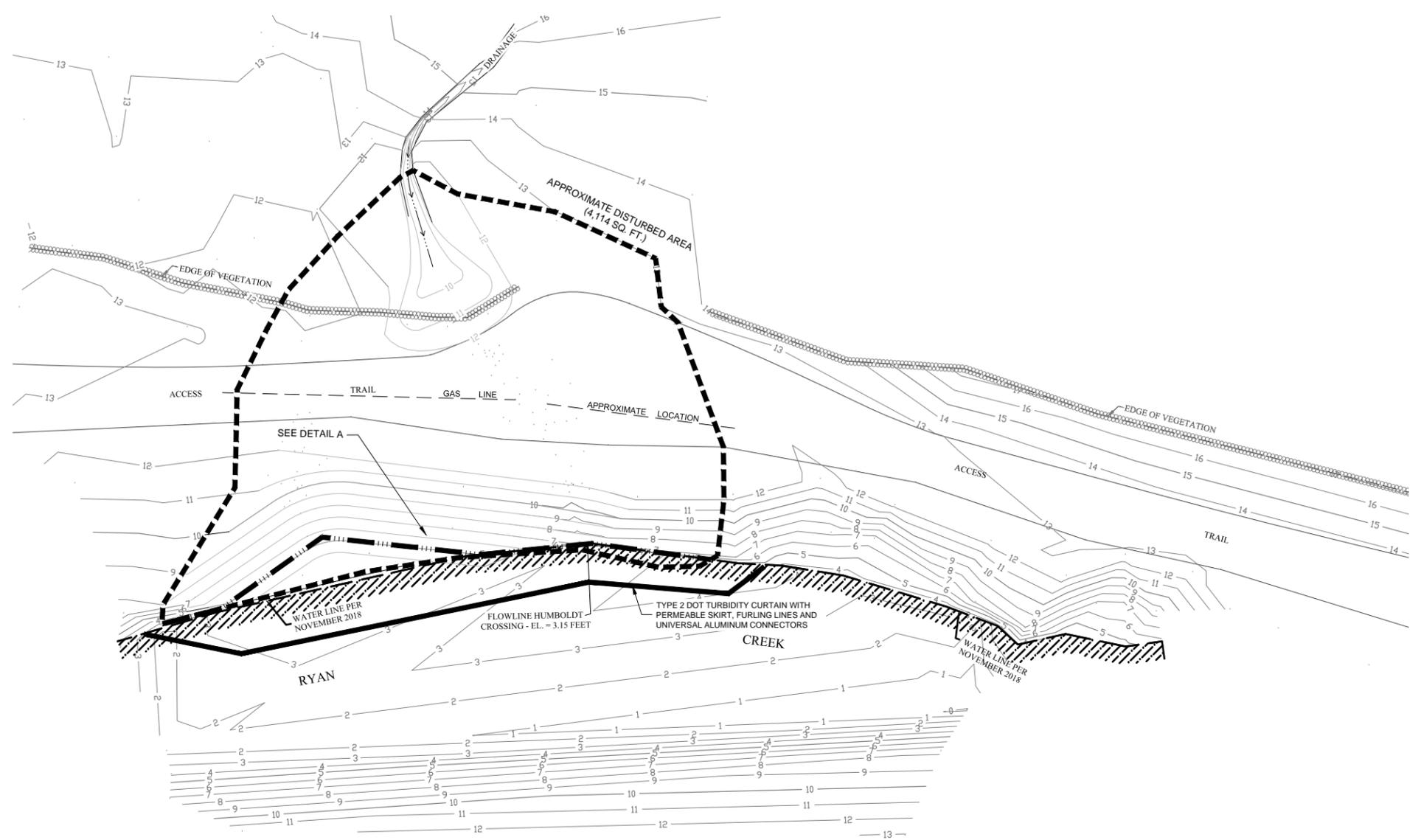


**Figure 2.3-5. Ryan Creek Erosion Mitigation Steps - Construction Depiction
(Longitude 123, 2019)**



LEGEND

→	FLOW DIRECTION
--- (dashed line)	DISTURBED AREA (APPROXIMATE)
(vertical lines)	TEMPORARY SANDBAG BARRIER
--- (dashed line with dots)	TYPE 2 DOT TURBIDITY CURTAIN



*DETAIL A: TEMPORARY SAND BARRIER
N.T.S.*

Z:\GIS\Projects\GIS Maps\Map Project\PG&E Pipeline Projects\Eureka Bundle\Project Description\RT-102 Temporary Sandbag Barrier.mxd 10/29/2019

Source: YCE Incorporated 11/2019, Longitude 123, Inc. 11/2019
 Coordinate System: NAD 1983 StatePlane California 1 FIPS 0401 Feet
 Notes: This map was created for informational and display purposes only.

<p>padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS</p>	PROJECT NAME: PG&E RT-102 REMEDIATION PROJECT EUREKA, CA	
	PROJECT NUMBER: 1702-2341	DATE: October 2019

RT-102 TEMPORARY SANDBAG BARRIER	FIGURE 2.3-7
-------------------------------------	-----------------

- **Installation of Sandbag Dam:** A temporary sandbag dam along the west bank of Ryan Creek would be installed in order to isolate the temporary work area from the creek. The sandbag dam would be constructed of polypropylene sandbags filled approximately one-half to two-thirds full and would be stack pyramidal (wider at the base than at the top) at the location where the project's excavation activities abut the creek. A polyethylene plastic sheet would be wrapped under the base layer of sandbags, up the water side of the sandbag dam, and secured under the top layer of sandbags. If determined to be necessary, a turbidity curtain (Type 2 Department of Transportation (DOT) permeable) would be installed in Ryan Creek along the shoreline, outside the sandbag dam to limit increased turbidity associated with construction activities to the approved work area. Construction of this temporary dam would isolate the temporary work area from the active stream channel and allow normal streamflow and tidal exchange around the work area.
- **Remediation:** Remediation activities will consist of excavation of the berm around the pipeline, removal of the existing redwood foundation, and installation of a protective coating on the exposed pipeline. Then installation of a concrete box culvert under the pipeline, and a concrete drop inlet with metal grate will be completed to replace the undersized existing culvert. After installation of the culvert, reconstruction of the berm to design contours using engineered fill and excavated spoils, installation of ungrouted riprap around the drop inlet, and native soil across the top of the berm to match adjacent contours will be completed to finish the remediation.
- **Restoration:** Restoration of the site using native vegetation.

2.3.2.1 Berm Excavation

Using terrestrial construction equipment working from the access road, the contractor would excavate the berm full width to access the pipeline and the existing redwood foundation. Conventional construction equipment would be utilized to excavate the berm until the pipeline and redwood foundation are uncovered. Excavated materials would be stockpiled for reuse in backfill or disposed in accordance with local regulations. The top six inches of soil will be stockpiled separately for replacement on top of backfilled excavation. The redwood foundation debris would then be removed from the excavated area. Sandbag supports would be installed as required to support the pipeline in the excavated area. The recovered redwood debris would be disposed in accordance with local regulations.

2.3.2.2 Install Protective Coating on Pipeline

Once the pipeline is exposed and supported, any coating loss or corrosion found on the exposed pipe would be removed; then an anti-corrosion coating would be re-applied on the exposed pipeline areas for protection.

2.3.2.3 Installation of Concrete Box Culvert

The contractor would install the concrete box culvert structure under the pipeline, running across the berm from the hillside area to Ryan Creek. The vertical drop inlet would be installed on the hill side end of the culvert and a metal grate would be installed to prohibit access to the inlet and the culvert.

2.3.2.4 Reconstruct the Berm

Once the pipeline has been coated with anti-corrosion material, all debris has been removed from the excavation, and the culvert and vertical drop inlet have been installed, the excavation area would be backfilled and compacted with the excavated spoils/engineered fill in prescribed lifts to reconstruct the berm. UngROUTED riprap would be installed in the area around the vertical drop inlet, and preserved topsoil would be backfilled across the top of the berm to match adjacent contours. Riprap would also be installed on the creek bank at the culvert outfall location.

2.3.3 Equipment/Personnel Requirements

Repair activities at the RT-102 Project site are anticipated to be completed within approximately 43 days as follows:

• Pre-Construction Surveys:	5 Days
• Mobilization:	5 Days
• Clearing/Grubbing:	5 Days
• Remediation:	20 Days
• Demobilization:	5 Days
• Post-Project Surveys:	3 Days
TOTAL -	43 Days

Equipment. The primary equipment requirements for the RT-102 maintenance Project are summarized in Table 2.3-1. Refer to Appendix A for Equipment Specifications Information.

Table 2.3-1. RT-102 Project Equipment List

Equipment Type	Horsepower	Hours/Day	# of Days
Clearing/Grubbing			
Excavator	310	12 Hours	5
Wheel Loader	150	12 Hours	5
Dump Truck	475	12 Hours	3
Remediation			
Excavator	310	12 Hours	20
Wheel Loader	150	12 Hours	20
Dump Truck	475	12 Hours	5

Personnel. It is estimated that a maximum of approximately five persons would be required for the proposed work activities as detailed in Table 2.3-2.

Table 2.3-2. RT-102 Personnel Requirements

Title	Number
Construction Manager	1
Equipment Operator	2
Laborer	2
TOTAL	5

2.4 PROJECT SCHEDULE

Several activities, including the pipeline replacement at R-519 and preparation of the access route at RT-102 do not involve any in-water work and will begin prior to the regulatory designated aquatic work window (July 1st through October 15th). Onsite terrestrial elements of the work are projected to start in spring of 2021 and will begin with the jack and bore pipeline replacement at the R-519 Site. Terrestrial activities at the R-519 site would begin with mobilization and site setup occurring as early as March 2021 and excavation of the jacking and receiving shafts occurring in April 2021. This schedule will ensure that pipeline replacement is complete so that the decommissioning and removal of the exposed pipeline crossing from Ryan Slough, which must occur during the aquatic work window, can begin in August. Remediation at the RT-102 Project site would begin with terrestrial activities including vegetation removal and preparation of the access route in June of 2021 to prepare for remediation work on the bank of Ryan Creek to begin in July 2021. Decommissioning at the R-354 site would begin in early August 2021.

In-water work at the RT-102 site would occur in the earlier part of the aquatic work window (July) and in-water work at the R-354 and R-519 Project sites would occur in the later part of the aquatic work window (August and September). The construction schedule and sequencing of

activities for each of the project sites is based on guidance from resource agency fish specialists and would coincide with the timeframe during which aquatic conditions are least favorable for fish occurrence at each location and the aquatic work area is least likely to support special-status fish species. The planned construction schedule also coincides with the optimum weather period in Humboldt County. The onsite work, including the jack and bore pipeline replacement, should require approximately five to six months to complete and the onsite work is anticipated to be completed by September 2021. Work activities would generally be conducted Monday through Friday (occasionally Saturday) approximately 10 to 12 hours per workday. Weekend work may occur, if necessary, to complete the Project within the defined seasonal constraints.

2.5 APPLICANT PROPOSED MEASURES (AMM) TO REDUCE POTENTIAL IMPACTS

The following measures have been incorporated into the Project design by the applicant in order to reduce potential impacts during the proposed pipeline repair activities:

- AMM AQ-1: Dust Control Measures
- AMM BIO-1: Special-Status Fish Avoidance Work Window
- AMM BIO-2: Turbidity Monitoring
- AMM BIO-3: Environmental Training Program
- AMM BIO-4: Nesting Bird Surveys
- AMM BIO-5: Western Pond Turtle Measures
- AMM BIO-6: Northern Red Legged Frog Measures
- AMM BIO-7: Raptor Nesting Surveys
- AMM GEO-1: Erosion Control Plan
- AMM HAZ-1: Oil Spill Response and Contingency Plan
- AMM HAZ-2: Asbestos Sampling Prior to Removal
- AMM HYD-1: Dewatering Plan

2.6 PROJECT OPERATIONS

The Project involves the repair, replacement, and removal of existing gas transmissions facilities and would not result in a change in municipal services demand. The maintenance and repair of the pipeline infrastructure and facilities would benefit the health and safety of the community. Replacement of the R-519 pipeline would result in the same size diameter of pipeline and would not result in any expansion of use. PG&E would continue to operate the pipelines as part of their existing facilities within the Eureka area. Operations and Maintenance would be conducted, which includes in-line inspections, direct examinations, corrosion mitigation devices, valve repairs/replacement, leak survey patrol, and locate and mark services.

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3.0 SUMMARY OF FINDINGS

3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

This project would potentially affect the environmental factors checked below, involving at least one impact that is “Potentially Significant” or “Potentially Significant Unless Mitigation Incorporated” as indicated by the checklist on the following pages.

Table 3.1-1. Environmental Issues and Potentially Significant Impacts

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture and Forest Resources	<input type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Energy
<input checked="" type="checkbox"/> Geology and Soils	<input type="checkbox"/> Greenhouse Gas Emissions	<input checked="" type="checkbox"/> Hazards and Hazardous Materials
<input checked="" type="checkbox"/> Hydrology and Water Quality	<input type="checkbox"/> Land Use and Planning	<input type="checkbox"/> Mineral Resources
<input checked="" type="checkbox"/> Noise	<input type="checkbox"/> Population and Housing	<input type="checkbox"/> Public Services
<input type="checkbox"/> Recreation	<input type="checkbox"/> Transportation	<input type="checkbox"/> Tribal Cultural Resources
<input type="checkbox"/> Utilities and Service Systems	<input type="checkbox"/> Wildfire	<input type="checkbox"/> Mandatory Findings of Significance

3.2 ENVIRONMENTAL DETERMINATION

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described in Section 4 have been incorporated into the project. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Adam Wagschal
Deputy Director
Humboldt Bay Harbor, Recreation and Conservation District

Date

4.0 ENVIRONMENTAL ANALYSIS AND INITIAL STUDY CHECKLIST

The evaluation of environmental impacts provided in this Initial Study is based in part on the impact questions contained in Appendix G of the State CEQA Guidelines; these questions, which are included in an impact assessment matrix for each environmental category (Aesthetics, Agriculture/Forest Resources, Air Quality, Biological Resources, etc.), are “intended to encourage thoughtful assessment of impacts.” Each question is followed by a check-marked box with column headings that are defined below.

- **Potentially Significant Impact.** This column is checked if there is substantial evidence that a Project-related environmental effect may be significant. If there are one or more “Potentially Significant Impacts,” a Project Environmental Impact Report (EIR) would be prepared.
- **Less than Significant with Mitigation.** This column is checked when the Project may result in a significant environmental impact, but the incorporation of identified Project revisions or mitigation measures would reduce the identified effect(s) to a less than significant level.
- **Less than Significant Impact.** This column is checked when the Project would not result in any significant effects. The Project’s impact is less than significant even without the incorporation of Project-specific mitigation measures.
- **No Impact.** This column is checked when the Project would not result in any impact in the category or the category does not apply.

Detailed descriptions and analyses of impacts from Project activities and the basis for significance determinations are provided for each environmental factor on the following pages, beginning with Section 4.1, Aesthetics.

4.1 AESTHETICS

AESTHETICS - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.1.1 Discussion

The Project includes proposed pipeline maintenance activities at three separate locations (R-354, R-519, and RT-102 Project sites) along the eastern boundary of the City of Eureka, California within Humboldt County (Figure 1.2-1). The R-354 Project site is located furthest north along Freshwater Slough approximately 0.5 miles upstream from its confluence with Eureka Slough. The R-519 Project site crosses Ryan Slough, just north of the Myrtle Avenue Bridge. The RT-102 Project site is located west of Mitchell Road along Ryan Creek within the McKay Community Forest. Surrounding land uses include concentrated residential development generally to the west within the City of Eureka, and undeveloped agricultural/forest land generally to the east within Humboldt County. Zoning designations for each of the Project sites are as follows (Humboldt County General Plan, 2017):

- R-354 - Agricultural Exclusive (AE) and Natural Resources (NR).
- R-519 - Agricultural Exclusive (AE), Natural Resources (NR), and Residential Low Density (RL).
- RT-102 - Agricultural Exclusive (AE), Residential Low Density (RL), and Timberlands (TC).

There are no California State Scenic Highways in Humboldt County (Humboldt County General Plan, 2017).

4.1.2 Regulatory Setting

4.1.2.1 Federal and State

California Scenic Highway Program. The California Scenic Highway Program, managed by the California Department of Transportation, was created to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. State highways identified as scenic, or eligible for designation, are listed in California Streets and Highways Code section 260 et seq.

4.1.2.2 Local

Humboldt County provides goals and policies related to scenic resources (aesthetics) within its Conservation and Open Space Element of the General Plan (2017). Applicable goals and policies include the following:

- **SR-G1. Conservation of Scenic Resources.** Protect high-value scenic forest, agriculture, river, and coastal areas that contribute to the enjoyment of Humboldt County's beauty and abundant natural resources.

4.1.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding aesthetics are short-term.

a. Have a substantial adverse effect on a scenic vista?

4.1.3.1 All Project Sites

No Impact. The Project sites are not located within a scenic vista; therefore, no impact would result.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

4.1.3.2 All Project Sites

No Impact. The Project sites are not located within a State scenic highway; therefore, no impact would result.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

4.1.3.3 All Project Sites

Less than Significant Impact. Short-term visual impacts would result from the presence of construction equipment needed during Project activities at each Project site. Construction equipment would temporarily be visible from nearby roads. Upon completion of Project activities, each Project site would be returned to its pre-Project conditions. Therefore, this would be a less than significant impact.

4.1.3.4 R-354 and RT-102 Project Sites

Less than Significant Impact. Although no above grade permanent structures are proposed that could block views, the Project would result in changes in surface features including the levee bank at the R-354 Project site and culvert intake and outfall at the RT-102 Project site. Such changes would result in short term change in the character of the Project sites; however, both Projects include site restoration and natural revegetation would quickly return the Project sites to a more natural appearance; therefore, this would be a less than significant impact.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

4.1.3.5 All Project Sites

Less than Significant Impact. Project work activities at each Project site would be conducted during daytime hours only. No lighting or significant source of glare would be utilized that would have the potential to affect views in the area; therefore, this would be a less than significant impact.

4.1.4 Mitigation Measures

The Project would not result in significant impacts on aesthetics; therefore, no mitigation is required.

4.2 AGRICULTURE AND FORESTRY RESOURCES

AGRICULTURE AND FORESTRY RESOURCES¹ - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Natural Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220, subd. (g)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104, subd. (g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.2.1 Discussion

The Project includes proposed pipeline maintenance activities at three separate locations (R-354, R-519, and RT-102 Project sites). Zoning designations for each of the Project sites are as follows (Humboldt County General Plan, 2017):

- R-354 –Agricultural Exclusive (AE) and Natural Resources (NR).
- R-519 - Agricultural Exclusive (AE), Natural Resources (NR), and Residential Low Density (RL).
- RT-102 – Agricultural Exclusive (AE), Residential Low Density (RL), and Timberlands (TC).

¹ In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

According to the United States Department of Agriculture (USDA) 2017 Census of Agriculture, approximately 27 percent of Humboldt County land (634,000 acres) is in agricultural use (USDA, 2017). In addition, approximately 80 percent of Humboldt County land is comprised of public and private forested land (Humboldt County General Plan, 2017). The Humboldt County General Plan indicates that soils within the vicinity of the Project sites are considered prime farmland if irrigated (Central Humboldt Community Plan Areas with Prime Soils Map, 2015).

The Project sites are not included within the California Department of Conservation inventory of Important Farmland (Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) (CDC, 2020). Additionally, the Project sites are not included within any areas under Williamson Act contracts (CDC, 2020).

4.2.2 Regulatory Setting

4.2.2.1 Federal and State

Williamson Act (Gov. Code §§ 51200-51207). This Act enables local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use and provides landowners with lower property tax assessments in return. Local government planning departments are responsible for the enrollment of land into Williamson Act contracts and may also identify compatible uses permitted with a use permit.

4.2.2.2 Local

Humboldt County. Humboldt County provides goals and policies related to agriculture and forestry resources within its Land Use Element of the General Plan (2017). Applicable goals and policies include the following:

- **Goal AG-G2. Preservation of Agricultural Lands.** Agricultural land preserved to the maximum extent possible for continued agricultural use in parcel sizes that support economically feasible agricultural operations.
- **Policy AG-P13. Agricultural Zoning and Parcel Size.** Utilize Agricultural Exclusive (AE) and Agricultural Grazing (AG) land use designations to ensure appropriate parcel sizes and land use for continuing availability of the necessary agricultural land base.
- **Policy AG-P15. Compliance with Regulations.** The County shall place a priority on abatement of violations that result in agricultural land conversion, loss of agricultural productivity or conflicts with neighboring agricultural operations.
- **Goal FR-G4. Incompatible and Conflicting Uses.** Timberlands protected from the encroachment of incompatible uses and managed for the inclusion of compatible uses.

4.2.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding agriculture and forestry resources are short-term.

- a. *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Natural Resources Agency, to non-agricultural use?*
- b. *Conflict with existing zoning for agricultural use, or a Williamson Act contract?*
- c. *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220, subd. (g)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104, subd. (g))?*
- d. *Result in the loss of forest land or conversion of forest land to non-forest use?*
- e. *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*

4.2.3.1 All Project Sites

a) - e). Less than Significant Impact. The Project sites are within Agricultural Exclusive and Timberland zoning; however, implementation of the Project would not convert any agricultural or forestry lands to a non-agricultural/forestry use or result in potential impacts to adjacent agricultural and forestry uses. Temporary work and staging areas would reduce available pasture lands for cattle grazing for the duration of Project related construction (R-354 and R-519). Additionally, construction activities could affect movement of agricultural and forestry equipment on private roads and property (all sites); however, the delays would be minimal. Impacts to agriculture and forestry activities would be minimal, temporary, and less than significant. The Project would not conflict with existing zoning. No agricultural or forestry land would be taken out of use as a result of the Project, therefore, a less than significant impact would result.

4.2.4 Mitigation Measures

The Project would not result in significant impacts on agriculture and forestry resources; therefore, no mitigation is required.

4.3 AIR QUALITY

AIR QUALITY - Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.3.1 Discussion

The Project is located in coastal Humboldt County which is located within the North Coast Air Basin (NCAB) and within the jurisdiction of the North Coastal Unified Air Quality Management District (NCUAQMD). The NCUAQMD currently meets all Federal air quality standards; however, the Humboldt County area of the NCUAQMD has been designated as non-attainment for California Ambient Air Quality Standards (CAAQS) for particulate matter less than ten microns in size (PM₁₀).

The Project consists of three separate projects which would occur intermittently from July through October 2021 as follows: R-519 Ryan Slough Crossing Replacement (approximately 111 days), R-354 Freshwater Slough Crossing Decommissioning (approximately 42 days); and RT-102 Ryan Creek Exposure Remediation (approximately 43 days). The estimated criteria pollution emissions for each phase were calculated and is discussed in the Impact Analysis discussion below.

Land uses near the Project site consist of, agricultural, residential, and timber production. The nearest residences to the Project are located approximately 1,100 feet west of R-354, approximately 160 feet west of R-519 and approximately 900 feet east of RT-102. Commercial land uses near the Project include, transient lodging facilities, indoor storage facilities, outside equipment storage yards and commercial tennis courts. Recreational land use near the Project include the Redwood Acres Fairgrounds. Other than residences, potential sensitive land uses near the Project site include the Worthington Headstart (within 0.5 mile of the R-519), Changing Tides Day Care (within 0.5 mile of the R-519), La Fayette Elementary School (approximately 0.5 miles of R-354), and several churches (within 1 mile of the Project site).

4.3.1.1 Local Climate and Meteorology

The climate, meteorology, air quality, and air quality trends of the area are described in detail in the NCUAQMD 1995 Draft Particulate Matter Attainment Plan (Attainment Plan) (NCUAQMD, 1995). The Project site can be described as having a Mediterranean climate, characterized by cool summers with frequent fog and mild wet winters. Subsidence inversion caused by downward moving air aloft is common in the coastal areas within the NCAB. Air descending from the elevated interior of the NCAB warms at a rate of 5.5 degrees Fahrenheit every 1,000 feet. The warm air then limits the vertical mixing of air at lower elevations by acting as a cap (inversion layer). Along the coastal areas, the inversion layer is intensified by the cool ocean air resulting in a stronger inversion layer (modified subsidence inversion layer).

4.3.1.2 Criteria Pollutants

Criteria air pollutants are those contaminants for which ambient air quality standards have been established for the protection of public health and welfare. Criteria pollutants include: ozone (O₃), carbon monoxide (CO), oxides of nitrogen (NO_x), sulfur dioxide (SO₂), PM₁₀ and particulate matter with a diameter of 2.5 microns or less (PM_{2.5}).

Ozone. O₃ is formed in the atmosphere through complex photochemical reactions involving NO_x, reactive organic gases (ROGs) (also known as reactive organic compounds (ROCs)), and sunlight occurring over several hours. Since ozone is not emitted directly into the atmosphere, but is formed as a result of photochemical reactions, it is classified as a secondary or regional pollutant. Because these ozone-forming reactions take time, peak ozone levels are often found downwind of major source areas. Ozone is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma, and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to ozone.

Carbon Monoxide. CO is primarily formed through the incomplete combustion of organic fuels. Higher CO values are generally measured during winter when dispersion is limited by morning surface inversions. Seasonal and diurnal variations in meteorological conditions lead to lower values in summer and in the afternoon. CO is an odorless, colorless gas. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease, and also can affect mental alertness and vision.

Nitric Oxide (NO). NO is a colorless gas formed during combustion processes which rapidly oxidize to form nitrogen dioxide (NO₂), a brownish gas. The highest nitrogen dioxide values are generally measured in urbanized areas with heavy traffic. Exposure to NO₂ may increase the potential for respiratory infections in children and cause difficulty in breathing even among healthy persons and especially among asthmatics.

Sulfur Dioxide. SO₂ is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO₂ are found near large industrial sources. SO₂ is a respiratory irritant

that can cause narrowing of the airways, leading to wheezing and shortness of breath. Long-term exposure to SO₂ can cause respiratory illness and aggravate existing cardiovascular disease.

Particulate Matter. Ambient air quality standards have been set for PM₁₀ and PM_{2.5}. Both consist of different types of particles suspended in the air, such as: metal, soot, smoke, dust and fine mineral particles. Depending on the source of particulates, toxicity and chemical activity can vary. The primary source of PM₁₀ emissions appears to be soil via roads, construction, agriculture, and natural windblown dust; other sources include sea salt, combustion processes (such as those in gasoline or diesel vehicles), and wood burning. Fugitive emissions from construction sites, wood stoves, fireplaces and diesel truck exhaust are primary sources of PM_{2.5}. Particulate matter is a health concern because when inhaled it can cause permanent damage the lungs; both sizes of particulates can be dangerous when inhaled; however, PM_{2.5} tends to be more damaging because it remains in the lungs once it is inhaled.

4.3.2 Regulatory Setting

4.3.2.1 Federal and State Regulatory

The U.S. Environmental Protection Agency (USEPA) has jurisdiction under the Federal Clean Air Act. The California Air Resources Board (CARB) has jurisdiction under the California Clean Air Act and California Health and Safety Code. The USEPA and CARB classify an area as attainment, unclassified, or non-attainment, depending on whether the monitored ambient air quality data show compliance, insufficient data to determine compliance, or non-compliance with Federal or State ambient air quality standards, respectively.

4.3.2.2 Air Quality Standards

Air quality standards are specific concentrations of pollutants that are used as thresholds to protect public health and the public welfare. The USEPA has developed two sets of standards; one to provide an adequate margin of safety to protect human health, and the second to protect the public welfare from any known or anticipated adverse effects. At this time, sulfur dioxide is the only pollutant for which the two standards differ. The CARB has developed air quality standards for California, which are generally lower in concentration than Federal standards. California standards exist for O₃, CO, suspended PM₁₀, visibility, sulfates, lead, hydrogen sulfide, and vinyl chloride. In July 1997, the USEPA finalized new health based O₃ and PM standards. However, due to several lawsuits, the standards were not fully implemented until February 2001. The new Federal O₃ standard is based on a longer averaging period (8-hour vs. 1-hour), recognizing that prolonged exposure is more damaging. The new Federal PM standard is based on finer particles (2.5 microns and smaller vs. 10 microns and smaller), recognizing that finer particles may have a higher residence time in the lungs and cause greater respiratory illness. Table 4.3-1 lists applicable ambient air quality standards.

Table 4.3-1. Ambient Air Quality Standards (State and Federal)

Pollutant		Averaging Time	California Standard	Federal Standard
Ozone (O ₃)		1-Hour	0.09 ppm	--
		8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide (CO)		1-Hour	20 ppm	35 ppm
		8-Hour	9.0 ppm	9 ppm
Nitrogen Dioxide (NO ₂)		Annual Arithmetic Mean	0.030 ppm	0.053 ppm
		1-Hour	0.18 ppm	100 ppb
Sulfur Dioxide (SO ₂)		Annual Arithmetic Mean	--	0.030 ppm
		24-Hour	0.04 ppm	0.14 ppm
		3-Hour	--	0.5 ppm (secondary)
		1-Hour	0.25 ppm	75 ppb
Respirable Particulate Matter	PM ₁₀	Annual Geometric Mean	20 µg/m ³	--
		24-Hour	50 µg/m ³	150 µg/m ³
Fine Particulate Matter	PM _{2.5}	Annual Geometric Mean	12 µg/m ³	12.0 µg/m ³
		24-Hour	--	35 µg/m ³
Hydrogen Sulfide (H ₂ S)		1-Hour	0.03 ppm	--
Vinyl Chloride		24 Hour	0.01 ppm	--
Sulfates		24 Hour	25 µg/m ³	--
Lead		30 Day Average	1.5 µg/m ³	--
		Calendar Quarter	--	1.5 µg/m ³
		Rolling 3-Month Average	--	0.15 µg/m ³
Visibility Reducing Particles		8-Hour	Extinction coefficient of 0.23 per km - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	--

Source: CARB, 2019

Air Toxic Health Risks. The combustion of diesel fuel in internal combustion engines produces exhaust containing a number of compounds that have been identified as hazardous air pollutants by the USEPA and toxic air contaminants (TACs) by the CARB. In 1998 CARB identified diesel particulate matter (DPM) from diesel exhaust as a TAC. In 2000, CARB developed the Diesel Risk Reduction Plan to reduce PM and DPM emissions from diesel-fueled engines and vehicles to establish new emission standards, certification programs, and engine retrofit programs to control exhaust emissions from diesel engines and vehicles. CARB has the following diesel enforcement programs and regulations to reduce the emissions of smog forming pollutants and TACs that may be applicable to the Project:

- **Commercial Vehicle Idling.** Diesel-fueled motor vehicles with a gross vehicle weight rating (GVWR) greater than 10,000 pounds are prohibited from idling the vehicle's primary engine for more than five minutes at any location.
- **Heavy Duty Vehicle Inspection Program (HDVIP).** The HDVIP program requires heavy-duty trucks and buses to be inspected for excessive smoke, tampering, and engine certification label compliance.
- **Software Upgrade for Diesel Trucks.** Requires owners of eligible 1993 -1998 model year electronically controlled heavy-duty diesel engines to install low NO_x software at the time of an engine rebuild.
- **Truck and Bus Regulation.** This regulation requires that all trucks and buses be equipped with 2010 or newer model year engines to reduce PM, DPM and NO_x emissions. Starting in 2020 only vehicles compliant with this regulation will be registered by the California Department of Motor Vehicles (DMV).
- **Strategic Plan for Diesel Enforcement.** Assembly Bill (AB) 233 also known as the Healthy Heart and Lung Act (HHLA) enacted in 2007, requires the CARB to develop a strategic plan for the enforcement of diesel emission control regulations. HHLA specifically requires the CARB every three years to review existing enforcement of diesel emission control regulations and anticipated enforcement needed to implement the Diesel Risk Reduction Plan. Based on the review the CARB is required to develop a Strategic Plan for consistent, comprehensive and fair enforcement of these regulations. In 2008 the CARB issued a notice of postponement of the public review of the first Strategic Plan (CARB, 2008). No future date for public review has been set and further review by the CARB has been postponed (CARB, 2019).

4.3.2.3 Regional Regulatory

The NCUAQMD shares responsibility with the CARB for ensuring that all ambient air quality standards are attained within the NCUAQMD's jurisdiction. The NCUAQMD has jurisdiction under the California Health and Safety Code to develop emission standards (rules) for its jurisdiction, issue air pollution permits, and require emission controls for stationary sources. The NCUAQMD is also responsible for the attainment of air quality standards in its jurisdiction. The USEPA and CARB classify an air basin as attainment, unclassified, or nonattainment, depending on the results of the monitored ambient air quality. The NCUAQMD currently meets all Federal air quality standards; however, the Humboldt County area of the NCUAQMD has been designated as non-attainment for CAAQS for PM₁₀.

Applicable NCUAQMD Rules and Regulations. The NCUAQMD has implemented rules and regulations, the following are the rules that are applicable or may be applicable to the Project:

Rule 104

A. General Limitations

- **Public Nuisance:** No person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the health, comfort, repose or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.

B. Visible Emissions

- **General Limitations:** No person shall discharge into the atmosphere from any source whatsoever any air contaminant in excess of 40 percent opacity or Ringlemann 2, for more than 12 individual readings recorded during anyone-hour period.
- **Source Specific Limitations:** No person shall discharge into the atmosphere from any source whatsoever any air contaminant which is in excess of 20 percent opacity, or as dark or darker in shade as that designated as No. 1 on the Ringlemann Chart, calculated as a six (6) minute average.

C. Particulate Matter

- **General Combustion Sources:** A person shall not discharge particulate matter into the atmosphere from any combustion source in excess of 0.46 grams per standard cubic meter (0.20 grains per standard cubic foot) of exhaust gas, calculated to 12 percent carbon dioxide; or in excess of the limitations established in applicable new source performance standards (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAP) provisions set out in Sections (K) and (L).
- **Non-Combustion Sources:** No person shall discharge or allow the discharge of particulate matter into the atmosphere from any non-combustion source in excess of 0.46 grams per actual cubic meter (0.20 grains per cubic foot) of exhaust gas or in total quantities in excess of the amount shown in Table I, whichever is the more restrictive condition.

D. Fugitive Dust

- No person shall allow handling, transporting, or open storage of materials in such a manner which allows or may allow unnecessary amounts of particulate matter to become airborne.

- Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to, the following provisions:
 - a. Covering open bodied trucks when used for transporting materials likely to give rise to airborne dust.
 - b. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Containment methods can be employed during sandblasting and other similar operations.
 - c. The use of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land.
 - d. The application of asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.
 - e. The paving of roadways and their maintenance in a clean condition.
 - f. The prompt removal of earth or other track out material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means.

Rule 110 – New Source Review and Prevention of Significant Deterioration

A. Purpose

- The purpose of this Rule is to establish pre-construction review requirements for new and modified stationary sources of air pollution and to provide mechanisms, including emission offsets, by which authorities to construct for such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.
- This Rule shall provide for no net increase in emissions, pursuant to Section 40918 of the Health and Safety Code, from new or modified stationary sources which emit, or have the potential to emit, 25 tons per year or more of any non-attainment pollutant or its precursors.

B. Applicability

- This Rule shall apply to all new stationary sources and emission units and all modifications to existing stationary sources and emissions units that, after construction, emit or may emit any affected pollutant within the District.
 - a. The Regulations in effect at the time any application for an Authority to Construct for a new or modified source is deemed complete shall apply to

that source except when a new Federal requirement not yet incorporated into this Rule applies to the new or modified source. In such a case, the new Federal rules shall apply to the source.

The NCUAQMD adopted an Attainment Plan in 1995 to address particulate matter. In the Attainment Plan the NCUAQMD list on-road vehicle engine exhaust, dust from paved and unpaved roads, vegetation burning, residential wood stoves and stationary industrial sources as the primary sources of particulate matter. The Attainment Plan identifies cost-effective control measures to reduce further PM₁₀ emissions, to levels necessary to meet the CAAQs. The NCUAQMD has not formally adopted emissions significance thresholds but utilizes the Best Available Control Technology (BACT) emission rates listed in Rule 110 for new or modified stationary emissions sources. Table 4.3-2 below lists the BACT significance thresholds.

Table 4.3-2. Significance Thresholds for Stationary Sources

Pollutants	Significance Thresholds	
	Pounds Per Day	Tons Per Year
NO _x	50	40
ROGs	50	40
PM ₁₀	80	15
PM _{2.5}	50	10
CO	500	100
SO _x	80	40

Source: NCUAQMD, 2015

As previously discussed, the NCUAQMD is currently in nonattainment status for PM₁₀; therefore, emissions impacts from a project that exceeds the significances thresholds for PM₁₀ and PM_{2.5} should be considered to be potentially significant.

4.3.2.4 Local Regulatory.

At the local level, the Project site is located within Humboldt County. The County's General Plan Air Quality Element was adopted in 2017 and contains information and requirements for assessing air quality within County. The Air Quality Element includes the following goals and policies that are applicable to the Project:

- **AQ-G1 – Improved Air Quality.** Air quality that meets State and Federal ambient air quality standards.
- **AQ-G2 – Particulate Emissions.** Successful attainment of California Ambient Air Quality Standards for particulate matter.
- **AQ-G3 - Other Criteria Pollutants.** Maintain attainment of Ambient Air Quality Standards for ozone and other criteria pollutants which may be subject to tightening standards.

- **AQ-P1 - Construction and Grading Dust Control.** Dust control practices on construction and grading sites shall achieve compliance with NCUAQMD fugitive dust emission standards.
- **AQ-S1 - Construction and Grading Dust Control.** Ground disturbing construction and grading shall employ fugitive dust control strategies to prevent visible emissions from exceeding NCUAQMD regulations and prevent public nuisance.
- **AQ-S3 - Evaluate Air Quality Impacts.** During environmental review of discretionary projects, evaluate new commercial and industrial sources of emissions using analytical methods and significance criteria used, or recommended by, the NCUAQMD.

4.3.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts are short-term.

- Conflict with or obstruct implementation of the applicable air quality plan?*
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

4.3.3.1 All Project Sites

a) and b). Less than Significant Impact. Criteria pollutants were estimated to be well below the daily or yearly NCUAQMD significant thresholds for stationary sources; therefore, emissions resulting from the Project would not result in a conflict or obstruct the NCUAQMD Attainment Plan or result in a cumulatively considerable net increase of any criteria pollutant. Project criteria pollutant estimates are included in Table 4.3-3 (Estimated Criteria Pollutant Project Emissions).

Table 4.3-3. Estimated Criteria Pollutant Project Emissions

Emissions Summary		NO _x	ROG	PM ₁₀	PM _{2.5}	CO	SO ₂
R-354	Pounds/Day	35.98	1.91	1.44	0.72	37.78	0.13
	Tons	0.041	0.005	0.002	0.001	0.143	0.0004
R-519	Pounds/Day	24.9	1.85	0.89	0.52	54.18	0.13
	Tons	0.071	0.011	0.003	0.002	0.433	0.001
RT-102	Pounds/Day	11.17	0.75	0.46	0.21	19.33	0.06
	Tons	0.036	0.007	0.002	0.001	0.231	0.001
TOTAL EMISSIONS TONS/YR		<i>0.148</i>	<i>0.022</i>	<i>0.007</i>	<i>0.004</i>	<i>0.807</i>	<i>0.002</i>

c. *Expose sensitive receptors to substantial pollutant concentrations?*

4.3.3.2 All Project Sites

Less than Significant Impact. Sensitive receptors in the general Project vicinity are primarily agriculture, recreational receptors and limited residential receptors. The Project sites are located in an area primarily zoned for agricultural, residential, and timber production zone land uses. The closest residence is approximately 200 feet west of the Project (R-519). Given the low estimated criteria pollutant emissions and temporary nature of the Project emissions, health risk impact for sensitive receptors would be less than significant. Additionally, the implementation of mitigations measures AMM AQ-1 and MM AQ-1 would further mitigate any impacts to sensitive receptors.

AMM AQ-1: Dust Control Measures. Dust generated by excavation activities will be kept to a minimum with a goal of retaining dust on the Project sites.

- The area disturbed by clearing, earth moving, or excavation operations will be minimized to prevent excessive amounts of dust.
- Pre-grubbing/excavation activities will include watering the area to be grubbed or excavated before the commencement of operations.
- Fugitive dust produced during grading, excavation, and construction activities will be controlled by the following activities:
 - a. All trucks will be required to cover their loads as required by California Vehicle Code §23114.
 - b. All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, will be treated to prevent fugitive dust. Treatment will include, but not be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll-compaction as appropriate. Watering will be done as often as necessary.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations will be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site.
- Adjacent streets and roads will be monitored for track out and swept as needed to prevent offsite migration of fugitive dust.

MM AQ-1: ROG and NO_x Reduction Measures. The following measures shall be implemented to mitigate ROG and NO_x emissions from motor vehicles:

- Minimize vehicle and equipment idling time.

- Maintain vehicle and equipment engines in good condition and in proper tune as per manufacturers' specifications.
- Use alternatively fueled vehicles and construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

4.3.3.3 All Project Sites

Less than Significant Impact. Project construction equipment would generate odors from the combustion of fuels. However, the presence of an impact from Project odors is dependent on a number of variables which include:

- Nature of the odor source;
- Frequency of odor generation (e.g., daily, seasonal, activity-specific);
- Intensity of the odor (e.g., concentration);
- Distance of the odor source to sensitive receptors;
- Wind direction (e.g., upwind or downwind); and
- Sensitivity of the receptor.

Project activities would primarily take place within a limited area around each pipeline. Work activities would require the temporary use of some odor-causing construction equipment such as diesel fueled equipment generating diesel exhaust. Minor odors generated at the work site would dissipate quickly in the open air and are not expected to be objectionable due to the distance between the pipeline maintenance sites and sensitive receptors such as residential neighborhoods. Project related emissions are temporary and are not anticipated to result in ongoing nuisance or annoyance. Prior to retirement of active pipelines (R-519), pipe sections to be retired and removed shall have free liquids removed and be 100 percent purged in accordance with PG&E gas design standards and construction plans and specifications. Additionally, the work areas would be controlled and not be accessible to the public. Therefore, impacts would be less than significant.

4.3.4 Mitigation Measures

Implementation of the following mitigation measure would reduce potential Project-related impacts regarding air quality to less than significant:

- AMM AQ-1: Dust Control Measures
- MM AQ-1: ROG and NOx Reduction Measures

4.4 BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.4.1 Discussion

The Project includes pipeline maintenance activities at three separate locations in Humboldt County, California. These include the decommissioning and removal of the R-354 (Line 137B) crossing at Freshwater Slough, the replacement of R-519 (Line 137C) crossing at Ryan Slough, and the remediation of pipeline exposures caused by erosion at RT-102 (Line 177A) near Ryan Creek (Project sites). The Project sites are located generally east of the City of Eureka. The surrounding area consists of residential development to the west, Humboldt Bay to the north, pasturelands to the northeast and east, and forested lands to the south and southwest of the Project sites. All of the Project sites are within the Freshwater Slough/Ryan Creek watershed.

Reconnaissance level field surveys for the purposes of site characterization were conducted at each Project site by Padre biologists on October 29 through 31, 2018. Surveys were conducted to assess the potential for biological resources and to determine the likelihood of occurrence for special-status species and/or sensitive and regulated habitats for each Project site. Detection methods included direct observation with binoculars; examination and identification of tracks, scats, burrows/diggings, and carcasses/skeletal remains; and identification of vocalizations (calls and songs). No trapping or netting was performed during surveys. Prior to the field surveys, a California Natural Diversity Database (CNDDDB) query was reviewed to identify occurrences of special-status plant and animal species in the vicinity of the three Project sites, in addition to a review of available Project design information, Humboldt County soil survey maps, National Wetland Inventory (NWI) Maps, the U.S. Geological Survey (USGS) 7.5-minute topographic map for the Arcata South quadrangle, and other environmental documents (CDFW, 2019a). Padre prepared the survey results and mapping of the data search into a Biological Technical Report which is included as Appendix C.

Field surveys to conduct preliminary aquatic resource delineations for the R-354 and RT-102 Project sites were conducted by Padre biologists on December 11 through 13, 2018. A preliminary aquatic resource delineation was conducted for the R-519 Project site as part of another project, and data from that effort was included in the resource assessment (Stantec, 2017). Follow-up surveys to complete a delineation of the northern access route at R-354 and conduct tree surveys for all three Project sites were completed on July 17 through 19, 2019.

The Project sites occur within a variety of habitats. Appendix C provides descriptions of the habitat types identified, comprehensive plant and wildlife species lists, and vegetation community maps for each of the Project sites. Table 4.4-1 summarizes the vegetation communities identified at each Project site. Each Project site is discussed independently in the following sections due to the variety of maintenance methodologies, biological resources and associated potential impacts.

Table 4.4-1. Vegetation Communities Located at the PG&E Pipeline Maintenance Project Sites

Vegetation Community	PG&E Maintenance Project Site		
	R-354 (L-137B) Freshwater Slough	R-519 (L-137C) Ryan Slough	RT-102 (L-177A) Ryan Creek
Annual Brome Grasslands		X	
Arroyo Willow Thicket		X	X
Baltic Rush Marsh		X	
Bentgrass-Tall Fescue Meadow		X	X
Chilean Cordgrass Marsh	X		
Coastal Brambles	X		
Common Velvet Grass-Sweet Vernal Grass Meadows	X	X	
Douglas Fir Forest		X	

Table 4.4-1. Vegetation Communities Located at the PG&E Pipeline Maintenance Project Sites

Vegetation Community	PG&E Maintenance Project Site		
	R-354 (L-137B) Freshwater Slough	R-519 (L-137C) Ryan Slough	RT-102 (L-177A) Ryan Creek
Duckweed Bloom			X
Grand Fir Forest			X
Himalayan Blackberry Brambles	X	X	
Monterey Cypress Stands	X		
Perennial Rye Grass Fields	X	X	
Pickleweed Mats	X	X	
Red Alder Forest			X
Redwood Forest		X	X
Salt Grass Flats	X		
Slough Sedge Swards			X
Small-fruited Bulrush Marsh			X
Soft Rush Marsh		X	X
Tufted Hairgrass Meadow	X		
Water Foxtail Meadows	X	X	
Disturbed Area	X	X	X
Ornamental			X

4.4.1.1 R-354 Project Site

PG&E is planning the decommissioning and removal of portions of the previously retired L-137B natural gas pipeline crossing and bank stabilization of the north levee at Freshwater Slough located in Eureka, Humboldt County, California. The Project site consists primarily of privately-owned farm and pasture lands used for livestock grazing. The Project site consists of undeveloped pasture lands, tidal wetlands, and disturbed areas associated with landowner farming practices. The Project site is bordered by residential development to the west and by grazing land to the north, south, and east. Freshwater Slough, a tidal slough, bisects the Project site, and the pipeline planned for decommissioning crosses the slough. The L-137B crossing consists of a retired 8-inch nominal steel pipeline that is buried through the south bank and across the slough but rises out of the slough at the north bank and is exposed near the waterline on the north bank where it terminates. In addition, the north levee has experienced on-going erosion. Shoreline stabilization mats (ECONcrete) would be installed on the waterside slope and over the crown of the northern levee to slow the erosion of the north bank (refer to Figure 2.1-5 for an example of these stabilization mats). The mats have been designed with chemical and physical properties to enhance the ability of the mattress to encourage growth of marine flora and fauna, increase species richness, and reduce the dominance of invasive species to elevate biodiversity. The R-354 Biological Study Area (BSA) consists of 7.20 acres of land north and south of Freshwater Slough that may be used for completion of the Project. The BSA includes the northern

access route from Devoy Road that will be used to access the Project site on the north side of Freshwater Slough.

Habitat and Vegetation Community. The R-354 Project site is comprised of upland pastureland, wetland and tidal marsh habitats. Vegetation communities in the Project site include denseflower cordgrass (*Spartina densiflora*) marsh, California blackberry (*Rubus ursinus*) coastal brambles, common velvet grass-sweet vernal grass (*Holcus lanatus* and *Anthoxanthum odoratum*) meadows, Himalayan blackberry (*Rubus armeniacus*) brambles, Monterey cypress (*Hesperocyperis macrocarpa*) stands, perennial rye grass (*Festuca perennis*) fields, pickleweed (*Salicornia pacifica*) mats, salt grass (*Distichlis spicata*) flats, tufted hairgrass (*Deschampsia caespitosa*) meadow, water foxtail (*Alopecurus geniculatus*) meadow, and disturbed areas (Figure 4.4-1).

On the north side of the Freshwater slough, a semi-natural stand of common velvet grass-sweet vernal grass was located along the top of the levee. Herbaceous plant associated with the grasses identified include creeping bentgrass (*Agrostis stolonifera*), tall fescue (*Festuca arundinacea*), coastal gum plant (*Grindelia stricta* var. *stricta*), curly doc (*Rumex crispus*), wild radish (*Raphanus* sp.), and yarrow (*Achillea millefolium*). Blackberry brambles were present along the fence line of the northern pasture and on the top of a berm present on the south side of the BSA separating the tidal waters from the southern portion of the property. There was limited species diversity at these locations with isolated coyote brush (*Baccharis pilularis*) and Scotch broom (*Cytisus scoparius*) shrubs present on the southern berm. California blackberry was also mixed in the brambles but was not considered a dominant species. The semi-natural herbaceous perennial rye grass occurs in the pastureland on the north side of Freshwater Slough at the R-354 Project site. Some portions of the rye grass field were co-dominated by birds-foot trefoil (*Lotus corniculatus*) and others by salt grass. Pickleweed mats were mapped in a sparsely vegetated depression at the toe slope of the north levee along with co-dominant dense-flowered cord grass where water ponds for long periods of time. Salt grass flats were observed in a transitional area between the perennial rye grass field and the pickleweed mat in the northern pasture. The herbaceous cover was almost entirely comprised of salt grass although other hydrophytic species like annual beard grass (*Polypogon monspeliensis*) and pickleweed grew in portions of the community. Within the BSA at the R-354 Project site, the water foxtail meadow community was present within depressions along the farm road leading to the northeast. In these depressions, associate species identified include brass buttons (*Cotula coronopifolia*), creeping spikerush (*Eleocharis macrostachya*), annual beard grass, and fat-hen (*Atriplex prostrata*).

On the south side of Freshwater slough at the R-354 Project site, Chilean cordgrass marsh dominated the peninsula that is tidally inundated on the south bank of Freshwater Slough. It was also present along the north bank of Freshwater Slough in small pockets. Associate species include seaside arrowgrass (*Triglochin maritima*) and pickleweed. Coastal brambles were found on the slopes of the disturbed area located in the southern portion of the BSA. In this community the California blackberry had nearly 100 percent cover with the exception of a path where blackberry had been removed. On this path, there were a few sparse herbs characteristic of disturbed areas including radish and bristly ox-tongue (*Helminthotheca echioides*). A small stand of Monterey cypress is present along the driveway and disturbed area on the southern portion of

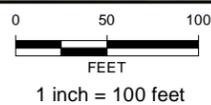


LEGEND:

- Bridge Crossing
- Study Area
- Vegetation Type**
- Deschampsia caespitosa* Herbaceous Alliance (Tufted hairgrass meadow)
- Distichlis spicata* Herbaceous Alliance (Salt grass flats)
- Festuca perennis* Semi-Natural Herbaceous Stand (Perennial rye grass field)
- Hesperocyperis macrocarpa* [Callitropsis macrocarpa] Grove (Monterey cypress grove)
- Holcus lanatus-Anthoxanthum oderatum* Semi-Natural Herbaceous Alliance (Common velvet grass-sweet vernal grass meadows)
- Rubus armeniacus* Semi-Natural Shrubland Stands (Himalayan blackberry brambles)
- Rubus ursinus* Shrubland Alliance (Coastal brambles)
- Salicornia pacifica* Herbaceous Alliance (Pickleweed mats)
- Spartina densiflora* Semi-Natural Herbaceous Stand (Chilean cordgrass marshes)
- Developed (roadway)
- Open Water
- Ruderal/Disturbed



MAP EXTENT:



Source: Esri Online Basemap
 Coordinate System: NAD 1983 StatePlane California I FIPS 0401 Feet
 Notes: This map was created for informational and display purposes only.



PROJECT NAME: PG&E R-354 PIPELINE
 DECOMMISSIONING PROJECT
 EUREKA, CA
 PROJECT NUMBER: 1702-2341
 DATE: November 2019

VEGETATION MAP

FIGURE
4.4-1

the Project site. The linear pattern of the stand's development suggests that these trees were planted ornamentally. In the under story of the trees were various grasses and herbs including velvet grass, curly dock, orchard grass (*Dactylis glomerata*), and hairy willow herb (*Epilobium ciliatum*). Tufted hairgrass meadow community was only mapped at the R-354 Project site where it occurred between the southern berm and the disturbed area in the southern portion of the BSA. Associates species noted at the Project site included California bentgrass, fat-hen, and brass buttons.

Wildlife and Migratory Corridors. Wildlife observed at the R-354 Project site were characteristic of the region and of the coastal riparian and pastureland habitats. Vegetation communities and the open surrounding area provide habitat for resident and migratory wildlife species. The composition, density, distribution, and physical characteristics of vegetative communities determine the diversity and abundance of wildlife species residing in the Project areas. Freshwater Slough provides a natural corridor for both aquatic and terrestrial species that have daily or seasonal migrations through the greater Freshwater Creek and Humboldt Bay watershed.

The open pastureland and coastal influence found at the R-354 Project site provide foraging and refuge habitat for small mammals, such as California vole (*Microtus californicus*) and small amphibians like the Pacific tree frog (*Pseudacris sierra*). These species, in turn, provide the prey base that attracts predators such as red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), and great egret (*Ardea alba*). Potential nesting habitat at these sites is limited to sparse riparian tree cover and the pastureland used for cattle grazing. The eroded slopes of the banks and lack of suitable habitat at the R-354 Project site limits the likelihood of occurrence of special-status aquatic wildlife, such as northern red-legged frog (*Rana aurora*) (NRLF) and western pond turtle (*Emys marmorata*) (WPT).

Migratory and resident bird species were observed at the R-354 Project site including Canada goose (*Branta canadensis*), gadwall (*Anas strepera*), mallard duck (*Anas platyrhynchos*), ruddy duck (*Oxyura jamaicensis*), black-necked stilt (*Himantopus mexicanus*), killdeer (*Charadrius vociferous*), greater yellowlegs (*Tringa melanoleuca*), double-crested cormorant (*Phalacrocorax auritus*), and great blue heron (*Ardea herodias*). General surveys for bats or bat sign were conducted at the bridge adjacent to the R-354 Project site. The bridge does not offer day roosting habitat for bat species due to the large crevices that allow a significant amount of light through to the underside of the bridge and makes the bridge unsuitable for day roosting. No sign of bats was detected, and no signs of swallow nests were observed under the bridge. A comprehensive list of wildlife observed at the R-354 Project site is provided in the BSA in Appendix C.

Waters and Wetlands. During field survey efforts conducted in December 2018 and July 2019, Padre identified a total of 3.65 acres of Federal jurisdictional waters and wetlands, 5.35 acres of State-defined wetlands, 3.65 acres of waters of the State, and 1.49 acres of stream features within the 7.20 acre BSA at the R-354 Project site. Freshwater Slough is also a Navigable Waterway under Section 10 of the Rivers and Harbors Act of 1899 (Section 10 Navigable Waterway). Activities within these jurisdictional areas are regulated by the Federal

government and/or the State of California. Refer to Appendix C for the Preliminary Federal Aquatic Resources Delineation and State-Defined Wetlands Delineation Report for the R-354 Project site.

Within the R-354 BSA there are two wetland types and other waters present. These different wetland types are defined both by their abiotic features such as water regime and topography as well as biotic factors like vegetation communities. The two wetland types found within the BSA include tidal marsh and wet meadow. Other Waters of the U.S. present in the BSA are classified as tidal waters (Freshwater Slough). Wetland types were determined by the aforementioned abiotic and biotic factors and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979). A description of each wetland type and of the other waters present in the BSA is available in Appendix C.

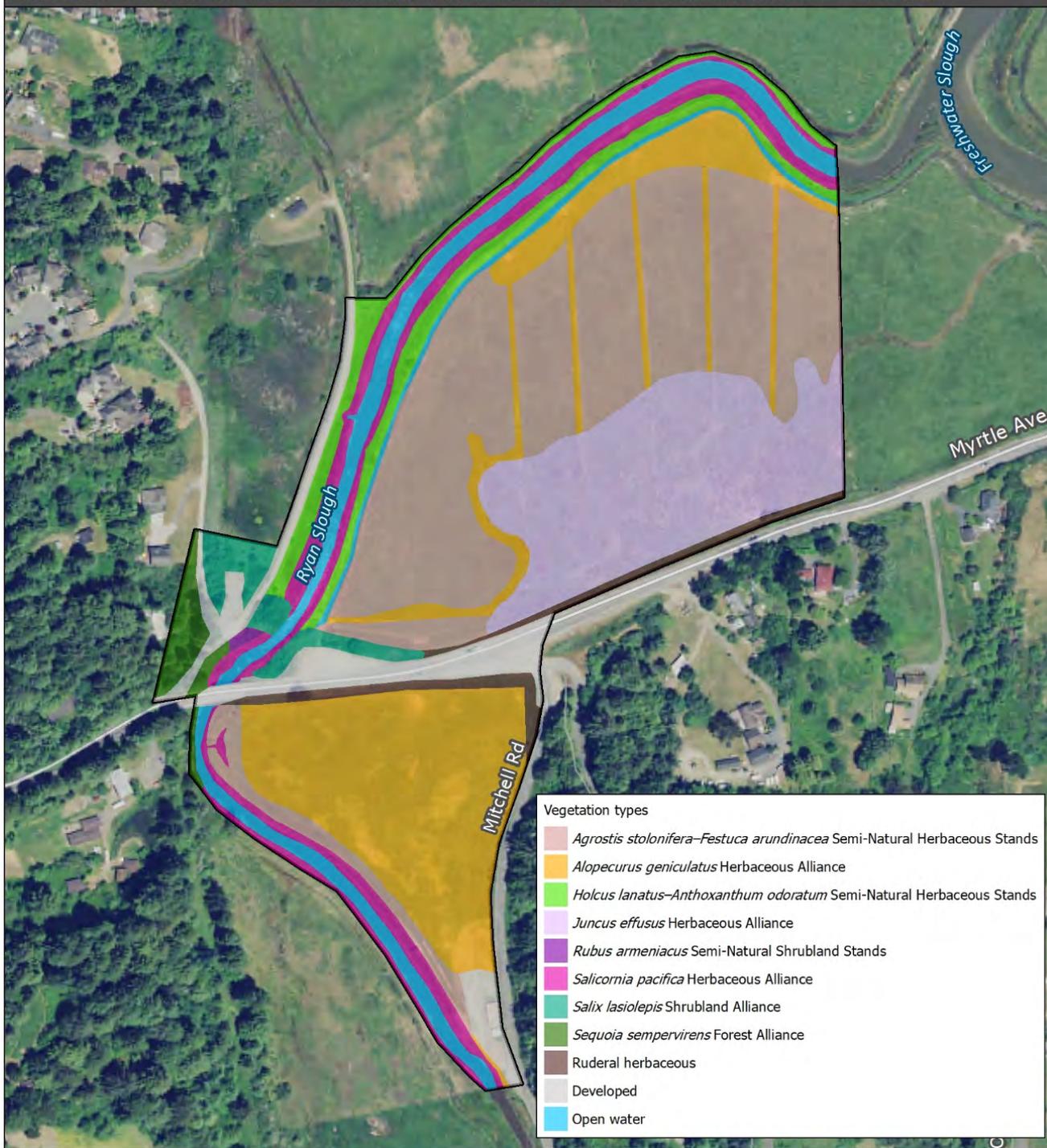
4.4.1.2 R-519 Project Site

The R-519 Project site is located on privately owned farm and pastureland east of Myrtle town in Humboldt County near the City of Eureka. The Project site consists of undeveloped pasturelands, tidal slough, perennial channels, and disturbed areas associated with development. The Project site is bordered by residential development to the west and southeast and by grazing land to the north and northwest. The L-137C crossing consists of a 4-inch nominal steel pipeline that crosses Ryan Slough and is exposed at the surface in the slough crossing. Replacement of this pipeline crossing using pilot tube methodology is proposed to minimize disturbance in the slough. Jacking shafts used for installation would be sited in upland and disturbed portions of the Project site. Once the pipeline replacement is installed and tie-ins are complete, the exposed portion of the pipeline would be removed from Ryan Slough. The R-519 BSA consists of 37.9 acres of land east and west of Ryan Slough and north and south of Myrtle Avenue that may be used for completion of the Project.

Habitat and Vegetation Communities. Vegetation communities in the Project site include annual brome (*Bromus diandrus*) grasslands, arroyo willow (*Salix lasiolepis*) thicket, Baltic rush (*Juncus balticus* ssp. *ater*) marsh, bentgrass-tall fescue meadow, common velvet grass-sweet vernal grass meadows, douglas-fir (*Pseudotsuga menziesii*) forest, Himalayan blackberry brambles, perennial rye grass fields, pickleweed mats, redwood (*Sequoia sempervirens*) forest, soft rush (*Juncus effusus*) marsh, water foxtail meadows, and disturbed areas. Disturbed areas were found mostly along the roadways and within the proposed work area on the northeast side of Ryan Slough (Figure 4.4-2).

North of Myrtle Avenue at the R-519 Project site annual brome grassland community was found adjacent to several roadsides and highly disturbed areas at the R-519 Project site and could be considered Disturbed Lands. Soft rush marsh alliance forms a large stand within the pasture north of Myrtle Avenue. Associate species at this location include perennial rye grass, water foxtail, and waxy manna grass (*Glyceria declinata*). In low depressions and deeper ditches, small patches of emergent vegetation occurred including small-fruited bulrush, water parsley, water cress, American brooklime (*Veronica Americana*), brass buttons, common spikerush (*Eleocharis palustris*), and floating marsh pennywort (*Hydrocotyle ranunculoides*) (Stillwater Sciences, 2018).

PG&E GAS TRANSMISSION PIPELINE 137C RYAN SLOUGH CROSSING REPLACEMENT PROJECT



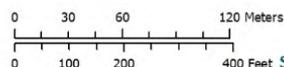
Vegetation Communities

Survey Area



Map Sources:
Rivers, roads, and cities: ESRI 2016
Imagery: NAIP 2016

Map Location



Stillwater Sciences

Source: Stillwater Sciences, 2018



PROJECT NAME: PG&E R-519 LINE 137C REMEDIATION PROJECT EUREKA, CA	
PROJECT NUMBER: 1702-2341	DATE: November 2019

VEGETATION MAP

FIGURE
4.4-2

Arroyo willow thicket community was observed on the banks of Ryan Slough near the Myrtle Avenue bridge crossing. Baltic rush marshes occur just outside the Ordinary High-Water Mark (OHWM) of Ryan Slough, along the edges of the channel and was associated with gumplant (*Grindelia* sp.), perennial rye grass, and silverweed (*Potentilla anserina*) (Stantec, 2017).

Bentgrass-tall fescue meadow was prevalent within pastureland north of Myrtle Avenue. Creeping bentgrass and tall fescue were codominant in a continuous herbaceous layer. Plant associates were comprised of mostly nonnative species including knotweed (*Polygonum aviculare*), pennyroyal (*Mentha pulegium*), California burclover, pineapple weed (*Matricaria discoidea*), hyssop loosestrife (*Lythrum hyssopifolia*), and toad rush (*Juncus bufonius*) (Stillwater Sciences, 2018). Douglas-fir forest was present on the northwestern side of the R-519 Project site and was limited to a hillslope bordered by a driveway. Common velvet grass and sweet vernal grass meadow and Himalayan blackberry brambles were located on the top of the levee on the northern side of the Project site and the landward slope of the levee. Associate species include Queen Anne's lace (*Daucus carota*), English plantain (*Plantago lanceolata*), birds-foot trefoil, cutleaf geranium (*Geranium dissectum*), English daisy (*Bellis perennis*), common selfheal (*Prunella vulgaris*), and tall fescue (Stillwater Sciences, 2018).

South of Myrtle Avenue, perennial rye grass was present along the top of the southeastern levee that borders Ryan Slough and pickleweed mats occur along the banks of Ryan Slough with variable percent cover (Stantec, 2017). Associate species at this Project site include common arrow-grass, fleshy jaumea, salt grass, fat-hen, annual beard grass, meadow barley (*Hordeum brachyantherum*), and coastal gumplant. Redwood forest occurred immediately adjacent to Myrtle Avenue (Stillwater Sciences, 2018). Water foxtail meadow occurred in low depressions and irrigation ditches subject to ponding in the pasture fields. Associate species at this location include waxy manna grass, buttercup (*Ranunculus* sp.), and lesser duckweed (*Lemna minor*) (Stillwater Sciences, 2018).

Wildlife and Migratory Corridors. Ryan Slough provides a natural corridor for both aquatic and terrestrial species that have daily or seasonal migrations through the greater Freshwater Creek and Humboldt Bay watershed. The vegetation communities at the Project sites and the surrounding area provide habitat for resident and migratory wildlife species. The composition, density, distribution, and physical characteristics of vegetative communities determine the diversity and abundance of wildlife species residing in the Project areas.

The open pastureland and coastal influence found at the R-519 Project site, as well as its close proximity to forested lands, also provide forage and cover for small mammals as well as foraging habitat for raptors and larger mammals (i.e., coyotes [*Canis latrans*] and black bear [*Ursus americanus*]). The forested areas adjacent to Ryan Slough and Myrtle Avenue provide tree understories and canopy nesting habitat for migratory bird species. General surveys for bats or bat sign were conducted at the bridge adjacent to the R-519 Project site. The bridge does not offer roosting habitat for bat species because it does not contain any crevices in which bats could find refuge. No sign of bats was detected at the Project site and no signs of swallow nests were observed under the bridge. Ryan Slough, associated emergent vegetation, and surrounding

terrestrial habitat may provide aquatic and dispersal habitat for special-status species including NRLF and WPT.

Wildlife observed during field surveys included Brewer's blackbird (*Euphagus cyanocephalus*), American goldfinch (*Spinus tristis*), American robin (*Turdus migratorius*), bushtit (*Psaltriparus minimus*), barn and tree swallow (*Hirundo rustica* and *Tachycineta bicolor*), and Pacific treefrog. A comprehensive list of wildlife observed at the R-519 Project site is provided in the BSA in Appendix C.

Waters and Wetlands. A total of 31.29 acres of Federal jurisdictional waters and wetlands was identified within the 37.9-acre BSA at the R-519 Project site as a result of the 2017 surveys (Stantec, 2017). A total of 33.84 acres of State-defined wetlands, 30.42 acres of waters of the State, and 5.13 acres of stream features were identified within the 37.9-acre BSA as a result of Padre's review and analysis of the delineation data collected in 2017. Ryan Slough is also a Section 10 Navigable Waterway. Activities within these jurisdictional areas are regulated by the Federal government and/or the State of California. See Appendix C for the Preliminary Federal Aquatic Resources Delineation and State-Defined Wetlands Delineation Report for the R-519 Project site.

There are two wetland types found within the BSA: wet meadow and willow riparian scrub. Other Waters of the U.S. present at in the BSA are classified as perennial channel (Ryan Slough) (Stantec, 2017). Wetland types were determined by the aforementioned abiotic and biotic factors and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979). A description of each wetland type and of the other waters present in the BSA is available in Appendix C.

4.4.1.3 RT-102 Project Site

The RT-102 Project site is located in the McKay Community Forest, owned and managed by Humboldt County. The Project site consists of forested lands in Humboldt County, just south of the City of Eureka. The Project site is bordered on the north by Myrtle Road and on the east by Ryan Creek and pastureland beyond that, and forested land to the north and south. PG&E is planning the remediation of erosional issues resulting from water flow across an earth berm parallel to the west bank of Ryan Creek in which the pipeline is buried. Erosion has created three sinkholes that have exposed a segment of the natural gas pipeline L-177A approximately 0.5-mile south of Myrtle Avenue near Ryan Creek.

The L-177A pipeline alignment follows a retired railroad berm that was built on top of a redwood timber roadway. The BSA at this Project site is 2.64 acres and consists of both the sinkhole repair location and the proposed access route along a PG&E easement between the sinkhole location and Myrtle Avenue. Ryan Creek, a perennial drainage, occurs approximately 50 feet from the sinkhole location. Proposed work associated with the remediation would involve terrestrial excavation and reconstruction of the railroad berm at the sinkhole locations, removal of the underlying redwood timber roadway causing the subsurface water flow and undercutting, pipeline corrosion repair, backfill of the excavated area with engineered fill, installation of a culvert

to convey flows from a tributary stream, and restoration of surface contours to pre-erosional condition.

Habitat and Vegetation Communities. Vegetation communities in the Project site include arroyo willow thicket, bentgrass-tall fescue meadow, duckweed bloom, grand fir forest, red alder forest, redwood forest, slough sedge swards, small-fruit bulrush (*Scirpus microcarpus*) marsh, soft rush marsh, disturbed areas, and ornamental vegetation.

Arroyo willow thicket was present in the riparian habitat along Ryan Creek and in several locations along the access route at the RT-102 Project site. A stand of bentgrass-tall fescue meadow was mapped north of the sinkhole location by Stillwater Sciences during rare plant surveys conducted in June 2018 (Stillwater Sciences, 2018). Due to the vegetation removal prior to December 2018 surveys, Padre biologists could not verify dominant and associate plant species at this location; therefore, the previously mapped vegetation cover was used. Duckweed bloom community was only found on the RT-102 Project site and was located on a small pond perched on the western side of the access route. A small stand of grand fir was located on the eastern side of the access route just south of Myrtle Avenue. Red alder and redwood forest occur in patches along the access route and west of the sinkhole location. The understory includes California blackberry, stinging nettle (*Urtica dioica*), Mexican hedgenettle (*Stachys mexicana*), goose grass (*Galium aparine*), and Himalayan blackberry, and is associated with riparian woodland and riparian forest habitats. Slough sedge alliance occurred only at the RT-102 Project site and was located in several patches along the access route. Plant associates included stinging nettle and soft rush. Small-fruit bulrush marsh was identified in isolated patches along the access route and on the southwestern end of the BSA. Plant associates included soft rush, water parsley (*Oenanthe sarmentosa*), creeping buttercup (*Ranunculus repens*), iris-leaf rush (*Juncus xiphioides*), pennyroyal (*Mentha pulegium*), and coastal monkeyflower (*Erythranthe dentata*). Soft rush alliance was found in a small patch along the eastern edge of the access route. Plant associates include perennial rye grass, small-fruited bulrush, and water parsley.

Wildlife and Migratory Corridors. The RT-102 Project site supports dense tree cover along a riparian corridor and provides habitat for a different suite of wildlife species. NRLF, vagrant shrews (*Sorex vagrans*), California voles, and brush rabbits (*Sylvilagus bachmani*), provide the prey base for predators like raptors, coyote and black bear. In these forested areas, there is a variety of nesting habitats for migratory bird species in the tree understories and canopies. Ryan Creek and surrounding terrestrial habitat provides suitable aquatic and dispersal habitat for special-status species including NRLF and WPT.

Wildlife and sign observed during field surveys at the RT-102 Project site consist of amphibians, including Pacific treefrog and Northern red-legged frog, reptiles including western fence lizard (*Sceloporus occidentalis*) and western gartersnake (*Thamnophis atratus*), mammals including vagrant shrew, brush rabbit, black-tailed hare (*Lepus californicus*), Douglas' squirrel (*Tamiasciurus douglasii*), coyote, black bear, racoon (*Procyon lotor*), and black-tailed deer (*Odocoileus hemionus*), and several bird species. A comprehensive list of wildlife observed at the R-519 Project site is provided in Appendix C.

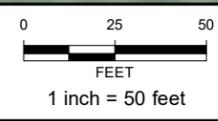


MATCH LINE

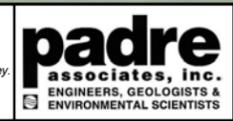
- LEGEND:**
- Culvert
 - Access Route
 - - - Intermittent/Ephemeral Channel
 - Perennial Channel
 - Wetland Swale
 - Sinkhole Location
 - Study Area
- Vegetation Type**
- Sequoia sempervirens (Redwood forest) Alliance
 - Disturbed vegetation (recently cleared)
 - Scirpus microcarpus (Small-fruited bulrush marsh) Alliance
 - Alnus rubra (Red alder forest) Alliance
 - Salix lasiolepis (Arroyo willow thickets) Alliance
 - Sequoia sempervirens (Redwood forest) Alliance
 - Disturbed vegetation (recently cleared)



MAP EXTENT:



Source: Esri Online Basemap
 Coordinate System: NAD 1983 StatePlane California I FIPS 0401 Feet
 Notes: Some vegetation mapping based on Stillwater Sciences 2017 survey.
 This map was created for informational and display purposes only.



PROJECT NAME: PG&E RT-102 REMEDIATION PROJECT EUREKA, CA	
PROJECT NUMBER: 1702-2341	DATE: November 2019

VEGETATION MAP

FIGURE
4.4-3

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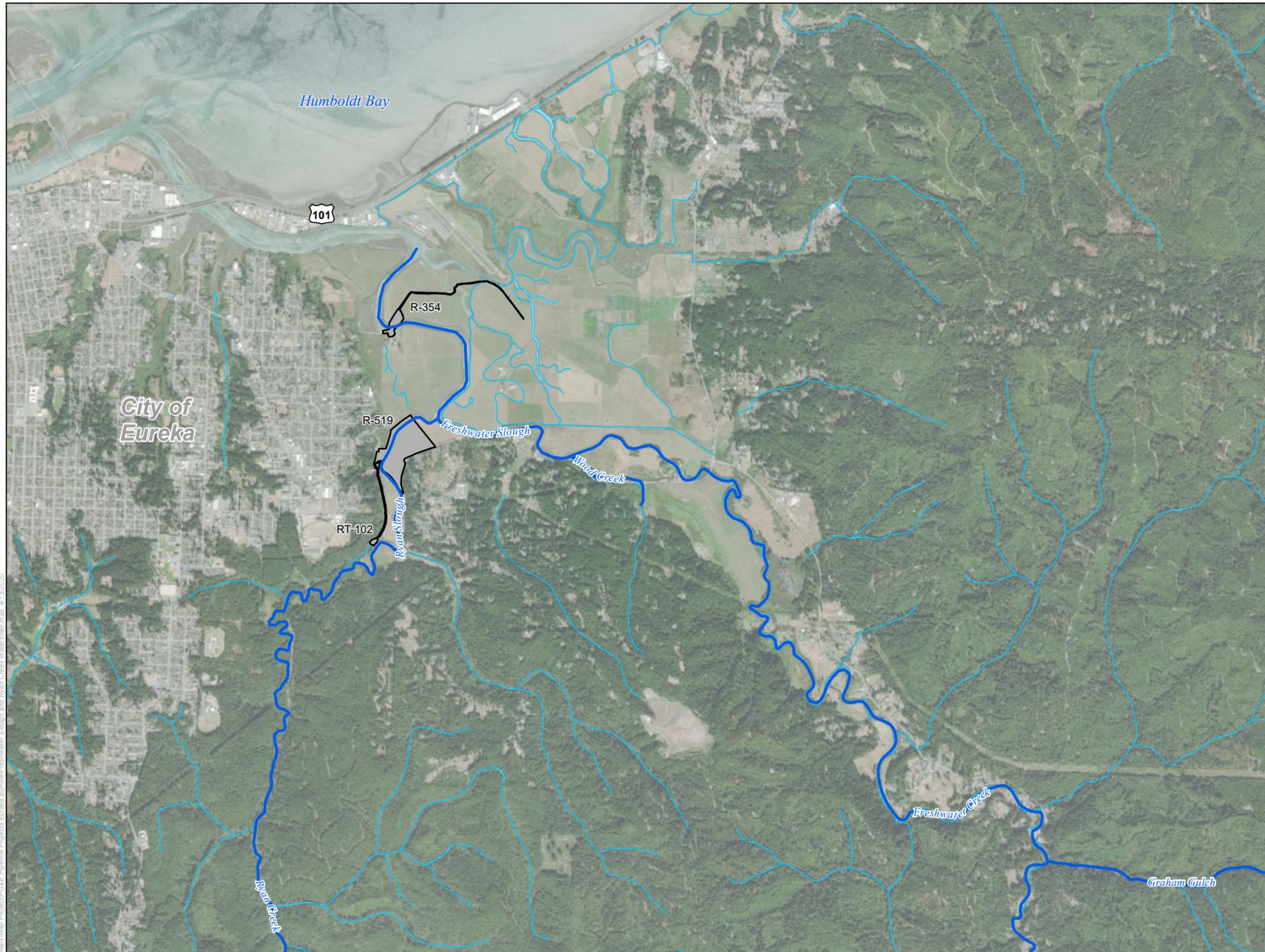
Waters and Wetlands. During field survey efforts conducted in December 2018, Padre identified a total of 1.05 acres of Federal jurisdictional waters and wetlands, 2.64 acres of State-defined wetlands, 0.92-acre of waters of the State, and 0.21-acre of stream features within the 2.64-acre BSA. Activities within these jurisdictional areas are regulated by the Federal government and/or the State of California. See Appendix C for the Preliminary Federal Aquatic Resources Delineation and State-Defined Wetlands Delineation Report for the RT-102 Project site.

The three wetland types found within the BSA include forested wetland, scrub-shrub wetland, and wet meadow. Other potential Waters of the U.S. present at the BSA include an intermittent/ephemeral channel (Channel 1) and a perennial channel (Ryan Creek). Wetland types were determined by the aforementioned abiotic and biotic factors and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979). A description of each wetland type and of the other waters present in the BSA is available in Appendix C.

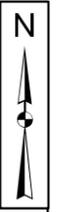
4.4.1.4 Water Quality and Salmonid Habitat

The lower Freshwater slough and the regional watershed is known to provide habitat for salmonids (Figure 4.4-4). Water quality is an important factor in determining habitat suitability for special-status fish species, specifically salmonids. Water temperature in lower Freshwater Slough and Ryan Slough is typically too high to support salmonids during the late summer months, with water temperatures regularly exceeding 64° Fahrenheit (F) (18° Celsius [C]). Typically, salmonids prefer cool streams and rivers with a maximum temperature of 64° F (18°C). High water temperatures result in reduced levels of dissolved oxygen, which can impact growth and development of all life stages of salmonids. Salmon have been documented to have an avoidance response to unfavorable dissolved oxygen levels (Carter, 2005). Salmonid behavioral response when temperatures become too high will be to go upstream to locations where conditions are more favorable. Water quality studies conducted by California Department of Fish and Wildlife (CDFW) for their Natural Stocks Assessment (NSA) resulted in data showing the progression of increased water temperatures recorded in summer months (Wallace, 2006).

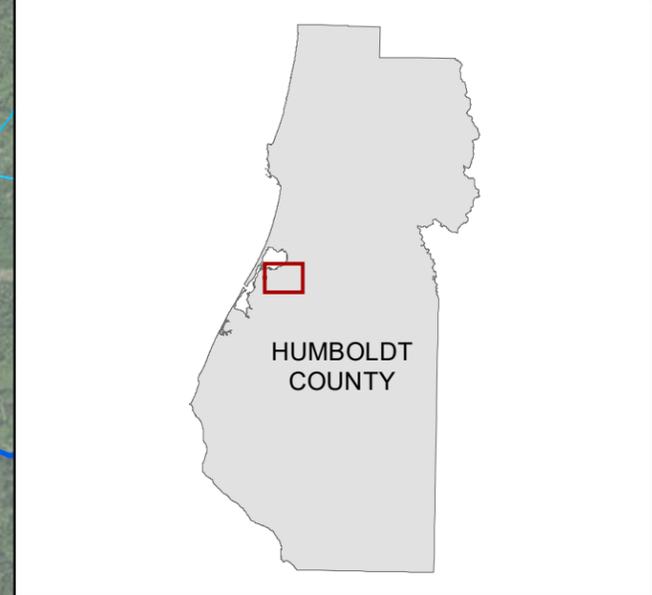
NSA HOBO meter data collected between 2005 and 2009 indicate that water temperatures in the lower Freshwater Slough (a 3.1 mile [5 km] stretch including Freshwater Slough and Ryan Slough) routinely exceeded 68°F (20°C), and up to 78.8°F (26°C) during late summer months. Temperatures almost always remained above 68°F (20°C) from mid-June through mid-August regardless of tide stage or time of day (Wallace and Allen, 2007; Wallace and Allen, 2009). The elevated temperatures in lower Freshwater Creek/Slough are likely due to extensive mudflats surrounding this area that absorb heat at low tide and transfer heat to slough water as it rises over the mudflats with incoming tides. The lack of water circulation within the leveed portions of the slough traps the warm water in lower Freshwater Slough (Wallace and Allen, 2007; Wallace and Allen, 2009). Higher water temperatures routinely observed in lower Freshwater Slough during summer months indicate inhospitable habitat conditions for salmonid species, a low likelihood of occurrence of salmonids near the pipeline maintenance sites during summer months and supports the seasonal in-water work window of July 1 to October 15, intended for avoidance of special-status fish species.



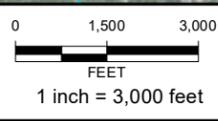
- LEGEND:**
- Waterway of Interest
 - NWI Riverine Feature
 - Study Area (4.38 acres)



MAP EXTENT:



Z:\GIS\Projects\GIS Maps\Map Project\PG&E Pipeline Projects\Eureka Bundle\Freshwater Slough and Ryan Creek Watershed.mxd - 4/15/2020



Source: Esri Online Basemap, U.S. Fish and Wildlife Service
 Coordinate System: NAD 1983 StatePlane California 1 FIPS 0401 Feet
 Note: NWI = National Wetland Inventory
 This map was created for informational and display purposes only.



PROJECT NAME: PG&E R-354 PIPELINE DECOMMISSIONING PROJECT EUREKA, CA	
PROJECT NUMBER: 1702-2341	DATE: April 2020

FRESHWATER SLOUGH AND RYAN CREEK WATERSHED **FIGURE 4.4-4**

In addition, while recognizing the importance of the stream-estuary ecotone to salmonid rearing, poor winter rearing conditions occur in the lower Freshwater Creek watershed (Freshwater Slough/Ryan Slough) due to heavy embedded substrates, lack of riparian cover, poor access to floodplains (channels are constrained by levees), and low levels of large wood complexity in the channel (Humboldt Bay Watershed Advisory Committee and Natural Resource Services District of RCAA, 2005). This portion of the watershed includes habitat simplification including channelization, diking, and removal of instream wood, all of which have negative effects on the quality of fish habitat. There is a lack of backwater channels due to levees in this part of the watershed and a lack of refugia throughout much of the lower reaches of Freshwater Creek/Slough. Summer water temperatures in the lower Freshwater watershed are also a limiting factor for salmonid occurrence. The R-354 Project site and R-519 Project site both occur in the lower Freshwater Creek watershed.

The middle reach of Freshwater Creek, defined as the segment between Three Corners and the confluence of Graham Gulch, has levees that confine the channel in the lower reach. There are no pipeline maintenance projects on the middle reach of Freshwater Creek; however, the RT-102 Project site on Ryan Creek is similar to middle reach Freshwater Creek conditions. Similar to the middle reach of Freshwater Creek, large wood frequency is low, and the riparian zone is narrow. Bank erosion is prevalent and high levels of suspended sediment is a significant factor for water quality. Water temperature is generally not a limiting factor in the middle reach and is typically adequate for salmon survival year-round (Humboldt Bay Watershed Advisory Committee and Natural Resource Services District of RCAA, 2005). Furthermore, studies have shown that the stream-estuary ecotone provides quality rearing habitat for juvenile salmonids, especially over winter rearing habitat, and particularly in middle reach segments (Wallace et al., 2015).

The best salmonid spawning and rearing habitat is the upper mainstem Freshwater Creek, above the confluence with Graham Gulch (Figure 4.4-4) and Coast cutthroat trout, coho salmon, steelhead, and California coastal chinook salmon are known to spawn in the Freshwater Creek system. Ryan Creek is a tributary to Freshwater Slough and part of the Freshwater Creek watershed. Ryan Creek is not included in the CDFW surveys; however, both Freshwater Creek and Ryan Creek are in the Freshwater watershed and similar patterns are likely. Much of the Ryan Creek watershed is or was owned by Green Diamond Resource Company and managed for timber production. The Green Diamond Resource Company surveys provide most fish data available for the Ryan Creek watershed. Spawning adults and smolts of special-status fish species have been observed in the Freshwater and Ryan Slough Channel System.

4.4.1.5 Special-Status Species

For the purposes of this Report, a special-status species is a plant or animal species that is:

- Listed endangered, threatened, or a candidate species under the Federal Endangered Species Act (FESA);

- Listed endangered, threatened, or a candidate species under the California Endangered Species Act (CESA);
- Listed as a Species of Special Concern by the CDFW;
- A plant species that is on the California Native Plant Society's (CNPS) Rare Plant Ranking System as List 1 or 2; and/or
- Considered rare, threatened, or endangered under CEQA Guidelines 15380(d) as the species survival is in jeopardy due to loss or change in habitat.

In addition, species protected by specific Federal or State regulation or local ordinances are considered special-status species.

Based on the literature review and species lists from USFWS (Consultation Codes: 08EACT00-2019-SLI-0385 [RT-102]; 08EACT00-2019-SLI-0386 [R-519]; and 08EACT00-2019-SLI-0387 [R-354]), a list of special-status species that have been reported within five mile radius surrounding the Project sites has been compiled. Special-status species that have the potential to occur in the vicinity of the Project site are included in Table 4.4-2.

An analysis of the likelihood of occurrence for each species was conducted on the basis of species ranges, previous observations, contemporary sightings, and presence of suitable habitat elements. Species that were excluded from the analysis include those for which suitable habitat does not occur, for example, coastal dune, cismontane woodland, or old growth forest species would not occur at the Project sites. Other species may have been eliminated from consideration because the Project sites are beyond the recorded geographic and/or elevational range for these species. Additionally, species such as California floater (*Anodonta californiensis*) are not included because they are considered Forest Service Sensitive and are a concern on Forest Service Lands; however, they do not meet the CEQA definition of rare or endangered (see Section 15380 of the State CEQA Guidelines). For the purpose of this analysis, potential special-status species that occur in the general area of the Project, and for which the Project sites may provide habitat, are included in Table 4.4-2. These species are discussed in greater detail in the Biological Technical Report (Appendix C).

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
Special-Status Plants					
Sea watch (<i>Angelica lucida</i>)	CRPR 4.2	Coastal bluff scrub, coastal dunes, coastal scrub, and coastal salt marshes and swamps at elevations ranging from 0 to 490 feet. Blooms from May to September.	High - Several individuals of this plant were recorded during 2019 special-status plant surveys occurring both north and south of Freshwater Slough. (Stillwater Sciences, 2019).	High - Species identified during special-status plant surveys conducted in May and July 2017 along Ryan Slough for this Project (Stillwater Sciences, 2018a).	Low - Poor habitat is present along Ryan Creek. Project site is located 4.5 miles from the coast and is mostly outside of tidal and coastal water influence.
Seaside bittercress (<i>Cardamine angulata</i>)	CRPR 2B.1	Wet areas and stream banks in North Coast coniferous forests and lower montane coniferous forests at elevations ranging from 80 to 3,000 feet. Typically blooms from March to July but can bloom as early as January.	Low - Poor habitat is present along Freshwater Slough. Nearest occurrence is approximately 2.9 miles to the southeast. Special-status plant surveys conducted in 2019 did not detect this species (Stillwater Sciences, 2019).	Moderate - Marginally suitable habitat is present in shaded areas along Ryan Slough. Nearest occurrence is approximately 2.5 miles to the southeast. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018a).	Moderate - Suitable habitat is present along Channel 1 and Ryan Creek in forested portions of the project site. Nearest occurrence is approximately 2.4 miles to the southeast. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018a).
Northern clustered sedge (<i>Carex arcta</i>)	CRPR 2B.2	Bogs, fens, and mesic North Coast coniferous forests at elevations ranging from 190 to 4,600 feet. Blooms from June to September	Low - Marginally suitable habitat present in the wet meadows on site. Nearest occurrence is approximately 1.3 miles to the west. Special-status plant surveys conducted in 2019 did not detect this species (Stillwater Sciences, 2019).	Low - Marginally suitable habitat present in the wet meadows on site. Nearest occurrence is approximately 1.5 miles to the northwest. Special-status plant surveys conducted in 2017 did not detect this	Moderate - Suitable habitat is present in more permanently ponded areas of the access road and the forested wetland adjacent to the sink hole locations. Nearest occurrence is approximately 1.7 miles to the northwest.

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
				species (Stillwater Sciences, 2018a).	Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).
Lyngbye's sedge (<i>Carex lyngbyei</i>)	CRPR 2B.2	Brackish or freshwater marshes and swamps at elevations ranging from 0 to 30 feet. Blooms from April to August.	High - Suitable habitat present along the banks of Freshwater Slough, Ryan Slough, and Ryan Creek. This species was observed during 2017 and 2019 special-status plant surveys at all three Project sites (Stillwater Sciences, 2018a, 2018b, and 2019).		
Northern meadow sedge (<i>Carex praticola</i>)	CRPR 2B.2	Mesic meadows and seeps at elevations ranging from 0 to 10,500 feet. Blooms from May to July.	Moderate – Suitable habitat is present in the wet meadow and mesic wetland areas. Nearest occurrences are from 1915 and are located within the Project sites. Special-status plant surveys did not detect this species (Stillwater Sciences, 2018a, 2018b, and 2019).		
Humboldt Bay owl's clover (<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>)	CRPR 1B.2	Coastal salt marshes and swamps at elevations ranging from 0 to 10 feet.	High - Suitable habitat is present along the banks of Freshwater Slough and Ryan Slough. Plant was identified on the south side of the R-354 Project site in 2004. A population of approx. 350 individuals was recorded during 2019 special-status plant surveys occurring in the salt marsh habitat south of Freshwater Slough (Stillwater Sciences, 2019). Plant was also identified along portions of Ryan Slough near the R-519 site during special-status plant surveys conducted in 2017 (Stillwater Sciences, 2018a).	Low - Poor quality habitat is located along Ryan Creek. Project site is not influenced by tide. Nearest occurrence is approximately 0.6 miles north of the Project site. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).	
Coast fawn lily (<i>Erythronium revolutum</i>)	CRPR 2B.2	Mesic streambanks in North Coast coniferous forests, broadleaf upland forests, and bogs and fens at elevations ranging from 0 to 5,250 feet. Typically blooms from March to July	Low – Poor habitat is present along Freshwater Slough. The nearest occurrence is from 1918 and is approximately 1.3 miles west of the site. Special-status plant	Low – Marginally suitable habitat is present in shaded areas along Ryan Slough. The nearest occurrence is from 1918 and is approximately 1.5 miles	Moderate – Suitable habitat is present along Channel 1 and Ryan Creek in forested portions of the Project site. The nearest occurrence is from 1918

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
		but can bloom later into August.	surveys conducted in 2019 did not detect this species (Stillwater Sciences, 2019).	northwest of the site. Special-status plant surveys conducted for this project in 2017 did not detect this species (Stillwater Sciences, 2018a).	and is approximately 1.7 miles west of the site. Special-status plant surveys conducted for this project in 2017 did not detect this species (Stillwater Sciences, 2018b).
Minute pocket moss (<i>Fissidens pauperculus</i>)	CRPR 1B.2	Bare moist soil banks in North Coast coniferous forests at elevations ranging from 30 to 3,360 feet.	None – There is no suitable habitat located at the Project site.	Low – Poor habitat is present on the western side of Ryan Slough beneath the cover of the coniferous trees. The nearest occurrence is approximately 2.0 miles to the southeast. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018a).	Moderate – Suitable habitat is present in the redwood forests located adjacent to the Project site. The nearest occurrence is approximately 1.8 miles to the southeast. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).
Marsh pea (<i>Lathyrus palustris</i>)	CRPR 2B.2	Mesic habitats in bogs and fens, coastal prairies, coastal scrub, lower montane coniferous forests, marshes and swamps, and North Coast coniferous forests at elevations ranging from 0 to 330 feet. Blooms from March to August.	None – There is no suitable habitat located at the Project site.		Moderate – Marginal habitat is present in the mesic portions of the Project site. Nearest occurrence is located approximately 3.3 miles southwest. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
Running-pine (<i>Lycopodium clavatum</i>)	CRPR 4.1	Edges, openings, or roadsides in mesic lower montane coniferous forests, marshes and swamps, and mesic North Coast coniferous forests at elevations ranging from 150 to 4,020 feet. Typically blooms from June to August but can bloom into September.	None - There is no suitable habitat located at the Project site.	Low - Poor quality habitat is present west of Ryan Slough on the project site. Nearest occurrence is approximately 3.0 miles to the east. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018a).	Moderate - Suitable habitat is present along the access road. Nearest occurrence is approximately 3.0 miles to the east. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).
Ghost-pipe (<i>Monotropa uniflora</i>)	CRPR 2B.2	Broadleaved upland forests and North Coast coniferous forests at elevations ranging from 30 to 1,800 feet. Typically blooms from June to August but can bloom into September.	None - There is no suitable habitat located at the Project site.		Moderate - Potentially suitable habitat is present in the willow and red alder patches along the access road. The nearest occurrence was last seen in 1971 and was observed within the Project site; however, special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).
Howell's montia (<i>Montia howellii</i>)	CRPR 2B.2	Vernally mesic meadows and seeps, vernal pools, and North Coast coniferous forests at elevations ranging from 0 to 2,740 feet. Typically blooms from March to May but can	None – There is no suitable habitat located at the Project sites.		Moderate - Potentially suitable vernal seeps may be present in sections of the redwood forest adjacent to the Project site. Nearest recent occurrence is

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
		bloom earlier in January and February.			from 2014 and is approximately 1.5 miles south. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).
Maple-leaved checkerbloom (<i>Sidalcea malachroides</i>)	CRPR 4.2	Often disturbed areas in broadleaved upland forests, coastal scrub, coastal prairies, riparian woodlands, and North Coast coniferous forests at elevations ranging from 0 to 2,400 feet. Typically blooms from April to August but can start blooming in March.	Low - Poor habitat is present at the Project sites. The nearest recent occurrence is approximately 1.2 to 1.8 miles southeast of the Project sites.		Moderate - Suitable habitat is present along the access road. The nearest occurrence is approximately 0.8 miles southeast. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).
Siskiyou checkerbloom (<i>Sidalcea malviflora</i> ssp. <i>patula</i>)	CRPR 1B.2	Often roadcuts in North Coast coniferous forests, coastal bluff scrub, and coastal prairies at elevations ranging from 50 to 2,630 feet. Typically blooms from May to August but can start blooming as early as April.	None – Poor habitat is present on the Project sites and the nearest occurrences are greater than two miles west and have not been observed since 1944.		Moderate – Potentially suitable habitat is present along the access road. Nearest occurrence is approximately two miles west. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).
Coast checkerbloom (<i>Sidalcea oregana</i> ssp. <i>eximia</i>)	CRPR 1B.2	Lower montane coniferous forests, meadows and seeps, and North Coast	Low – Poor quality habitat present in the wet meadow on the Project sites. Nearest occurrence was last observed in 1907. Special-status plant surveys		Moderate - Potentially suitable habitat present in wet meadows on the

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
		coniferous forests at elevations ranging from 15 to 4,400 feet. Blooms from June to August.	conducted in 2017 and 2019 did not detect his species (Stillwater Sciences, 2018a and 2019).		access road. Nearest occurrence is 3.3 miles away and was last observed in 1907. Special-status plant surveys conducted in 2017 did not detect this species (Stillwater Sciences, 2018b).
Western sand-spurry (<i>Spergularia canadensis</i> var. <i>occidentalis</i>)	CRPR 2B.1	Coastal salt marshes and swamps at elevations ranging from 0 to 10 feet. Blooms from June to August.	High - Suitable habitat present in the tidal marsh habitat. Species was observed in a survey conducted in the Project area in 2004. Approximately 200 individuals were recorded during 2019 special-status plant surveys occurring in two locations in the salt marsh habitat south of Freshwater Slough (Stillwater Sciences, 2019).	Moderate - Potentially suitable habitat is present along Ryan Slough. Species was not observed during special-status plant surveys conducted in 2017 (Stillwater Sciences, 2018a).	Low - Poor quality habitat is present along Ryan Creek. Species was not observed during special-status plant surveys conducted in 2017 (Stillwater Sciences, 2018b).
Special-Status Wildlife					
Western bumble bee (<i>Bombus occidentalis</i>)	California State Candidate Species	Variety of terrestrial habitats including grasslands and shrublands.	Moderate - Potentially suitable habitat present at the project sites. The nearest occurrence (Occ. #41) is less than 2 miles west.		
Green sturgeon (<i>Acipenser medirostris</i>) Southern Distinct Population Segment (DPS)	Federally Threatened, California Species of Special Concern	The southern Distinct Population Segment (DPS) typically occurs in marine and estuarine environments south of the Eel River; however, it has been	Low - Species is known to seasonally reside in Humboldt Bay and may forage in Freshwater Slough. Nearest occurrence is a specimen that was found in Humboldt Bay in 2007.		

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
		documented in Humboldt Bay. The northern DPS of the green sturgeon also occurs in Humboldt Bay, but is not a special-status species.			
Pacific lamprey (<i>Entosphenus tridentatus</i>)	California Species of Special Concern, U.S. Forest Service Sensitive species	Anadromous species although some permeant freshwater populations exist. Found in streams that enter the Pacific Ocean. Larvae and adults found in silt, mud, or sand banks along streams and spawning adults are more common in rocky riffles.	High - This species is expected to occur within aquatic portions of all three Project sites at some point during the year; however, the time of year with the highest likelihood for occurrence at all three Project sites is in winter and/or early spring (Normandeau Associates, 2015).		
Tidewater goby (<i>Eucyclogobius newberryi</i>)	Federally Endangered, California Species of Special Concern	Brackish water along the coast preferring streams that create depositional berms protecting the outlet from higher levels of salinity.	Moderate - Suitable habitat is present and nearest occurrence is within 1 mile of the Project sites (historic occurrence). Low likelihood of occurrence during low-flow season that corresponds with Project construction (July 1 through October 15). Sites do not provide potential spawning habitat within the sloughs and in-water work areas due to highly variable tidal fluctuation and water currents within the mainstem sloughs along with a lack of off-channel closed habitat features necessary for tidewater goby spawning.	Low - Species was not found in Ryan Slough During CDFW stock assessment (Wallace, 2014a). Nearest occurrence is located approximately 2.5 miles from the Project site, within tidewater goby dispersal distance; however, species is not expected to occur during low-flow season that corresponds with Project construction (July 1 through October 15).	

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
Coast cutthroat trout (<i>Oncorhynchus clarkii clarkii</i>)	California Species of Special Concern, U.S. Forest Service Sensitive species	Live in low gradient coastal streams and estuaries. Typically, an anadromous fish spending the summers in the Pacific Ocean near the coast and migrating upstream in September to October, sometimes as far as 55 miles upstream. Spawns in streams with small gravel substrates.	High - Extensive surveying of the lower Ryan Creek to determine the use of the stream-estuary ecotone by juvenile salmonids has indicated that cutthroat trout will rear in the Ryan Creek/Slough ecotone for extended periods of time (Normandeau Associates, 2015). This species has been documented in the CNDDDB with known occurrences in the Freshwater Slough and Ryan Creek/Slough ecotone (CDFW, 2019). Cutthroat trout are expected to be present within the Project areas year-round; however, populations are typically highest in winter and spring, because the species moves upstream to cooler waters in summer and fall (Normandeau Associates, 2015). Construction is scheduled to occur during the aquatic work window (July 1-October 15) which coincides with the low flow season when conditions are least favorable for salmonid occurrence due to high water temperature and low dissolved oxygen.		
Coho salmon (<i>Oncorhynchus kisutch</i>) Southern Oregon / northern California Evolutionarily Significant Unit (ESU)	Federally Threatened, California Threatened	Inhabits cool freshwater streams with pools and riffles between Cape Blanco, Oregon and Punta Gorda, California	High - Spawning adults and smolts have been observed in the Freshwater and Ryan Slough Channel System. Based on the information above, Coho salmon could be present within all three Project sites year-round; however, populations are typically highest in winter and spring, because the species moves upstream to cooler waters in summer and fall (Normandeau Associates, 2015). Coho salmon are expected to be upstream of the R-354 and R-519 Project sites when construction takes place. High water temperatures in late summer months results in a seasonal low likelihood of occurrence. Construction is scheduled to occur during the aquatic work window (July 1-October 15) which coincides with the low flow season when conditions are least favorable for salmonid occurrence due to high water temperature and low dissolved oxygen.	High - Spawning adults and smolts have been observed in the Freshwater and Ryan Slough System. Work will not occur within the creek channel at RT-102 Project site and will occur during the aquatic work window (July 1 – October 15) when coho salmon are less likely to occur; therefore, there is low potential for coho salmon to be encountered during Project activities at that site.	
Steelhead (<i>Oncorhynchus mykiss irideus</i>)	Federally threatened	Spawns from late December through April in cool, clear, well oxygenated streams with dense	High - Species has been documented in Freshwater Slough and its tributaries that flow into Humboldt Bay. The nearest occurrences include the portion of Freshwater Slough and Ryan Slough that run through	High - Species in has been documented in Freshwater Slough and its tributaries that flow	

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
Northern California DPS		vegetation on the banks and cover in the water. Resides in coastal basins from Redwood Creek to the Gualala River.	the Project sites. Steelhead could be present within the Project sites year-round; however, populations are typically highest in winter and spring, because the species moves upstream to cooler waters in summer and fall (Normandeau Associates, 2015). Steelhead are expected to be upstream of the R-354 and R-519 project sites when construction takes place. High water temperatures in late summer months results in a seasonal low likelihood of occurrence. In-water work is scheduled to occur during the aquatic work window (July 1-October 15) during the low flow season and when conditions are least favorable for fish occurrence due to high water temperature and low dissolved oxygen.		into Humboldt Bay. Work will not occur within the creek channel at RT-102 Project site and will occur during the aquatic work window (July 1 – October 15) when steelhead are less likely to occur; therefore, there is low potential for steelhead to be encountered during Project activities at that site.
Chinook salmon (<i>Oncorhynchus tshawytscha</i>) California Coastal ESU	Federally Threatened	Spawn in large streams and rivers in the spring and fall between Redwood Creek and the Russian River.	High - Species has been documented within the Freshwater Slough System. This species could occur at the R-354 Project site and R-519 Project site; however, high water temperatures in late summer months results in a seasonal low likelihood of occurrence. In-water work is scheduled to occur during the aquatic work window (July 1-October 15) This seasonal work window coincides with the low flow season when conditions are least favorable for salmonid occurrence due to high water temperature and low dissolved oxygen.		Moderate - Species has been documented within the Freshwater Slough System But species was rarely caught in the rotary screw trap operated by Green Diamond Resource Company located in Lower Ryan Creek. Work will not occur within the creek channel at RT-102 Project site and will occur during the aquatic work window (July 1 – October 15) when steelhead are less likely to occur; therefore,

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
					there is low potential for Chinook salmon to be encountered during Project activities at that site.
Longfin smelt (<i>Spirinchus thaleichthys</i>)	California Threatened, California Species of Special Concern	Occupies a variety of coastal waters including estuaries, bays, and rivers. During breeding this species spawns in freshwater reaches of coastal rivers and tributary streams.	High - Species has been documented within the Freshwater Slough System. This species could occur at the R-354 Project site and R-519 Project site. CDFW surveys captured longfin smelt in upper Freshwater Slough and upstream of the confluence with Ryan Slough (Wallace, 2014a) (Garwood, 2017).		Moderate - Species has been documented within the Freshwater Slough System. There is potential for occurrence seasonally in Ryan Slough and Ryan Creek (Normandeau Associates, 2015).
Northern red-legged frog (<i>Rana aurora</i>)	California Species of Special Concern, U.S. Forest Service Sensitive specie	Forests and grasslands near streambeds with plant cover, typically in lowlands or foothills. Breeds in permanent slow moving water sources like lakes, ponds, marshes, swamps, and slow streams.	Low - Marginal habitat present in slow moving reaches of Freshwater Slough adjacent to the southern side of the Project site. The lack of surrounding forested habitat further limits the potential for occurrence of NRLF at this site. NRLF is not expected to occur in aquatic or terrestrial habitat at the R-354 Project site.	High – Suitable non-breeding habitat is present on the west side of Ryan Slough at the R-519 Project site and Ryan Slough in the vicinity of the Project could provide breeding habitat when the salinity is low in the winter months when the NRLF lays eggs.	High - Nonbreeding NRLF were observed at the RT-102 Project site and the species is expected to occur year-round at this location. Project activities will occur during summer months outside the NRLF breeding season.
Western pond turtle (<i>Emys marmorata</i>)	California Species of Special Concern	Ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Needs basking sites and suitable upland habitat (sandy banks,	Low – Suitable habitat is present along Freshwater slough; however, the lack of basking habitat limits potential for occurrence of WPT in the Project area.	Moderate - The R-519 and RT-102 Project sites both have suitable aquatic habitat with basking habitat at or near the Project sites; therefore, there is a moderate likelihood that the species could occur at the Project sites during construction activities.	

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
		grassy open fields) for egg laying.	WPT is not expected to occur on the Project site.		
Cooper's hawk (<i>Accipiter cooperii</i>)	Formerly a California Species of Special Concern; downgraded to the CDFW Watch List	Breeds in forests and streamside trees where it can hunt its prey by ambush in dense cover. Has also been known to forage in residential areas.	Low - Species is commonly observed in the Project vicinity; however, the species is not expected to forage or nest at the R-354 Project site due to the exposure of the Project site and lack of suitable nesting habitat.	Moderate - Species is common in the Project vicinity. Suitable nesting habitat is present in the forest adjacent to the western border of the Project site.	High – Species is common in Project vicinity. Suitable nesting habitat is present along Ryan Creek.
Sharp-shinned hawk (<i>Accipiter striatus</i>)	CDFW Watch List	Breeds in woodland habitat. Typically forages in areas of dense cover where it can ambush its prey.	Low - Species is commonly observed in the Project vicinity; however, the species is not expected to forage or nest at the R-354 Project site due to the exposure of the Project site and lack of suitable nesting habitat.	Moderate - Species is common in the Project vicinity. Suitable nesting habitat is present in the forest adjacent to the western border of the Project site.	High – Species is common in Project vicinity. Suitable nesting habitat is present along Ryan Creek.
Short-eared owl (<i>Asio flammeus</i>)	California Species of Special Concern	Occurs in open grasslands, prairies, agricultural fields, marshes, and prairies. Forages on small mammals in these habitats. Nests in a shallow depression on the ground.	Moderate - Suitable foraging habitat is present on site. Species has been observed in the Fay Slough Wildlife Area and Arcata Bottoms located within five miles of the sites. Nesting potential is very limited due to extent of grazing and lack of ground cover.	None - Suitable foraging habitat is present in the fields adjacent to the project site's eastern border. Dense tree cover creates a barrier on the southern portions of the site.	
Vaux's swift (<i>Chaetura vauxi</i>)	California Species of Special Concern	Vaux's swift occurs as a breeding resident in the Sierra Nevada, Cascade, and Coastal ranges of California. This species	Low - Species is regularly observed in the Humboldt Bay region during the breeding season. No	Moderate - Species is regularly observed in the Humboldt Bay region during the breeding season.	High - Species was observed at Ryan Creek during the breeding season. Suitable nesting habitat

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
		nests in redwood and Douglas-fir forest in large hollow trees or snags.	suitable nesting habitat is present on the Project site.	Potentially suitable habitat is present in the forest adjacent to the Project's western border.	is present in the forests that surround the Project site and Ryan Creek.
Northern harrier (<i>Circus cyaneus</i>)	California Species of Special Concern	Forages and nests in freshwater and brackish marshes and their adjacent grasslands.	High - Species was observed during surveys. Potentially suitable nesting habitat occurs within 500 feet of the Project sites, although nesting habitat at R-354 is poor quality due to the extent of cattle grazing and lack of dense ground cover.		Moderate - Suitable foraging habitat is present within pastureland east of the RT-102 Project site, but the species was not observed at this location during field surveys.
Olive-sided flycatcher (<i>Contopus cooperi</i>)	CDFW Watch List	Breeds in ecotones between forest and open habitats, typically with prominent habitat features on which to perch, and from which to located and catch prey.	Low – Infrequent occurrences in the area. No suitable nesting habitat onsite.	Moderate - Infrequent occurrences in the area. Suitable habitat occurs in forest edge habitat at the Project sites.	
White-tailed kite (<i>Elanus leucurus</i>)	California Fully Protected	Rolling foothills / valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Forages over grasslands, marshes, and oak savannas close to isolated, dense-topped trees for nesting and perching.	High - Species was observed foraging in pastureland northeast of the project. Suitable foraging habitat is present on site. Nesting habitat is very limited within 500 feet of the Project.	High - Suitable foraging habitat present on site. Suitable nesting habitat present in the forest adjacent to the site's western border.	Moderate – Suitable foraging habitat present within 500 feet of the Project site. Suitable nesting habitat present in the riparian corridor of Ryan Creek and the forest margins near the site.
Willow flycatcher (<i>Empidonax traillii</i>)	California Endangered, USFWS Bird	Found in thickets of deciduous trees and shrubs, often near a stream	Low – Poor quality habitat is present on the Project site.	Moderate - Marginally suitable habitat is present along the Ryan	Moderate – Suitable habitat present along the Ryan Creek riparian

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
	of Conservation Concern, and a Forest Service Sensitive species	or marsh. Often nest in willow trees and shrubs.		Slough riparian corridor. Relatively common in the Arcata Bay area and at the Freshwater Farms Reserve located approximately 1 mile east. The species is unlikely to nest at the R-519 Project site due to the discontinuous willow riparian habitat.	corridor and the forested wetlands adjacent to the Project site. Relatively common in the Arcata Bay area and at the Freshwater Farms Reserve located approximately 1.2 miles northeast. The species is unlikely to nest at the RT-102 Project site due to the discontinuous willow riparian habitat.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	CDFW Fully Protected Species, U.S. Forest Service Sensitive species, and a Bird of Conservation Concern	Associated with permanent water sources including lakes, reservoirs, and large free-flowing rivers with abundant fish and nearby old-growth trees or snags for perching, roosting, and nesting. It roosts communally in winter in dense, uneven-aged conifer stands with old-growth components in proximity to feeding areas. It is a permanent resident in northern California.	Low – Suitable foraging habitat is present on the Project sites. No suitable nesting habitat present within 500 feet of the Project site. The species is not expected to occur in the Project site.	Moderate – Suitable foraging habitat is present on the Project sites. Suitable nesting trees occur near the R-519 and RT-102 Project sites.	
Osprey (<i>Pandion haliaetus</i>)	CDFW Watch List, U.S. Forest Service Sensitive species	Occurs throughout California except within the deserts and Great Basin. It breeds in large trees, snags, and dead-topped	Moderate - Suitable foraging habitat is present on site. Nesting habitat is limited.	High - Nesting habitat is present at the Project site. Species is commonly seen in the Arcata Bay Area. Nest	

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
		trees in open forest in northern California from the Cascade Range to Marin County along the coast, and to the southern Sierra Nevada range. Nests are situated near ocean shores, bays, lakes, river, and large streams, which are required for foraging primarily on fish.			was found in 1998 approximately 650 feet east of the RT-102 sinkhole location.
Double-crested cormorant (<i>Phalacrocorax auratus</i>)	CDFW Watch List	Found in a variety of aquatic habitats including coasts, lakes, rivers, and bays. Often nests in trees over water in large colonies but also breeds on sea cliffs and on the ground. The species sensitive listing status is due to its colonial nesting behavior known as “rookeries”. Rookeries are protected.	Low - Species common in the Project Area. No suitable nesting habitat present. Nearest recorded rookery is approximately 16.5 miles north.	Moderate - Species common in the Project Area. Poor quality nesting habitat present in the redwood forest to the west of the project site. Nearest recorded rookery is approximately 17.2 miles north.	
Black-capped chickadee (<i>Poecile atricapillus</i>)	CDFW Watch List	Inhabits both deciduous and coniferous forests in the northern United States through Canada and into Alaska. Nests in natural cavities or in nest boxes in trees.	Moderate – Species is common in the area. Marginally suitable habitat is present along Freshwater Slough. Poor nesting habitat is present at the site.	High – Species is common in the area and suitable habitat occurs in the adjacent forest habitat.	High – Species was observed during field surveys. Suitable habitat is present in forested areas.
Yellow warbler (<i>Setophaga petechia</i>)	California Species of Special Concern and	Usually found in riparian deciduous habitats of cottonwoods, willows, alders, and other small	Low – Poor quality habitat is present along Freshwater Slough through the reach of the Project site. Frequently	Moderate - Marginally suitable habitat present along the Ryan Slough riparian corridor.	High - Species was observed in the riparian corridor along Ryan Creek. Suitable habitat

Table 4.4-2 Special-Status Species with Potential to Occur within the Project Sites

Common Name/ Scientific Name	Status	Habitat	Likelihood to Occur		
			R-354	R-519	RT-102
	a USFWS Bird of Conservation Concern	trees and shrubs typical of low, open-canopy riparian woodland. Gleans and hovers in upper canopy of deciduous trees and shrubs, feeding on insects and spiders.	observed at the Freshwater Farms Reserve located approximately 1.2 miles southeast.	Frequently observed at the Freshwater Farms Reserve located approximately 1 mile east.	is present along Ryan Creek.
Northern spotted owl (<i>Strix occidentalis caurina</i>)	Federally Threatened, California Threatened	Typically occurs in unlogged, expansive coniferous forests with dense canopies and large trees.	None – There is no suitable habitat located at the Project site; therefore, the species is not expected to occur.	Low - Poor quality, fragmented habitat is present in the redwood forests surrounding the Project site. Spotted owls may occur in the vicinity of the RT-102 Project site because of the proximity to dense forested lands to the south, where the HUM0987 nesting territory is located; however, the project site does not support suitable habitat for nesting or foraging spotted owls due to the exposure of the location and fragmented nature of forest habitat at the Project site.	

4.4.2 Regulatory Setting

4.4.2.1 Federal

Special-Status Species. The FESA, administered by the USFWS and the NMFS (collectively referred hereafter as the “Services”), provides protection to species listed as Threatened (FT) or Endangered (FE), or proposed for listing as Threatened (PFT) or Endangered (PFE). The Services maintain lists of species that are neither formally listed nor proposed but could be listed in the future. These Federal candidate species (FC) include taxa for which substantial information on biological vulnerability and potential threats exists and are maintained in order to support the appropriateness of proposing to list the taxa as an endangered or threatened species.

Additionally, the FESA can protect a DPS of a species. The “Distinct Population Segment” is the smallest division of a taxonomic species that can be protected under the FESA. Three elements are considered in determining whether DPS is a factor as endangered or threatened under FESA. These elements are *discreteness* of the population segment in relation to the remainder of the species, the *significance* of the population segment to the species, and the population segments *conservation status* in relation to FESA’s standards for listing. If a DPS is determined to be discrete and significant, its evaluation for endangered or threatened status will be based on FESA’s definitions of those terms and a review of the factors included in section 4(a) of the FESA.

With respect to salmonid DPS, the NMFS has developed a policy that applies only to species of salmonids native to the Pacific. Under the policy, Pacific salmon is considered a DPS if it represents an evolutionarily significant unit (ESU) of a biological species (NOAA, 1996). A species must meet two criteria to be considered a separate ESU: it must be substantially reproductively isolated from other conspecific population units; and, it must represent an important component in the evolutionary legacy of the species.

Projects that will result in the “take” of a federally listed or proposed species (as defined by FESA Section 9) are required to consult with the Services. The objective of consultation is to determine whether the project will jeopardize the continued existence of a listed or proposed species, and to determine what mitigation measures will be required to avoid jeopardy. Consultations are conducted under Sections 7 or 10 of FESA depending on the involvement by the Federal government.

Under Section 7, the Services are authorized to issue Incidental Take Permits (ITP) for the take of a listed species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency. A Biological Assessment is usually required as part of the Section 7 consultation to provide sufficient information for the Services to fully determine the project’s potential effect on listed species. The Services must make one of three possible findings for each species potentially affected:

No effect: The proposed action will not affect the listed species or critical habitat;

Not likely to adversely affect: Effects of construction on the listed species are expected to be discountable (extremely unlikely to occur), insignificant (minimal impact without take), or beneficial; and

Likely to adversely affect: An adverse effect may occur as a direct or indirect result of the proposed action, and the effect is not discountable, insignificant, or beneficial.

Section 10 consultation is conducted when there is no Federal involvement in a project except compliance with FESA.

The USFWS administers the Federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) and the Bald Eagle and Golden Eagle Protection Act (16 USC 668-688). The MBTA prevents the removal of trees, shrubs, and other structures containing active nests of migratory bird species that may result in the loss of eggs or nestlings. Adherence to construction windows either before the initiation of breeding activities or after young birds have fledged is a typical step to protect migratory birds and comply with the MBTA. The Bald Eagle and Golden Eagle Protection Act prohibits the taking or possession of bald and golden eagles, their eggs, or their nests without a permit from the USFWS.

Waters and Wetlands. The U.S. Army Corps of Engineers (ACOE) and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredge and fill material into jurisdictional waters of the United States (U.S.) and wetlands under Section 404 of the Clean Water Act.

The ACOE is responsible for the issuance of permits for the placement of dredged or fill material into waters of the U.S. pursuant to Section 404 of the Clean Water Act (33 USC 1344). As defined by the ACOE at 33 CFR 328.3(a)(3), waters of the U.S. are those waters that are used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; interstate waters including interstate wetlands; and, territorial seas.

ACOE asserts jurisdiction over traditional navigable waters (TNW) and adjacent wetlands. Under ACOE and EPA regulations, wetlands are defined as: “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

In non-tidal waters, the lateral extent of ACOE jurisdiction is determined by the OHWM which is defined as the: “...line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.” (33 CFR 328[e]).

On June 29, 2015, ACOE and EPA issued new definitions for waters/wetlands (U.S. Army ACOE of Engineers and U.S. Environmental Protection Agency, 2015), intended to become

effective on August 28, 2015. These regulatory definitions are known as the 2015 Clean Water Rule.

Immediately subsequent to issuance, the 2015 Clean Water Rule (Rule) was challenged in Federal courts, and in October 2015, the Sixth Circuit Court of Appeals put a nationwide hold on the new Rule, reverting to the 1986 regulations and subsequent guidance for Approved Jurisdictional Determinations. In 2017, ACOE and EPA published their intent to “review and rescind or revise” the 2015 Clean Water Rule, and the EPA asked the courts to suspend the case while the Rule was under review. In 2018 the EPA delayed the effective date of the 2015 Clean Water Rule for two years, and the Sixth Circuit Court lifted its stay of the Rule. A Federal judge then issued a nationwide injunction on the administrative delay of the Clean Water Rule for failure to comply with the Administrative Procedure Act. Pursuant to the Court order, the 2015 Clean Water Rule remained in effect in 22 states, including California (U.S. Army ACOE of Engineers, 2018). On December 11, 2018 ACOE and EPA proposed a revised definition of waters of the U.S. This proposal was published in the Federal Register and entered a public review period that ended on April 15, 2019. On October 22, 2019, the EPA and Department of the Army published a final rule to repeal the 2015 Clean Water Rule reverting regulation back to the 1986 regulations and subsequent guidance for Approved Jurisdictional Determinations. The final rule became effective on December 23, 2019. On January 23, 2020, the Corps and EPA finalized the Navigable Waters Protection Rule to define Waters of the U.S. and streamline the definition so that it includes four categories of jurisdictional waters, provides clear exclusions for features not regulated, and defines terms in the regulatory text. The Navigable Waters Protection Rule fulfills Executive Order 13788 and will become effective 60 days after publication in the Federal Register. Once effective, it will replace the rule published on October 22, 2019.

4.4.2.2 State

Special-Status Species. The CDFW administers a number of laws and programs designed to protect the State’s fish and wildlife resources. Principal of these is the California Endangered Species Act of 1984 (CESA) (Fish and Game Code Section 2050), which regulates the listing and take of State endangered (SE) and State threatened species (ST). Under Section 2081 of CESA, CDFW may authorize an incidental take permit allowing the otherwise unlawful take of a SE or ST species.

CDFW maintains lists of Candidate-Endangered species (SCE) and Candidate-Threatened species (SCT). These candidate species are afforded the same level of protection as listed species. CDFW designates Species of Special Concern (SSC) that are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species but may be added to official lists in the future. The SSC list is intended by CDFW as a management tool for consideration in future land use decisions.

Other State laws also protect wildlife and plants. Section 3511 of the California Fish and Game Code (F&G Code), for example, designates species that are afforded “Fully Protected” (FP) status. F&G Code Sections 4700 and 5515 assign the same status to specified mammals and fish. These statutes generally provide that specifically identified birds, mammals, and fish “or

parts thereof may not be taken or possessed at any time and no provision of [the Fish and Game] code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird, mammal, or fish] and no permits or licenses heretofore issued shall have any force or effect” for any such purpose. For fully protected fish and mammals, the only exception to the take prohibition is that the Fish and Game Commission may authorize the collecting of such species “for necessary scientific research” (F&G Code, Sections 4700, 5515). With a proper permit, fully protected species may also be captured live and relocated “for the protection of livestock” (Section 3511). Section 3503.5 protects birds-of-prey (Falconiformes and Strigiformes), their eggs, and their nests. That statute provides that, “[I]t is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.”

CDFW manages the California Native Plant Protection Act (CNPPA) of 1977 (F&G Code Section 1900, et seq.), which was enacted to identify, designate and protect rare plants. In accordance with CDFW guidelines, all California Rare Plant Rank (CRPR) 1 (A and B), Rank 2 (A and B), Rank 3, and some Rank 4 plants are considered “rare” under the Act, and meet the definition of Rare or Endangered under the CEQA Guidelines §15125 and/or §15380. Potential impacts to these species are considered during CEQA review of a proposed project. The CNPPA allows landowners, under most circumstances involving new development, to take rare plant species, provided that the owners first notify CDFW and give the agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed (F&G Code Section 1913 exempts from “take” prohibition “the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way”).

Waters and Wetlands. The California Coastal Act of 1976 created the California Coastal Commission, which consists of six area offices that are responsible for granting development permits for coastal projects and for determining consistency between Federal and State coastal management programs. Wetlands found in the coastal zone are regulated under the California Coastal Act and the Federal Coastal Zone Management Act (CZMA) and are under the jurisdiction of the CCC. The authority of the CCC includes reviewing proposed project actions, as well as reviewing project actions for the integration of policies that are established by the California Coastal Act. The legislature also created the California Coastal Conservancy (Coastal Conservancy) in 1976, which is authorized to take steps to preserve, enhance, and restore coastal resources, as well as to address issues that regulations alone are unable to resolve.

The CCC, under the California Coastal Act of 1976, defines a wetland as:

“... land within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens”. (Pub. Res. Code 30121)

Further guidance regarding the definition of coastal wetlands jurisdiction is provided by the California Code of Regulations, in which hydrologic factors, hydric soils and vegetation are used independently to define a wetland. Under these provisions, wetlands are defined as:

“...land where the water table is at near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to vegetated wetland or deepwater habitats.” (14 CCR 13577)

Pursuant to the California Coastal Act of 1976, the CCC is responsible for implementing the California Coastal Management Program in California’s Coastal Zone, which extends three miles seaward and generally about 1,000 yards inland. The CCC’s primary mission is to plan for and regulate land and water uses in the coastal zone consistent with the Local Coastal Program, in this case the Humboldt Bay Area Plan (Humboldt County, 1983). Because the CCC has approved the Local Coastal Program, Humboldt County acting on behalf of the CCC issues its own permits for development within the coastal zone. The PG&E Pipeline Maintenance project sites are all located within the Coastal Zone.

Pursuant to Section 1602 of the Fish and Game Code, a Lake or Streambed Alteration Agreement (LSAA) between the CDFW and State or local governmental agency, public utility, or private citizen is required before the initiation of a construction project that will: (1) divert, obstruct, or change the natural flow or the bed, channel, or bank of a river, stream, or lake; (2) use materials from a streambed; or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Therefore, the CDFW claims jurisdiction over the bed, bank, and channel of drainage features with regard to activities regulated under Section 1602 of the California Fish and Game Code. The CDFW has adopted the same wetland definition as the USFWS, classified by the presence of only one parameter; however, CDFW does not specifically regulate wetlands.

The Porter-Cologne Water Quality Control Act (CA Water Code §§ 13000-13999.10) mandates that waters of the State of California shall be protected. Current policy in California is that activities that may affect waters of the State shall be regulated to attain the highest quality. waters of the State include any surface water or groundwater, including saline waters, within the boundaries of the State. The Porter-Cologne Act establishes that the State assumes responsibility for implementing portions of the Federal CWA, rather than operating separate State and Federal water pollution control programs in California. Consequently, the State is involved in activities such as setting water quality standards, issuing discharge permits, and operating grant programs. Pursuant to Section 401 of the Clean Water Act, the Corps cannot issue a Federal permit until the State of California first issues a water quality certification to ensure that a project will comply with State water quality standards. The authority to issue water quality certifications in the Project area is vested with the NCRWQCB.

In April 2019, the State Water Resources Control Board adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material (Procedures), for inclusion in the Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries

and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) wetland delineation procedures; 3) a wetland jurisdictional framework; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures were recently approved by the Office of Administrative Law. The Procedures will be implemented and will apply to all applications for discharge of dredged or fill material to waters of the State nine months after final approval by the Office of Administrative Law. The Procedures will take effect in May 2020.

4.4.2.3 Local and Regional Plans

Humboldt County General Plan. The Conservation and Open Space Elements of the Humboldt County General Plan contain goals and policies pertaining to biological resources of Humboldt County (Humboldt County, 2017). Goals and policies that are relevant to the proposed Project include the following:

- **BR-G1. Threatened and Endangered Species.** Sufficient recovery of threatened and endangered species to support de-listing.
- **BR-G2. Sensitive and Critical Habitat.** A mapped inventory of sensitive and critical habitat where biological resource protection policies apply.
- **BR-G3. Benefits of Biological Resources.** Fish and wildlife habitats protected on a sustainable basis to generate long-term public, economic, and environmental benefits.
- **BR-P1. Compatible Land Uses.** Areas containing sensitive habitats shall be planned and zoned for uses compatible with the long-term sustainability of the habitat. Discretionary land uses and building activity in proximity to sensitive habitats shall be conditioned or otherwise permitted to prevent significant degradation of sensitive habitat, to the extent feasible consistent with California Department of Fish and Wildlife guidelines or recovery strategies.
- **BR-P2. Critical Habitat.** Discretionary projects which use federal permits or federal funds on private lands that have the potential to impact critical habitat shall be conditioned to avoid significant habitat modification or destruction consistent with federally adopted Habitat Recovery Plans or interim recovery strategies.
- **BR-P4. Development within Stream Channels.** Development within stream channels shall be permitted when there is no lesser environmentally damaging feasible alternative, and where the best feasible mitigation measures have been provided to minimize adverse environmental effects. Development shall be limited to essential, non-disruptive projects as listed in Standard BR-S6 - Development within Stream Channels.
- **BR-P5. Streamside Management Areas.** To protect sensitive fish and wildlife habitats and to minimize erosion, runoff, and interference with surface water flows, the County shall maintain Streamside Management Areas, along streams including intermittent streams that exhibit in-channel wetland characteristics and off-channel riparian vegetation.

- **BR-P6. Development within Streamside Management Areas.** Development within Streamside Management Areas shall only be permitted where mitigation measures (Standards BR-S8 - Required Mitigation Measures, BR-S9 - Erosion Control, and BR-S10 - Development Standards for Wetlands) have been provided to minimize any adverse environmental effects, and shall be limited to uses as described in Standard BR-S7 - Development within Streamside Management Areas.
- **BR-P7. Wetland Identification.** The presence of wetlands in the vicinity of a proposed project shall be determined during the review process for discretionary projects and for ministerial building and grading permit applications, when the proposed building development activity involves new construction or expansion of existing structures or grading activities. Wetland delineation by a qualified professional shall be required when wetland characterization and limits cannot be easily inventoried and identified by site inspection.
- **BR-P8. Wetlands Banking.** The County supports the development of a wetlands banking system that minimizes potential conversion of prime agriculture lands to wetlands.
- **BR-P9. Oak Woodlands.** Oak woodlands shall be conserved through the review and conditioning of discretionary projects to minimize avoidable impacts to functional capacity and aesthetics, consistent with state law.
- **BR-P10. Invasive Plant Species.** The County shall cooperate with public and private efforts to manage and control noxious and exotic invasive plant species. The County shall recommend measures to minimize the introduction of noxious and exotic invasive plant species in landscaping, grading and major vegetation clearing activities.
- **BR-P11. Biological Resource Maps.** Biological resource maps shall be consulted during the ministerial and discretionary permit review process in order to identify habitat concerns and to guide mitigation for discretionary projects that will reduce biological resource impacts to below levels of significance, consistent with CEQA.
- **BR-P12. Agency Review.** The County shall request the California Department of Fish and Wildlife, as well as other appropriate trustee agencies and organizations, to review plans for development within Sensitive Habitat, including Streamside Management Areas. The County shall request NOAA Fisheries or U.S. Fish and Wildlife Service to review plans for development within critical habitat if the project includes federal permits or federal funding. Recommended mitigation measures to reduce impacts below levels of significance shall be considered during project approval, consistent with CEQA.
- **BR-P13. Landmark Trees.** Establish a program to identify and protect landmark trees, including trees that exhibit notable characteristics in terms of their size, age, rarity, shape or location.

4.4.3 Impact Analysis

- a. *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

Less than Significant with Mitigation. The Project would have a less than significant impact, with the successful implementation of applicant proposed minimization and avoidance measures and mitigation measures, on special-status species, or the habitats that support these species. Long-term impacts are associated with conversion of natural habitats to developed or other hardscape condition. Long term impacts associated with this project are limited to placement of shoreline stabilization mats at the R-354 Project site and rock erosion protection associated with the culvert inlet and outfall at the RT-102 Project site. No long-term impacts are anticipated at the R-519 Project site.

Short-term impacts expected to occur to special-status species during construction include habitat disturbance associated with construction, introduction of temporary barriers altering movement, localized turbidity, and vegetation removal. Indirect impacts include invasion of non-native plants into natural areas, noise disturbances, and temporary declines in air and water quality.

Impacts to special-status plant species ranked CRPR 2B are considered potentially significant impacts. Impacts to special-status species ranked CRPR 4 species (sea-watch) are considered less than significant because they do not meet the CEQA definition of rare or endangered (see Section 15380 of the State CEQA Guidelines). In any case, only a small number of individuals of sea watch would be affected and there are a large number of populations occurring nearby.

In-water work at the pipeline maintenance Project sites could impact special-status fish species if present at the Project sites during construction. Construction would temporarily increase turbidity to the aquatic environment surrounding the Project. Increases in turbidity can result in physical effects that adversely affect habitat and temporary suspension of sediments, organic matter, or contaminated constituents contained within the sediments could be introduced into the water column. Large-scale increases of organic matter within a water column, usually associated with fine sediments, such as silts and clays, can increase dissolved nutrient concentrations, resulting in increased algal blooms or decrease dissolved oxygen when the suspended sediments are anoxic or have a high chemical oxygen demand.

Special-status aquatic species, WPT and NRLF, could be impacted by in-water work and terrestrial activities during construction. WPT and NRLF are both known to occur in the vicinity of Ryan slough, and Ryan Creek. WPT and NRLF could be displaced by construction activities or injured or killed during mobilization of equipment. In addition, several protected bird species have the potential to forage or nest in and around the Project sites. Impacts to birds could include disruption of nesting behaviors and destruction of suitable nesting habitat.

Impacts to special-status species are discussed separately by Project site below due to the variety of maintenance construction methodologies proposed, variability in habitat suitability, associated potential impacts, and prescribed avoidance measures or mitigation for each Project site.

4.4.3.1 R-354 Project Site

Long-Term Impacts

Special-Status Plants

The installation of shoreline mats on the levee at the R-354 Project site would impact two special-status plant species: the sea watch and northern sand spurrey. The sea watch is a CRPR 4.2 species and the northern sand spurrey is a CRPR 2B.1 species. Impacts to special-status plant species ranked CRPR 2B (sand spurrey) are considered potentially significant impacts. Impacts to special-status species ranked CRPR 4 species (sea-watch) are considered less than significant because they do not meet the CEQA definition of rare or endangered (Section 15380 of the State CEQA Guidelines). Special-status plant surveys conducted in 2019 identified approximately 40 individuals of the northern sand spurrey within the area proposed for shoreline mat installation for the purposes of bank stabilization on the levee north of Freshwater Slough. The conversion of habitat represents a long-term impact to special-status plant species; however, the implementation of **Mitigation Measure (MM) BIO-1** would reduce the Project impacts to special-status plants to less than significant.

MM BIO-1: Special-Status Plant Restoration / Mitigation. Permanent impact to special-status plants (CRPR List 1 or 2 species) shall be mitigated through replacement on a 1:1 basis within suitable habitat adjacent to the permanent impact area (if approved by landowner) or at an alternate mitigation site near the project site as determined to be suitable by a qualified botanist (e.g., the Dead Mouse Marsh mitigation site located adjacent to the R-354 site or the tidal marsh area on south side of Freshwater Slough). Areas where temporary impacts to special-status plants occur shall be restored to pre-existing conditions upon completion of the Project. A Special-status Plant Restoration / Mitigation Plan shall be prepared that provides for plant salvage and transplantation and/or seed collection and replanting, as appropriate and establish performance criteria and monitoring to ensure a minimum of 1:1 replacement of special-status plant species permanently affected or restoration to pre-project conditions for temporary impacts, as applicable based on specific impacts. If a suitable replacement location for special-status species affected by permanent Project impacts cannot be identified, collected seed could be provided to a seed bank for long-term storage and preservation of genetic diversity for the species. The Special-status Plant Restoration / Mitigation Plan shall be submitted to the District for review and approval at least 60 days prior to the start of construction activities.

Special-Status Wildlife

Fish. There is limited potential for special-status fish species to occur at the R-354 Project site when in-water work is scheduled to occur in late summer months (July 1 to October 15). This timeframe coincides with the low flow season and seasonally high water temperatures. Additionally, the R-354 Project site does not provide suitable spawning or rearing habitat due to the heavily embedded substrates, lack of submerged or emergent vegetation, and lack of woody structure. Freshwater Slough at this location merely provides migratory habitat for fish to upstream suitable habitat. The installation of the shoreline mats on the levee at the R-354 Project site will occur along a shoreline that is in a highly eroded condition and does not provide fish spawning or rearing habitat. Installation of the shoreline mats would not result in a loss of available in-channel habitat suitable for fish migration to upstream spawning habitat or in-channel habitat suitable for fish rearing, foraging, or shelter. A less than significant long-term impact to special-status fish species would result. In addition, the installation of bank stabilization mats would improve aquatic habitat through the elimination of ongoing erosion at this location. Reduced erosion would result in reduced turbidity in aquatic habitat at this location and provide long term benefits to fish and improved water quality in Freshwater Slough.

Amphibians and Reptiles. The R-354 Project site does not provide suitable aquatic or terrestrial habitat for WPT or NRLF due to the lack of emergent vegetation and basking structures. Installation of the shoreline mats on the levee at the R-354 Project site will not result in a loss of habitat for special-status amphibians and reptiles. No long-term impact to special status amphibian and reptile species would result.

Birds. Nesting habitat for special-status bird species is limited due to the limited extent of trees and shrubs at this location. Bird foraging potential in the permanent impact area associated with the installation of the shoreline mats is also limited. No trees or shrubs will be removed as a result of installation of the shoreline mats and long-term impact to grasslands on the levee top is minimal (less than 0.05-acre). No significant long-term impact to special-status bird species would result.

Short-Term Impacts

Special-Status Plants

Surveys for special-status plant species were conducted at the R-354 Project site. No special-status plant species were found to occur within the footprint of temporary construction disturbances. No short-term impact to special-status plant species would result.

Special-Status Wildlife

Fish. Special-status fish species are known to occur in the Freshwater Slough watershed where the R-354 Project site is located. The likelihood for special-status fish to occur within the Project site varies dramatically by the time of year (e.g. during spawning migrations) and the suitability of aquatic habitat at the site is also influenced seasonally by environmental conditions such as water temperature and dissolved oxygen levels. Special-status fish, specifically

salmonid, avoidance to warmer waters has been documented during the late summer and fall; therefore, scheduling construction during the time of year that coincides with increased water temperature will reduce the potential for temporary impact to special-status fish species during construction. The implementation of **Applicant Proposed Minimization Measure (AMM) BIO-1** would reduce the likelihood that special-status fish would be present in the work area and reduce the short-term impact to less than significant.

Construction activities involving in-water work that result in short-term localized increases in turbidity include the removal of the exposed pipeline at the R-354 Project site. The implementation of **AMM BIO-2** requiring turbidity monitoring and potential use of a turbidity curtain would minimize the short-term effects of increased turbidity to surrounding areas that may provide habitat for special-status fish species. In-water work and the installation of the turbidity curtain, if determined to be necessary, could temporarily impede fish movement in the area and temporarily exclude fish use of the construction sites. However, areas of temporary habitat disturbance would be relatively small compared to the total area of similar habitat available in the Freshwater Slough/Ryan Slough watershed. Pipeline removal and potential use of the turbidity curtain at the R-354 Project site involves only the northern bank of Freshwater Slough; therefore, fish passage would not be restricted at the Project site if use of a turbidity curtain is implemented. The temporary nature of the disturbance combined with the availability of similar habitat throughout the watershed and implementation of **AMM BIO-1**, **AMM BIO-2**, and **AMM BIO-3**, would reduce the short-term impacts to special-status fish to less than significant.

AMM BIO-1: Special-Status Fish Avoidance Work Window. Construction activities in surface water or on the banks of Freshwater Slough, Ryan Slough, and Ryan Creek will be conducted within the agency approved aquatic work windows for minimization of impacts to special-status fish species (July 1 to October 15). In-water work will be prioritized for occurrence in August and September, when water temperature is high, dissolved oxygen is low and aquatic conditions are least favorable for salmonid occurrence at the R-354 and R-519 sites. In-water work for the RT-102 site will be prioritized for occurrence in July before salmonids move upstream. This coincides with the timeframes when the aquatic work area at each pipeline maintenance site is least likely to support special-status fish species.

AMM BIO-2: Turbidity Monitoring. A Turbidity Monitoring Plan will be implemented during all in-water work to ensure that turbidity levels upstream and downstream of the Project site are compliant with regulatory requirements. The Turbidity Monitoring Plan will be submitted to the District for review and approval prior to the start of construction activities. Increases in turbidity shall not exceed 15 Nephelometric Turbidity Units (NTU) above baseline levels, as measured at an established turbidity monitoring station 300 feet downstream from the work site, during in-water work, unless agency permit conditions provide different thresholds. Additional measures will be implemented to reduce turbidity levels if determined to be necessary based on site conditions at the time of construction and the influence of in-water work on ambient turbidity levels in proximity to the Project site. Following are the additional measures proposed for further reduction of the impact:

- To the extent feasible, construction activities that could cause increases in turbidity will be scheduled during low tide events.
- Turbidity curtains may be installed around in-water work areas if determined to be necessary based on results of turbidity monitoring.
- Turbidity curtains, if determined to be necessary, will be installed at low tide when water levels are at their lowest to avoid entrapment of fish.
- A qualified biological monitor will be present to monitor project activities during all in-water work and initial ground disturbance that has the potential to impact special-status species. The biological monitor will implement the Turbidity Monitoring Plan and will determine if the use of a turbidity curtain is needed based on turbidity monitoring conducted during in-water work. If a turbidity curtain is used, the biological monitor will ensure the turbidity curtain is installed during low tide conditions to exclude fish from the in-water work area. If special-status fish species are observed in the work area during installation of the turbidity curtain, the fish will be allowed to leave of their own volition prior to installation of the turbidity curtain. Applicable agencies would be notified if special-status fish species are observed and cannot self-relocate during curtain installation.

AMM BIO-3: Environmental Training Program. An environmental training program will be developed and presented by a qualified biologist. All contractors and employees involved with the Project will be required to attend the training program. At a minimum the program will cover special-status species that could occur on the sites, their distribution, identification characteristics, sensitivity to human activities, legal protection, penalties for violation of state and federal laws, reporting requirements, and required Project avoidance, minimization, and mitigation measures.

Amphibians and Reptiles. The R-354 Project site does not provide suitable aquatic or terrestrial habitat for WPT or NRLF due to the lack of emergent vegetation and basking structures. Temporary impacts associated with decommissioning and removal of the pipeline facilities will not result in short-term impacts to special-status amphibians and reptiles.

Birds. Vegetation removal activities could impact raptors or other special-status bird species such as northern harrier, white-tailed kite, bald eagle, or osprey. Many raptors and other special-status bird species are known to occur in proximity to the R-354 Project site. Very limited tree cover that would provide nesting habitat occurs at the R-354 Project site, but the pastureland and aquatic habitat does provide potentially suitable foraging habitat for northern harrier, white-tailed kite, bald eagle, and osprey. Pastureland also provides limited habitat potential for ground nesting species such as northern harrier, though nesting habitat is poor quality due to the extent of cattle grazing and lack of cover. The Project is proposed to begin in late summer for compliance with in-water work windows established for special-status fish species (July – September) and therefore would be occurring toward the end of the nesting season.

All impacts to pastureland and aquatic habitat are temporary and would constitute a temporary impact to foraging habitat for special-status bird species. Due to the short-term and

temporary nature of impacts, the availability of suitable and similar habitat available within the region, and the occurrence of construction late in the nesting season (July - September), the temporary disturbance to foraging habitat is considered less than significant.

No tree removal is proposed at the R-354 Project site; however, ground-clearing activities could impact bird species protected under the Migratory Bird Treaty Act (MBTA) or California Fish and Game Code. There is suitable nesting habitat at the R-534 site and ground-clearing activities or use of equipment along access roads could potentially impact nesting birds that are protected under the Federal MBTA of 1918 (16 USC 703-711) and Fish and Game Code (Sections 3503, 3503.5, and 3800). The laws and regulations prohibit the take, possession, or destruction of birds, their nests, or eggs. Disturbance that causes nest abandonment and/or loss of reproductive effort could be considered a “take”. The implementation of **AMM BIO-3** and **AMM BIO-4** would reduce Project impacts to less than significant levels and reduce the likelihood of “take”.

AMM BIO-4: Nesting Bird Surveys. Vegetation removal and ground-clearing activities will be scheduled prior to the initiation of nesting activity (March) or after fledging (August). If construction activities cannot be scheduled within the timeframe above, pre-construction surveys will be conducted between March 1 and August 15 in potential nesting habitat to identify nest sites. If a nest of a passerine bird species protected by the MBTA is observed during surveys, a 100-foot buffer around the nest will be established. Alternatively, consultation with CDFW should be conducted to determine whether reduced buffer zones are appropriate based on nesting phenology, site conditions, and recommendation(s) of a biological monitor. All construction activities will be prohibited in the established buffer zone until the young have fledged.

4.4.3.2 R-519 Project Site

Long-Term Impacts

Special-Status Plants

Project activities at the R-519 site will not cause long-term impacts to special-status plant species or their terrestrial or aquatic habitats. Replacement of the pipeline crossing using pilot tube methodology would minimize disturbance in the slough and its bank. Jacking shafts used for installation would be sited in upland and disturbed portions of the Project site with minimal suitable wildlife habitat. No long-term significant impacts to special-status species or their habitat are anticipated to occur.

Special-Status Wildlife

Project activities at the R-519 site will not cause long-term impacts to special-status wildlife species or their terrestrial or aquatic habitats. Replacement of the pipeline crossing using pilot tube methodology would minimize disturbance in the slough and its bank. Jacking shafts used for installation would be sited in upland and disturbed portions of the Project site with minimal suitable wildlife habitat. No long-term significant impacts to special-status species or their habitat are anticipated.

Short-Term Impacts

Special-Status Plants

Special-status plant surveys conducted in 2018 at the R-519 Project site on Ryan Slough identified Lyngbye's sedge, a CRPR 2B.2 species, along the lower banks or within the active channel all along Ryan Slough throughout the BSA. Temporary disturbance to the bed and bank of Ryan Slough associated with removal of the exposed pipeline would impact individuals of Lyngbye's sedge. The implementation of **MM BIO-1** would reduce the Project impacts to special-status plants to less than significant.

Special-Status Wildlife

Fish. Special-status fish species are known to occur in Ryan Slough where the R-519 Project site is located. The likelihood for special-status fish to occur within the Project site varies dramatically by the time of year (e.g. during spawning migrations) and the suitability of aquatic habitat at the site is also influenced seasonally by environmental conditions (e.g., water temperature and dissolved oxygen levels). Special-status fish, specifically salmonids, avoidance of warmer waters has been documented during the late summer and fall; therefore, scheduling construction during the time of year that coincides with increased water temperature will reduce the potential for temporary impact during construction. The implementation of **AMM BIO-1** would reduce the likelihood that special-status fish would be present in the work area and reduce the impact to less than significant.

Construction activities involving in-water work that would result in localized increases in turbidity include the removal of the exposed pipeline at the R-519 Project site. The implementation of **AMM BIO-2** requiring a turbidity monitoring to determine if deployment of a turbidity curtain is necessary to minimize the effects of increased turbidity to surrounding areas that may provide habitat for special-status fish species will further reduce potential impact to special-status fish. In-water work and the installation of the turbidity curtain, if determined to be necessary, could temporarily impede fish movement in the area and exclude fish use of the construction sites. However, areas of temporary habitat disturbance would be relatively small compared to the total area of similar habitat available in the Freshwater Slough/Ryan Slough watershed. Pipeline removal at the R-519 Project site involves the removal of exposed pipeline from the entire Ryan Slough crossing. Use of the turbidity curtain, if determined to be necessary, during pipeline crossing removal would restrict fish passage through Ryan Slough; however, in-water work associated with the pipeline crossing removal is expected to take one day and will not occur during anadromous fish migration. The temporary nature of the disturbance combined with the availability of similar habitat throughout the watershed and implementation of **AMM BIO-1**, **AMM BIO-2**, and **AMM BIO-3**, would reduce the short-term impacts to special-status fish to less than significant.

Amphibians and Reptiles. Construction activities at the R-519 Project site could potentially have short-term impacts on aquatic special-status species such as WPT and NRLF. There are occurrences of both WPT and NRLF within five miles of the project sites, and suitable aquatic habitat occurs onsite. Based on the review of pertinent literature, the proximity to known

occurrences, and site surveys, WPT and NRLF have a moderate potential to occur in or adjacent to Ryan Slough at the R-519 Project site. The implementation of **AMM BIO-3**, **AMM BIO-5** and **AMM BIO-6** would reduce the potential for impact to these species at the R-519 Project site to less than significant.

AMM BIO-5: Western Pond Turtle Measures. To reduce the likelihood of impact to WPT, the applicant will implement the measures below:

- A qualified biologist will conduct preconstruction surveys for turtles and their nests 48 hours prior to ground disturbance. If nests are located, the nest site plus a 50-foot buffer around the nest site will be fenced or flagged to avoid impacts to the eggs or hatchlings. Construction at the nest site and within the buffer area will be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by CDFW.
- Prior to ground disturbance activities, a barrier, such as wildlife exclusion fencing, will be placed around the excavation area to prevent WPT from moving into the work areas.
- A qualified biological monitor will be present to monitor Project activities during all in-water work activities and initial ground disturbance that has the potential to impact special-status species. If WPT is observed within the work area during construction, the biologist will relocate WPTs the shortest distance possible to a location that contains suitable habitat and would not be affected by Project activities.

AMM BIO-6: Northern Red Legged Frog Measures. To reduce the likelihood of impact to NRLF, the applicant will implement the measures below:

- Wetted channel segments, areas of riparian scrub, and other Environmentally Sensitive Areas near the Project site, but outside the construction impact area, will be staked and flagged to avoid encroachment by equipment and construction crews. Environmentally Sensitive Areas within the construction impact area that can be avoided by equipment and crews will also be staked and flagged to minimize effects of construction.
- Prior to ground disturbance activities, a barrier, such as wildlife exclusion fencing, will be placed around the excavation area to prevent NRLF from moving into work areas.
- A NRLF survey of the Project site will be conducted 48 hours prior to ground disturbance. If any life stage of the NRLF is found, and these individuals are likely to be killed or injured by work activities, a qualified biologist will relocate NRLF the shortest distance possible to a location that contains suitable habitat and would not be affected by activities associated with the proposed Project.
- A qualified biological monitor will be present to monitor Project activities during all in-water work and initial ground disturbance that has the potential to impact special-status species. If NRLF is observed within the work area during construction, the biologist

will relocate NRLFs the shortest distance possible to a location that contains suitable habitat and would not be affected by activities.

- During Project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.
- All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies and not in a location from where a spill would drain directly toward aquatic habitat. Prior to the onset of work, PG&E will ensure that the construction contractor has a plan in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Environmentally Sensitive Areas will be established to confine access routes and construction areas to the minimum area necessary to complete construction and minimize the impact to NRLF habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
- Tightly woven fiber netting or similar material will be used for erosion control or other purposes at the Project site to ensure that the NRLF do not get trapped. Coconut coir matting is an acceptable erosion control material. No plastic mono-filament matting will be used for erosion control.
- If bullfrogs, non-native fish, or non-native crawfish are observed during construction, they will, to the extent practicable, be humanely dispatched by a qualified biologist.
- To ensure that diseases are not conveyed between work sites by the biologists, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.

Birds. Tree removal or ground-clearing activities could impact raptors or other special-status bird species such as northern harrier, white-tailed kite, bald eagle, osprey, northern spotted owl, or Vaux's swift. Many raptors and other special-status bird species are known to occur in proximity to the R-519 Project sites. The R-519 Project site is at the edge of forested habitat and also supports some riparian habitat. Tree removal would be required to access the R-519 Project site; but is limited to riparian trees and does not involve tree removal from redwood forest habitat. The R-519 Project site does not provide suitable nesting habitat for northern spotted owl due to habitat fragmentation. Many surveys conducted for northern spotted owl near the Project site have failed to detect owls. The R-519 Project site does provide potentially suitable nesting habitat for northern harrier, white-tailed kite, bald eagle, osprey, and Vaux's swift. In addition, pastureland and aquatic areas at the Project site provide suitable foraging habitat for these species. The Project is proposed to begin late in the season in compliance with in-water work windows established to protect special-status fish species (July – September); therefore, work will be occurring toward the end of the nesting season.

All impacts to pastureland and aquatic habitat are temporary and would constitute a temporary impact to foraging habitat for special-status bird species. With the implementation of **AMM BIO-4** in addition to the temporary nature of impacts, the availability of suitable and similar habitat available within the region, and the occurrence of construction late in the nesting season (July - September), the disturbance to special-status breeding birds is considered less than significant.

Trees and riparian habitats present onsite could also provide nesting habitat for bird species protected by the MBTA and California Fish and Game Code. Tree removal or ground-clearing activities could potentially impact nesting birds that are protected under the Federal MBTA of 1918 (16 USC 703-711) and Fish and Game Code (Sections 3503, 3503.5, and 3800). Disturbance that causes nest abandonment and/or loss of reproductive effort could be considered a “take” and is considered a potentially significant impact. The implementation of **AMM BIO-3**, **AMM BIO-4** and **AMM BIO-7** would reduce Project impacts to less than significant levels and reduce the likelihood of “take”.

AMM BIO-7: Raptor Nesting Surveys. Tree removal and ground-clearing activities will be scheduled prior to the initiation of nesting activity (March 1) or after fledging (August 15). If tree removal must be done outside of the window above, a qualified biologist will conduct pre-construction surveys between March 1 and August 15 in potential nesting habitat to identify nest sites. If an active raptor nest is observed during surveys, a 350-foot protective buffer around the nest will be established. Alternatively, consultation with CDFW may be conducted to determine whether reduced buffer zones are appropriate based on nesting phenology, site conditions, and recommendation(s) of a biological monitor. All construction activities will be prohibited in the established buffer zone until the young have fledged.

4.4.3.3 RT-102 Project Site

Long-Term Impacts

Special-Status Plants

Special-status plant surveys conducted in 2018 at the RT-102 Project site on Ryan Creek identified occurrences of Lyngbye’s sedge upstream of the sinkhole location outside of the project disturbance footprint. Surveys did not identify any special-status plant species within the permanent disturbance footprint for the RT-102 Project site; therefore, Project related long-term impacts to special-status plants are less than significant at this location.

Special-Status Wildlife

Project activities at the RT-102 site will not cause significant long-term impacts to special-status wildlife species or their terrestrial or aquatic habitats. Installation of rock erosion protection associated with the culvert inlet and outfall will displace approximately 500 square feet (0.01-acre) of riparian habitat at the RT-102 Project site. Any displaced wildlife would be sufficiently supported by the similar habitat that is available in the surrounding area. Additionally, the culvert

replacement would improve aquatic habitat through the elimination of ongoing bank erosion at this location. Reduced erosion would result in reduced turbidity in Ryan Creek and provide long term benefits to fish and improved water quality in Ryan Creek. No long-term significant impacts are anticipated to occur.

Short-Term Impacts

Special-Status Plants

Although there is a moderate potential for Lyngbye's sedge to occur along Ryan Creek special-status plant surveys did not record any special-status plants within the impact area on the RT-102 Project site; therefore, Project related short-term impacts to special-status plant are less than significant at this location.

Special-Status Wildlife

Fish. Special-status fish species are known to occur in Ryan Creek where the RT-102 Project site is located. The likelihood for special-status fish to occur within the Project site varies dramatically by the time of year (e.g. during spawning migrations) and the suitability of aquatic habitat at the site is also influenced seasonally by environmental conditions (e.g. water temperature and dissolved oxygen levels). Special-status fish, specifically salmonids, avoidance to warmer waters has been documented during the late summer and fall; therefore, the implementation of **AMM BIO-1** would reduce the likelihood that fish would be present in the work area and reduce the impact to less than significant.

Construction activities along the banks of Ryan Creek have the potential to result in localized increases in turbidity related to excavation and remediation of the sinkholes, backfill and recontouring of the bank, and construction of the culvert outfall at the RT-102 site. Because construction will occur during the low flow season, it is expected that water levels will be low in Ryan Creek and the construction at this site is not expected to require in-water work. The implementation of **AMM BIO-2** requiring turbidity monitoring to determine if deployment of a turbidity curtain is necessary to minimize the effects of increased turbidity to surrounding areas that may provide habitat for special-status fish species will further reduce potential impact to special-status fish.

Work on the bank of Ryan Creek at the RT-102 Project site only involves the west bank of the creek; therefore, fish passage would not be restricted by the use of a turbidity curtain at this location if it is determined to be necessary. Special-status fish, if present, may avoid the temporary disturbance area; however, areas of temporary habitat disturbance would be relatively small compared to the total area of similar habitat available in the Freshwater Slough/Ryan Slough watershed. The temporary nature of the disturbance combined with the availability of similar habitat throughout the watershed and implementation of **AMM BIO-1**, **AMM BIO-2**, and **AMM BIO-3**, would reduce the short-term impacts to special-status fish to less than significant.

Amphibians and Reptiles. Construction activities at the RT-102 Project site could temporarily impact aquatic special-status species such as WPT and NRLF. There are occurrences of both WPT and NRLF within five miles of the project sites, and suitable aquatic habitat occurs onsite. Additionally, NRLF were observed during two separate survey events at the RT-102 project site. Based on the review of pertinent literature, the proximity to known occurrences, and site surveys, WPT has a moderate potential to occur and NRLF has a high potential to occur within the RT-102 Project site on Ryan Creek. The implementation of **AMM BIO-3, AMM BIO-5** and **AMM BIO-6** would reduce the potential for impact to these species at the RT-102 Project site to less than significant.

Birds. Tree removal or ground-clearing activities could impact raptors or other special-status bird species such as northern harrier, white-tailed kite, bald eagle, osprey, northern spotted owl, or Vaux's swift. Many raptors and other special-status bird species are known to occur in proximity to the RT-102 Project site. The RT-102 Project site is at the edge of forested habitat and also supports some riparian habitat. Tree removal would be required to access the RT-102 Project site, but tree removal is limited to riparian habitat and will not include removal of redwood forest habitat. The site does not provide suitable nesting habitat for northern spotted owl due to habitat fragmentation. Many surveys conducted for northern spotted owl near the Project site have failed to detect owls. The RT-102 Project site does provide potentially suitable nesting habitat for northern harrier, white-tailed kite, bald eagle, osprey, and Vaux's swift. The Project is proposed to begin late in the season for compliance with in-water work windows established to protect special-status fish species (July through September); therefore, would be occurring toward the end of the nesting season.

In addition, pastureland and aquatic areas at the Project sites provide suitable foraging habitat for these species. All impacts to pastureland and aquatic habitat are temporary and would constitute a temporary impact to foraging habitat for special-status bird species. With the implementation of **AMM BIO-4** and **AMM BIO-7** in addition to the temporary nature of impacts, the availability of suitable and similar habitat available within the region, and the occurrence of construction late in the nesting season, the disturbance to special-status breeding birds is considered less than significant.

Trees and riparian habitats present onsite could also provide nesting habitat for bird species protected by the MBTA and California Fish and Game Code. Tree removal or ground-clearing activities could potentially impact nesting birds that are protected under the Federal MBTA of 1918 (16 USC 703-711) and Fish and Game Code (Sections 3503, 3503.5, and 3800). Project related disturbance that causes nest abandonment and/or loss of reproductive effort could be considered a "take" and is considered a potentially significant impact. The implementation of **AMM BIO-3, AMM BIO-4** and **AMM BIO-7** would reduce Project impacts to less than significant levels and reduce the likelihood of "take".

- b. *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

Less than Significant with Mitigation.

4.4.3.4 R-354 Project Site

Long-Term Impacts. The installation of shoreline mats on the levee at the R-354 Project site would have long-term effects on the riparian community. Special-status plants would be displaced, and the bank of the Freshwater Slough will be converted to hardscape material within the area proposed for shoreline mat installation for the purposes of bank stabilization on the levee. The mats have been designed with chemical and physical properties to enhance the ability of the mattress to encourage the growth of marine flora and fauna, increase species richness, and reduce the dominance of invasive species to elevate biodiversity. The shoreline mats also have interstitial spaces to promote some vegetation growth. The conversion of habitat represents a long-term impact to special-status plant species and riparian habitat; however, the implementation of **Mitigation Measure (MM) BIO-1** would reduce the Project impacts to special-status plants to less than significant. In addition, the installation of bank stabilization mats would improve aquatic habitat through elimination of ongoing erosion at these locations. Reduced erosion would result in reduced turbidity in adjacent aquatic habitat and providing long term benefits to water quality in Freshwater Slough.

Short-Term Impacts. The decommissioning and removal of portions of the previously retired L-137B natural gas pipeline crossing at Freshwater Slough or access to the R-354 Project site would not have any short-term adverse effect on any riparian habitat or sensitive natural community. Tree removal would not be required to access the Project site.

4.4.3.5 R-519 Maintenance Project Site

Long-Term Impacts. The maintenance Project at R-519 Project site would require the removal of native tree species. One arroyo willow would be removed for access to the east bank of Ryan Slough for removal of the exposed pipeline crossing. This tree exceeds 12 inches in diameter at breast height (DBH) and would require mitigation consistent with the California Coastal Commission (CCC) requirements (one multi-stem arroyo willow [aggregate 12-inches DBH] at the R-519 Project site). Because of the conflict associated with growing trees within pipeline easements, PG&E would accomplish the required mitigation for native tree removal at the Cock Robin Island mitigation site consistent with CCC mitigation requirements. The CCC regulations require the issuance of a Coastal Development Permit (CDP) for removal of trees larger than 12-inches. The CDP typically requires mitigation for removal of riparian trees through the planting of replacement native trees at a 3:1 ratio. The implementation of **MM BIO-2** would reduce the impact of native tree removal to less than significant.

MM BIO-2: Native Tree Replacement. PG&E shall obtain a CDP for the pipeline maintenance projects. Mitigation for removal of native riparian trees shall include replacement of native trees measuring 12-inches dbh or larger at a 3:1 ratio or other ratio

as required by conditions of the CDP or other regulatory permits. In addition, a Tree Protection Zone shall be established around trees to be preserved in order to avoid root compaction during construction by limiting heavy equipment in root zones. The Tree Protection Zone shall limit excavation or other ground disturbance to areas outside the dripline and root zone of trees remaining onsite.

Short-Term Impacts. The pipeline replacement or access to the R-519 Project site would not have any short-term adverse effect on any riparian habitat or sensitive natural community. Replacement of the pipeline crossing using pilot tube methodology would minimize disturbance in the slough and its bank. Jacking shafts used for installation would be sited in upland and disturbed portions of the Project site where the shafts would avoid sensitive plant or wildlife communities; therefore, short-term impacts to riparian or sensitive communities would be reduced to less than significant.

4.4.3.6 RT-102 Project Site

Long-Term Impacts. The maintenance Project at RT-102 Project site would require the removal of native tree species. A total of 27 trees would be removed from the riparian corridor on Ryan Creek for access to the Project site, erosion repair, and installation of the culvert at this location. Table 4.4-3 outlines Project related tree removal at the RT-102 Project site. Three of the trees to be removed are non-native species. The majority of riparian trees to be removed are very small trees, less than 6-inches DBH. Only two of the native riparian trees planned for removal exceed 12 inches at DBH and would require mitigation consistent with CCC requirements. These include one multi-stem red alder (aggregate 50-inches DBH) and one multi-stem arroyo willow (aggregate 12-inches DBH).

Table 4.4-3. Tree Removal at RT-102 Project Site

Common Name	Scientific Name	Total Trees Removed	Range of DBH (inches)
Arroyo willow	<i>Salix lasiolepis</i>	3	3-12 (multi-stem)
Cascara	<i>Frangula purshiana</i>	5	2-4
Cherry plum	<i>Prunus cerasifera</i>	2	4-8
English holly	<i>Ilex aquifolium</i>	1	2
Grand fir	<i>Abies grandis</i>	12	2-6
Red alder	<i>Alnus rubra</i>	2	4-50 (multi-stem)
Red elderberry	<i>Sambucus racemosa</i>	2	5-10 (multi-stem)

Note: Only two of the trees removed at this site meet the dbh requirement (12" dbh or greater) for agency approval of removal required mitigation. These include one 12" (aggregate) arroyo willow and one 50" (aggregate) red alder. Cherry plum and English holly are non-native species.

Because of the conflict associated with growing trees within pipeline easements, PG&E would accomplish any required mitigation for native tree removal at the Cock Robin Island mitigation site consistent with CCC and other regulatory agency mitigation requirements. The CCC regulations require the issuance of a (CDP for removal of trees larger than 12-inches). The

CDP typically requires mitigation for removal of riparian trees through the planting of replacement native trees at a 3:1 ratio. The implementation of **MM BIO-2** as described above would reduce the impact of native tree removal to less than significant.

Short-Term Impacts. Project equipment access and ground disturbance during sinkhole repair and culvert installation would cause short-term impacts to the riparian vegetation; however, the small size of tree removed, temporary nature of construction at this Project site, and planned restoration of the site after construction is completed, combined with the extent of forest and riparian habitat in surrounding areas, reduces the impacts to less than significant.

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant with Mitigation. The Project would result in temporary and permanent impacts to aquatic resources (waters of the U.S. and wetlands) regulated by the ACOE under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The Project would also result in temporary and permanent impacts to aquatic resources regulated by the CCC under the California Coastal Act, the North Coast RWQCB under Section 401 of the Clean Water Act, and CDFW under Section 1600 of the California Fish and Game Code. Table 4.4-4 outlines permanent and temporary impacts to Federal aquatic resources and Table 4.4-5 outlines permanent and temporary impacts to aquatic resources under State jurisdiction for each of the three Project sites.

Table 4.4-4. Summary of Impacts to Federal Jurisdictional Aquatic Resources

Wetland ID ¹	Wetland Type	Permanent		Temporary		Total	
		Area (ft ²)	Acreage	Area (ft ²)	Acreage	Area (ft ²)	Acreage
R-354 Pipeline Decommissioning/Removal and Levee Erosion Repair – Freshwater Slough Crossing							
W1	Wet Meadow	886.52	0.02	5,450.08	0.13	6,336.60	0.15
W3	Wet Meadow	--	--	172.43	0.00	172.43	0.00
W5	Wet Meadow	--	--	3,060.99	0.07	3,060.99	0.07
Freshwater Slough	Tidal Waters	1,348.47	0.03	1,231.44	0.03	2,579.91	0.06
Channel 1	Intermittent Channel	--	--	120.00	0.003	120.00	0.003
Subtotal R-354 Impacts to Federal Jurisdiction		2,234.99	0.05	10,034.94	0.23	12,149.93	0.28
R-519 Pipeline Replacement – Ryan Slough Crossing							
W01	Perennial Emergent Wetland	--	--	1,768.28	0.04	1,768.28	0.04
W11	Willow Riparian Shrub	--	--	5.15	0.0001	5.15	0.0001
W12	Willow Riparian Shrub	--	--	868.76	0.02	868.76	0.02
W15	Wet Meadow	--	--	29,683.40	0.68	29,683.40	0.68
W17	Perennial Emergent Wetland	--	--	813.02	0.02	813.02	0.02
Ryan Slough	Perennial Channel	--	--	1,573.91	0.04	1,573.91	0.04
Subtotal R-519 Impacts to Federal Jurisdiction		--	--	34,712.53	0.80	34,712.53	0.80
RT-102 Pipeline Remediation and Culvert Replacement – Ryan Creek							
W1	Forested Wetland	369.53	0.008	1591.42	0.04	1,960.95	0.048
W2	Wet Meadow	--	--	865.14	0.02	865.14	0.02

Table 4.4-4. Summary of Impacts to Federal Jurisdictional Aquatic Resources

Wetland ID ¹	Wetland Type	Permanent		Temporary		Total	
		Area (ft ²)	Acreage	Area (ft ²)	Acreage	Area (ft ²)	Acreage
W3	Scrub Shrub Wetland	--	--	12,310.23	0.28	12,310.23	0.28
W4	Wet Meadow	--	--	2,125.95	0.05	2,125.95	0.05
Ryan Creek	Perennial Channel	7.88	0.0002	755.20	0.02	763.08	0.020
Channel 1	Intermittent Channel	125.00	0.003	--	--	125.00	0.003
Subtotal RT-102 Impacts to Federal Jurisdiction		502.41	0.01	17,647.94	0.41	18,150.35	0.42
PG&E Pipeline Maintenance Project Total Impact to Federal Jurisdiction		2,737.40	0.06	62,395.41	1.44	65,012.78	1.5

Notes:

¹ Specific wetland boundaries and definitions for Federal wetlands can be found on Figures 3-1A through 3-3D in Appendix C. Temporary impact areas include excavation footprint, access routes, and stockpile and staging areas.

Table 4.4-5. Summary of Impacts to State Jurisdictional Aquatic Resources

State Agency ¹	Permanent		Temporary		Total	
	Area (ft ²)	Acreage	Area (ft ²)	Acreage	Area (ft ²)	Acreage
R-354 Pipeline Decommissioning/Removal and Levee Erosion Repair – Freshwater Slough Crossing						
State Defined Wetland (California Coastal Commission)	3,000.02	0.07	61,002.91	1.40	64,002.93	1.47
Waters of the State (RWQCB)	2,234.99	0.05	9,914.94	0.23	12,149.93	0.28
Section 1600 Stream Feature (CDFW)	3,000.02	0.07	1,888.66	0.04	4,888.68	0.11
R-519 Pipeline Replacement – Ryan Slough Crossing						
State Defined Wetland (California Coastal Commission)	--	--	34,736.53	0.80	34,736.53	0.80
Waters of the State (RWQCB)	--	--	34,712.55	0.80	34,712.55	0.80
Section 1600 Stream Feature (CDFW)	--	--	2,673.52	0.06	2,673.52	0.06
RT-102 Pipeline Remediation and Culvert Replacement – Ryan Creek²						
State Defined Wetland (California Coastal Commission)	463.31	0.01	42,397.36	0.97	42,860.67	0.98
Waters of the State (RWQCB)	502.41	0.01	17,647.94	0.41	18,150.35	0.42
Section 1600 Stream Feature (CDFW)	117.76	0.003	1,648.01	0.04	1,765.77	0.04
Total PG&E Pipeline Maintenance Project Impacts to State Jurisdictional Areas						
State Defined Wetland (California Coastal Commission)	3,463.33	0.08	138,136.8	3.17	141,600.13	3.25
Waters of the State (RWQCB)	2,737.40	0.06	62,275.43	1.44	65,012.83	1.50
Section 1600 Stream Feature (CDFW)	3,117.78	0.07	6,210.19	0.14	9,327.97	0.21

Notes:

¹ Specific wetland boundaries and definitions for State wetlands can be found on Figures 4-1A through 4-3D in Appendix C.

² Includes permanent impact to segment of Channel 1 surface flow that will be underground after culvert replacement.

Temporary impact areas include excavation footprint, access routes, and stockpile and staging areas.

Impacts to protected wetlands are discussed separately by Project site below due to the variety of maintenance methodologies, biological resources and associated potential impacts at each site. Implementation of **MM BIO-3** would reduce impacts to waters and wetlands to less than significant.

MM BIO-3: Wetland Permitting and Restoration / Mitigation. PG&E shall obtain all necessary regulatory permits for impacts to waters of the U.S. and wetlands, including the ACOE, CCC, NCRWQCB, and CDFW prior to Project implementation. The Project shall comply with all permit conditions. Compensatory mitigation must be consistent with the regulatory agency standards pertaining to mitigation type, location, and ratios.

- Compensatory mitigation is required for permanent impacts to aquatic resources. The proposed Project involves permanent impacts to 0.06-acre of Federal waters of the U.S. and wetlands (ACOE jurisdiction), 0.06-acre of waters of the State (RWQCB jurisdiction), 0.07-acre of Section 1600 stream features (CDFW jurisdiction), and 0.08-acre of State defined wetlands (CCC jurisdiction). The applicant may satisfy all or a portion of the compensatory mitigation through on- or offsite wetland creation, conservation easement, contribution to in-lieu habitat fund, or contribution to a regional wetland project. The Mitigation Plan shall be submitted to the permitting agencies for review and approval prior to the start of construction activities. The current conceptual mitigation plan for this Project involves eradication of invasive dense flowered cord grass and restoration of approximately 17 acres of native tidal salt marsh and approximately 1.5 acres of freshwater marsh at the Park Street Marsh (also known as Dead Mouse Marsh) to compensate for the permanent impacts to Federal and State jurisdictional aquatic resources. The Park Street Marsh is located in the same watershed as all of the pipeline maintenance sites and immediately adjacent to the R-354 Project site. The Conceptual Mitigation Plan shall receive agency approval prior to its use as compensatory mitigation for wetland impacts. The regulatory agencies have reviewed the conceptual mitigation proposal and provided preliminary approval to proceed with the development of the Conceptual Mitigation Plan into a formal mitigation proposal.
- Standard best management practices, such as the use of silt fencing and straw wattle, shall be implemented within the disturbed area on each Project site to minimize erosion, increased turbidity, and sedimentation to Ryan Creek, Ryan Slough, and Freshwater Slough during the Project site restoration phase of the Project.
- Construction vehicles and equipment shall be repaired and refueled a minimum of 100 feet from wetlands to the maximum extent feasible. If refueling or repairing equipment or vehicles in close proximity to wetlands is unavoidable, appropriate secondary spill containment shall be used to prevent spills in sensitive habitats.
- After maintenance activities are complete, the Project site and all disturbed areas shall be seeded or hydroseeded with a native seed mix appropriate for the region. Restoration within grazed pasturelands shall involve seeding or other restoration consistent with landowner right-of-way agreements.

4.4.3.7 R-354 Project Site

Long-Term Impacts. Preliminary Aquatic Resource Delineations have been conducted at the R-354 Project site to determine the geographic extent of Federal and State regulatory jurisdiction (Appendix C). A total of 0.05-acre of permanent impact to waters of the U.S. and wetlands (ACOE jurisdiction) would occur as a result of the installation of shoreline mats on the levee at the R-354 Project site (Table 4.4-4). Permanent impact to State jurisdictional aquatic resources include a total of 0.05-acre of permanent impact to waters of the State (RWQCB jurisdiction), 0.07-acre of permanent impact to State defined wetlands (CCC jurisdiction), and 0.07-acre of permanent impact to Section 1600 stream features (CDFW jurisdiction) (Table 4.4-5).

Short-Term Impacts. Additional temporary disturbance will occur to Federal and State jurisdictional aquatic resources as a result of site access and construction to decommission and remove pipeline facilities. This includes 0.23 acres of temporary impact to Federal waters of the U.S. and wetlands (ACOE jurisdiction) (Table 4.4-4). Temporary disturbance to State aquatic resources includes 1.40 acres of temporary impact to State defined wetlands (CCC jurisdiction), 0.23-acre of temporary impact to waters of the State (RWQCB jurisdiction), and 0.04-acre of temporary impact to Section 1600 stream features (CDFW jurisdiction) (Table 4.4-5).

4.4.3.8 R-519 Project Site

Long-Term Impacts. Preliminary Aquatic Resource Delineations have been conducted at the R-519 Project site to determine the geographic extent of Federal and State regulatory jurisdiction (Appendix C). No permanent impacts to Federal or State wetlands are anticipated at the R-519 Project site because all Project related impacts at this location are temporary, short term, and will be restored to pre-project condition (Table 4.4-4 and Table 4.4-5).

Short-Term Impacts. A total of 0.80 acres temporary impact to Federal waters of the U.S. and wetlands (ACOE jurisdiction) will occur as a result of pipeline replacement and removal activities. Temporary disturbance to State aquatic resources includes 0.8-acre of temporary impact to State defined wetlands (CCC jurisdiction), 0.8-acre of temporary impact to waters of the State (RWQCB jurisdiction), and 0.06-acre of temporary impact to Section 1600 stream features (CDFW jurisdiction) (Table 4.4-4 and Table 4.4-5).

4.4.3.9 RT-102 Project Site

Long-Term Impacts. Preliminary Aquatic Resource Delineations have been conducted at the RT-102 Project site to determine the geographic extent of Federal and State regulatory jurisdiction (Appendix C). A total of 0.01 acre of permanent impact to waters of the U.S. and wetlands (ACOE jurisdiction) would occur as a result of the installation of riprap at the culvert intake and outfall at the RT-102 Project site (Table 4.4-4). Permanent impact to State jurisdictional aquatic resources include a total of 0.01-acre of permanent impact to waters of the State (RWQCB jurisdiction), 0.01-acre of permanent impact to State defined wetlands (CCC jurisdiction), and 0.003-acre of permanent impact to Section 1600 stream features (CDFW jurisdiction) (Table 4.4-5).

Short-Term Impacts. An additional temporary disturbance will occur to Federal and State jurisdictional aquatic resources as a result of Project activities at the RT-102 site. This includes 0.41-acre of temporary impact to Federal waters of the U.S. and wetlands (ACOE jurisdiction) (Table 4.4-4). Temporary disturbance to State aquatic resources includes 0.97-acre of temporary impact to State defined wetlands (CCC jurisdiction), 0.41-acre of temporary impact to waters of the State (RWQCB jurisdiction), and 0.04-acre of temporary impact to Section 1600 stream features (CDFW jurisdiction) (Table 4.4-5).

A small unnamed intermittent tributary (Channel 1) flows northwest to southeast through the RT-102 Project site and into Ryan Creek on the southeast side of the Project site. If Channel 1 is flowing at the time of construction, a channel diversion may be required to divert the flows around the construction site. In the event flowing water is encountered in the Channel 1, a Project-specific Channel Diversion Plan would be prepared consistent with **MM BIO-4**.

MM BIO-4: Channel Diversion Plan. A Project-specific Creek Diversion Plan shall be prepared if diversion of the intermittent tributary stream (Channel 1) is necessary to divert flows around the construction site. The Diversion Plan shall provide methods for diverting surface flow around the construction site. Pumps shall be fitted with screens meeting CDFW criteria to prevent entrainment or impingement of aquatic species. The Creek Diversion Plan shall allow diverted surface flows to outfall into Ryan Creek and the outfall location shall have erosion protections. The Diversion Plan shall be submitted to the District for review and approval prior to the start of construction activities.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant with Mitigation.

4.4.3.10 R-354 Project Site

Long-Term Impacts. The bank stabilization mats do not constitute barriers and some revegetation of the waterside bank may occur over time. The Project will not result in permanent impacts to native fish or wildlife species migration or movement. The permanent impact area at the R-354 site provides limited potential for use as fish rearing habitat due to the lack of submerged aquatic vegetation or emergent vegetation along the eroded shoreline; therefore, the Project is not expected to result in a permanent loss of wildlife nursery sites. No long-term impacts to migration or wildlife nursery sites are anticipated at the R-354 Project site.

Short-Term Impacts. The R-354 Project site is surrounded by development and pasture lands. Freshwater Slough provides an aquatic linkage for fish and other aquatic wildlife migrating between Humboldt Bay, Freshwater Creek, and other wetlands upstream of the Project site. In-water work and the potential installation of a turbidity curtain could temporarily impede fish or other aquatic wildlife movements in the area and exclude fish use of the construction sites. Pipeline removal and the potential use of a turbidity curtain at the R-354 Project site involves only the northern bank of Freshwater Slough; therefore, fish passage would not be restricted at the Project site. In addition to the implementation of **AMM BIO-1, AMM BIO-2, AMM BIO-3, AMM BIO-4, and AMM BIO-7** any wildlife observed during turbidity curtain installation or construction activities would be allowed to disperse of its own volition; therefore, impacts to native wildlife migration would be reduced to less than significant.

4.4.3.11 R-519 Project Site

Long-Term Impacts. Ryan Slough at the R-519 Project site provides a natural corridor for both aquatic and terrestrial species that have daily or seasonal migrations through the greater Freshwater Creek and Humboldt Bay watershed. The vegetation communities on the Project sites and the surrounding area provide habitat for resident and migratory wildlife species. Replacement of the pipeline and removal of the old pipeline from Ryan Slough would not create a permanent barrier or impediment to wildlife migration through the area. No long-term impacts to migration are anticipated at the R-519 Project site.

Short-Term Impacts. In-water work and the potential installation of a turbidity curtain could temporarily impede fish movement in the area and exclude fish use of the construction sites. Pipeline removal at the R-519 Project site involves removal of exposed pipeline from the entire Ryan Slough crossing, so potential use of a turbidity curtain during pipeline crossing removal would temporarily restrict fish passage through Ryan Slough; however, in-water work associated with the pipeline crossing removal is expected to take only one day. Other aquatic wildlife and birds may use Ryan Slough and upland habitats for foraging and breeding and have the potential to migrate through the Project site during Project activities.

In addition to the implementation of **AMM BIO-1, AMM BIO-2, AMM BIO-3, AMM BIO-4, AMM BIO-5, AMM BIO-6 and AMM BIO-7** any wildlife observed during turbidity curtain installation or construction activities would be allowed to disperse of its own volition; therefore, impacts to native wildlife migration would be reduced to less than significant.

4.4.3.12 RT-102 Project Site

Long-Term Impacts. The riparian corridor associated with Ryan Creek adjacent to RT-102 provides wildlife habitat as well as a wildlife corridor linking remaining available habitat within the watershed. In addition, forested areas along a riparian corridor provide habitat for a different suite of wildlife species. The culvert replacement and sink hole repairs would not create permanent barriers or impede wildlife migration and movement through the Project site. No long-term impacts to migration are anticipated at the RT-102 Project site.

Short-Term Impacts. Fish species have a low potential to occur within the Project site at the time of construction. In addition, no in-water work would occur at the RT-102 Project site as a temporary sandbag dam will isolate the work site from the active channel. Other terrestrial and aquatic wildlife and birds may use Ryan Creek and upland habitats for foraging and breeding and have the potential to migrate through the Project site during Project activities. Construction activities are temporary in nature and limited to a small Project site footprint.

In addition to the implementation of **AMM BIO-1, AMM BIO-2, AMM BIO-3, AMM BIO-4, AMM BIO-5, AMM BIO-6** and **AMM BIO-7** any wildlife observed during construction activities would be allowed to disperse of its own volition; therefore, short-term impacts to native wildlife migration would be reduced to less than significant.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

4.4.3.13 All Project Sites

Less than Significant with Mitigation. The County goals, objectives, and policies, as described in the Regulatory Setting, seek to preserve natural resources by protecting fish, wildlife, and riparian and native habitats. Project impacts to special-status species are covered in item a) above and measures outlined within that section (AMM BIO-1 through AMM BIO-7 and MM BIO-1) are consistent with relevant local government goals, objectives, and policies. Project related impacts to riparian habitats are covered in item b) above and the mitigation measure outlined (MM BIO-2) is consistent with relevant local government goals, objectives, and policies. Project impacts to protected wetlands are covered in item c) above and the mitigation measure outlined (MM BIO-3) is consistent with relevant local government goals, objectives, and policies.

Humboldt County does not have a tree ordinance; however, the Humboldt County General Plan has several policies that provide for protection and management of trees, specifically, the General Plan Policy BR-P13 provides measures for the preservation of Landmark trees and General Plan Policy BR-P9 provides measures for oak woodlands. Because there are no oak woodlands at the Project sites and the Project would not impact oak trees, the Project would not result in a significant impact to oak woodlands. No landmark trees are proposed for removal as a result of the Project; therefore, the Project would not require a permit from Humboldt County for tree removal.

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

4.4.3.14 All Project Sites

Less Than Significant Impact. The Project sites are located within or adjacent to the Humboldt Bay Habitat Planning Area (HPA) of the Green Diamond Resource Company Aquatic Habitat Conservation Plan (2006). Covered species within the HPA documented within the Project vicinity include Chinook salmon, coho salmon, steelhead, and Coastal cutthroat trout. As

described in Section 4.4.3 item a, the Project would have a less than significant impact on these species and would not conflict with the Habitat Conservation Plan.

4.4.4 Mitigation Measures

Implementation of the following applicant proposed measures and mitigation measures would reduce the potential for biological resources to less than significant:

- AMM BIO-1: Special-Status Fish Avoidance Work Window
- AMM BIO-2: Turbidity Monitoring
- AMM BIO-3: Environmental Training Program
- AMM BIO-4: Nesting Bird Surveys
- AMM BIO-5: Western Pond Turtle Measures
- AMM BIO-6: Northern Red Legged Frog Measures
- AMM BIO-7: Raptor Nesting Surveys
- MM BIO-1: Special-status Plant Restoration / Mitigation Plan
- MM BIO-2: Native Tree Replacement
- MM BIO-3: Wetland Permitting and Restoration / Mitigation
- MM BIO 4: Channel Diversion Plan

4.5 CULTURAL RESOURCES

CULTURAL RESOURCES - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.5.1 Discussion

On June 11, 2019, Padre Associates, Inc. Senior Archaeologist, Rachael J. Letter, M.S. RPA, ordered an expedited archaeological records search from the Northwest Information Center (NWIC) located at Sonoma State University. The center is an affiliate of the State of California Office of Historic Preservation and the official State repository of archaeological and historic records and reports for 18 counties, including Humboldt County. Padre received the results on June 17, 2019. Padre also completed a review of PG&E’s cultural resource files on July 12, 2019.

4.5.1.1 Records Search Results

The records search included a review of all recorded historic-era and prehistoric archaeological sites within a 0.25-mile radius of the Project site as well as a review of known cultural resource surveys and technical reports. The State Historic Property Data Files, National Register of Historic Places, National Register of Determined Eligible Properties, California Points of Historic Interest, and the California Office of Historic Preservation Archaeological Determinations of Eligibility also were analyzed.

The records search revealed that 21 cultural resource studies have been completed within a 0.25-mile radius, 12 of which included portions of the Project site. Table 4.5-1 lists and describes studies that cover the Project site.

Table 4.5-1. Previous Cultural Resource Studies in Project Site

Project site	Report No.	Author(s), Year	Title
R-354; RT-102; R-519	S-886	Benson et al., 1977	Archaeological Reconnaissance of the Humboldt Bay Area
RT-102	S-9097	Blucher, 1975	Report of an Archaeological Field Survey of the Old Arcata Road for the Department of Public Works, County of Humboldt
R-354	S-1828	Bramlette, 1979	An Archaeological Investigation for a Contemplated Runway Extension at Murray Field in Eureka
RT-102; R-519	S-14557	Hedlund, 1978	An Historic Resources Inventory: The Old Arcata Road-Myrtle Avenue Corridor
R-354	S-40256	Coleman, 2013	Cultural Resources Survey Report for the Park Street (Christie) WRP Project
RT-102	S-40585	Foutch, 2012	Cultural Resources Study for the PG&E Line 177A MP 191.67 Erosion Mitigation Project
R-519	S-45887	McCann, 2011	Project 11FY12-0009, Field Office Report of Cultural Resources, Ground Survey Findings
R-354; R-519	S-46626	Kellawan, 2014	Cultural Resources Study of the PG&E Hydrostatic Test Segment T-236-13, on Line 137b MP 0.00-7.37
R-519	N/A	DeGeorgey, 2010	Archaeological Survey Report for the Gas Line 137C Project, Humboldt County, California
R-510; RT-102	N/A	Wisely and Thomas, 2014	Cultural Resources Constraints Report, L-177A CTS
R-354	N/A	Nolte and Allen, 2016	Cultural Resources Inventory and Assessment for the Freshwater Slough Concrete Headwall Removal Project, Humboldt County, California
RT-102	N/A	Allen, 2018	National Register of Historic Places and California Register of Historical Resources Inventory and Evaluation: Humboldt Bay-Humboldt #1 60 kV Transmission Line

Source: NWIC, 2019; PG&E, 2019

The records search also identified 11 previously recorded cultural resources within the Project site, and four previously recorded cultural resources within a 0.25-mile radius. Table 4.5-2 lists and describes these resources.

Table 4.5-2. Previously Recorded Cultural Resources

Project site	Primary No.	Trinomial No.	Description
RT-102; R-519	P-12-001987	-	McKay and Company Railroad
R-354	P-12-002663	CA-HUM-1167H	Freshwater Railroad
R-354	P-12-003237	CA-HUM-1591H	Historic road
R-354	P-12-003238	-	Historic corral with cattle chute and shed
R-354	P-12-003239	-	Christie Bridge
R-354	P-12-003241	-	Historic residential and agricultural complex
R-354	P-12-003310	-	Murray Field Airport and airplane hangar
R-354	P-12-003390	CA-HUM-1592H	DeVoy Road
R-354	P-12-003391	CA-HUM-1593H	Historic dike and overflow channel
R-354	P-12-003392	-	Historic concrete foundation with wooden piers
R-354	P-12-003393	-	Historic culvert
R-354	P-12-003394	CA-HUM-1594H	Railroad landing, sawmill, and dairy operations
R-354	P-12-003395	-	Historic concrete foundation
RT-102	-	-	Old Arcata Road Bridge
RT-102	-	-	Historic Humboldt Bay-Humboldt #1 60 kV Transmission Line

Note: Resources that are bold are located within the Project site. Source: NWIC, 2019; PG&E, 2019

4.5.1.2 Phase I Pedestrian Survey

In August 2019, Padre conducted an intensive pedestrian survey of the Project site. Each Project site was examined with transect intervals of no greater than 10 meters, where not constrained by dense vegetation. Surface visibility ranged from zero to 15 percent with dense vegetation accounting for areas of zero percent visibility. The survey relocated 11 previously recorded cultural resources and identified two new historic-aged cultural resources: an earthen levee on the east bank of Ryan Slough and an earthen levee on the north bank of Freshwater Slough. Additionally, new features were identified within two previously recorded resources; one new culvert each was observed along a historic road (P-12-003237) and a former railroad spur (P-12-003392). No prehistoric resources were observed. The survey results are summarized in Table 4.5-3.

Table 4.5-3. Phase I Survey Results

Project site	Primary No.	Trinomial No.	Survey Result	Eligibility
RT-102; R-519	P-12-001987	-	Relocated. Redwood planks observed in sinkholes south of Myrtle Avenue.	Unevaluated
R-354	P-12-002663	CA-HUM-1167H	Relocated. Spur lines that lead to railroad landing in P-12-003394 further documented.	Unevaluated
R-354	P-12-003237	CA-HUM-1591H	Relocated. New metal culvert recorded.	Unevaluated
R-354	P-12-003239	-	Relocated. No change in condition.	Unevaluated
R-354	P-12-003241	-	Relocated. No change in condition.	Unevaluated
R-354	P-12-003391	CA-HUM-1593H	Relocated. No change in condition.	Unevaluated
R-354	P-12-003392	-	Relocated. New features observed that indicate resource is the remains of a bridge that carried the northern spur of P-12-002663 to Eureka Slough.	Unevaluated
R-354	P-12-003393	-	Relocated. No change in condition.	Unevaluated
R-354	P-12-003394	CA-HUM-1594H	Relocated. Additional brick fragments and angular stone observed.	Unevaluated
RT-102	-	-	Humboldt Bay-Humboldt #1 60 kV Transmission Line relocated. No change in condition.	Not Eligible
R-519	-	-	Remains of old Arcata Road Bridge relocated. No change in condition.	Unevaluated
RT-102	-	-	Ryan Slough Earthen Levee	Not Eligible
R-354	-	-	Freshwater Slough Earthen Levee	Not Eligible

Padre also reviewed buried site potential analyses previously prepared by Far Western Anthropological Research Group, Inc. to assess the likelihood for subsurface cultural resources at each Project site. Based on analyses completed in 2012 and 2014, it is estimated that potential for buried cultural resources within the R-519 Project site and RT-102 Project site is low (Foutch, 2012), and the potential for buried cultural resources within the R-354 Project site ranges from Low to Highest (Kellawan, 2014). The areas within the R-354 Project site with the Highest potential are located on the north side of the Freshwater Slough.

4.5.2 Regulatory Setting

4.5.2.1 Federal and State

National Historic Preservation Act of 1966 (NHPA). Archaeological resources are protected through the NHPA and its implementing regulation (Protection of Historic Properties; 36 CFR 800), the AHPA, and the ARPA. This Act presents a general policy of supporting and encouraging the preservation of prehistoric and historic resources for present and future generations by directing federal agencies to assume responsibility for considering the historic resources in their activities. The State implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs coordinated by the California Office of Historic Preservation (OHP) in the State Department of Parks and Recreation, which also advises federal agencies regarding potential effects on historic properties.

The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdictions, including commenting on Federal undertakings. Under the NHPA, historic properties include "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places" (16 U.S.C. § 470w [5]).

4.5.2.2 Local

Humboldt County provides goals and policies related to cultural resources within its Conservation and Open Space Element of the General Plan (2017). Applicable goals and policies include the following:

- **CU-P1. Identification and Protection.** The potential for impacts to significant cultural resources shall be identified during ministerial permit and discretionary project review, impacts assessed as to significance, and if found to be significant, protected from substantial adverse change per California Public Resources Code (PRC) §5020.1.
- **CU-P2. Native American Tribal Consultation.** Native American Tribes (as defined below in CU-S3) shall be consulted during discretionary project review for the identification, protection and mitigation of adverse impacts to significant cultural resources. Consultation on ministerial permits shall be initiated if it has been determined the project may create a substantial adverse change to a significant cultural resource. At their request, Tribes shall be afforded the opportunity to review and provide comments to the County early in project review and planning (screening) about known or potential Tribal cultural resources located in project areas within their respective tribal geographical area of concern.
- **CU-P3. Avoid Loss or Degradation.** Projects located in areas known or suspected to be archeological sites or Native American burial sites shall be conditioned and designed to avoid significant impacts to significant sites, or disturbance or destruction to Indian burial grounds. Preserving Native American remains undisturbed and in place shall be selected as the preferred alternative unless substantial factual evidence

is presented demonstrating that no alternative(s) are feasible. Conditions of approval shall include standard provisions for post-review inadvertent archaeological discoveries and discovery and respectful treatment and disposition of Native American remains with or without funerary objects in accordance with state law (Health and Safety Code (HSC) §7050.5 and PRC §5097.98).

In 2015, the HBHRCD, in consultation with the Blue Lake Rancheria, the Bear River Band of the Rohnerville Rancheria, and the Wiyot Tribe, adopted Protocols for Inadvertent Archaeological Discoveries for Ground Disturbing Project Permits, Leases, and Franchises. Specific mitigation measures from these protocols have been incorporated into this document and the overall protocols are attached in Appendix D.

4.5.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding cultural resources are short-term.

- a. *Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?*

4.5.3.1 R-354 Project Site

No Impact. The records search and a pedestrian survey did not identify any historical resources within the R-354 Project site. Of the eight cultural resources within the R-354 Project site, the Freshwater Slough Earthen Levee has been formally evaluated for listing on the California Register of Historical Resources (CRHR). Padre concluded that the levee lacks significance and does not appear to meet any of the criteria for listing on the CRHR; thus, Padre recommended the resource as not eligible for listing on the CRHR. The remaining seven cultural resources have been documented, but not formally evaluated for listing on the CRHR. However, the proposed Project will not alter the character-defining attributes associated with any of the resources recorded such as their location, design, setting, materials, workmanship, feeling, or association. No impact would result.

4.5.3.2 R-519 Project Site

No Impact. The records search and a pedestrian survey did not identify any historical resources within the R-519 Project site. Of the three cultural resources within the R-519 Project site, the Ryan Slough Earthen Levee has been formally evaluated for listing on the CRHR. Padre concluded that the levee lacks significance and does not appear to meet any of the criteria for listing on the CRHR; thus, Padre recommended the resource as not eligible for listing on the CRHR. The remaining two cultural resources have been documented, but not formally evaluated for listing on the CRHR. However, the proposed Project would not alter the character-defining attributes associated with any of the resources recorded such as their location, design, setting, materials, workmanship, feeling, or association. No impact would result.

4.5.3.3 RT-102 Project Site.

No Impact. The records search and a pedestrian survey did not identify any historical resources within the RT-102 Project site. Of the two cultural resources within the RT-102 Project site, the Humboldt Bay-Humboldt #1 60 kV Transmission Line has been formally evaluated for listing on the CRHR. In February 2018, Cardno, Inc. evaluated the Humboldt Bay-Humboldt #1 60 kV Transmission Line and recommended the resource as not eligible for listing on the CRHR (Allen, 2018). The proposed Project at the RT-102 location would occur entirely within the boundaries of resource P-12-001987, the McKay and Company railroad berm. However, this portion of P-12-001987 no longer maintains integrity of association or materials; therefore, it is not eligible for listing on the CRHR. No impact would result.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

4.5.3.4 R-354 Project Site

Less than Significant with Mitigation. The work proposed at the R-354 Project site would permanently impact 150 feet of the Freshwater Slough Earthen Levee; however, this resource does not qualify as a significant archaeological resource. Additionally, the proposed work areas within P-12-003241 have been previously impacted and the Project would not cause new impacts to this resource. PG&E does not propose to improve any of the access routes or the Christie Bridge; thus, the proposed Project would not impact the following resources: P-12-002663, P-12-003237, P-12-003239, P-12-003391, P-12-003392, P-12-003393, or P-12-003394.

The buried site sensitivity assessment indicates that portions of the R-354 Project site are located in areas where the potential for buried cultural resources is estimated to be High and Highest. Thus, the possibility to encounter buried cultural resources exists. Implementation of mitigation measures **MM CUL-1, MM CUL-2, and MM CUL-3** would ensure that cultural resource impacts are avoided or mitigated to less than significant in the event of an accidental discovery.

MM CUL-1: Cultural Resources Monitoring (R-354 Project site only). Project-related ground disturbance within the portions of the R-354 Project site that have a Highest or High potential for buried cultural resources shall be monitored by a qualified Archaeologist and a representative from a California Native American tribe that is culturally-affiliated to the R-354 Project site. Monitoring shall ensure that previously unidentified buried cultural resources are not inadvertently exposed or damaged.

MM CUL-2: Worker Education Awareness Program. A Worker Education Awareness Program (WEAP) shall be implemented for the Project. Prior to any Project-related ground disturbance, the Applicant shall provide an initial sensitivity training session to all Project employees, contractors, and subcontractors, with subsequent training sessions to accommodate new personnel. The program may be presented with other environmental or safety awareness and education programs, provided that the program elements pertaining to cultural resources are provided by a qualified archaeologist. The WEAP shall address specific procedures to be followed in the event of an inadvertent discovery, the

types of potential cultural resources, and the consequences in the event of noncompliance.

MM CUL-3: Treatment of Unknown Cultural Resources. Should a cultural resource be inadvertently discovered during ground-disturbing activities, the Tribal Historic Preservation Officers (THPO) appointed by the Blue Lake Rancheria, Bear River Band of Rohnerville Rancheria and Wiyot Tribe shall be immediately notified and a qualified archaeologist with local experience retained to consult with the HBHRCD, the three THPOs, the Permittee and other applicable regulatory agencies to employ best practices for assessing the significance of the find, developing and implementing a mitigation plan if avoidance is not feasible, and reporting in accordance with HBHRCD's Standard Operating Procedures (SOP) (Appendix D).

4.5.3.5 R-519 Project Site

Less than Significant with Mitigation. The proposed work at the R-519 location would temporarily impact the earthen levee along the east bank of Ryan Slough but will not impact the remains of the old Arcata Road Bridge. Approximately 13 feet of the Ryan Slough Earthen Levee would be permanently impacted by the Project. The portion of P-12-001987 within the R-519 APE has been previously impacted and does not retain any aspect of integrity. The proposed Project would not cause new impacts to P-12-001987.

The buried site sensitivity assessment indicates that the R-519 Project site is located in an area where the potential for buried cultural resources is estimated to be Low. Implementation of **MM CUL-2** and **MM CUL-3** would ensure that cultural resource impacts are avoided or mitigated to less than significant in the event of an accidental discovery.

4.5.3.6 RT-102 Project Site

Less than Significant with Mitigation. The proposed Project at the RT-102 location would occur entirely within the boundaries of resource P-12-001987, the McKay and Company railroad berm. However, this portion of P-12-001987 no longer maintains integrity of association or materials; therefore, it is not eligible for listing on the CRHR and does not qualify as a significant cultural resource. Additionally, the Project would not impact the Humboldt Bay-Humboldt #1 60 kV Transmission Line.

The buried site sensitivity assessment indicates that the RT-102 Project site is located in an area where the potential for buried cultural resources is estimated to be Low. Implementation of **MM CUL-2** and **MM CUL-3** would ensure that cultural resource impacts are avoided or mitigated to less than significant in the event of an accidental discovery.

c. *Disturb any human remains, including those interred outside of formal cemeteries?*

4.5.3.7 All Project Sites

Less than Significant with Mitigation. No known burials are located within the Project site or immediate area. However, the possibility always exists that unmarked burials may be unearthed during subsurface construction activities. Consequently, there is the potential for the Project to disturb human remains, including those interred outside formal cemeteries. This impact is considered potentially significant but would be reduced to a less than significant level by implementing **MM CUL-4**.

MM CUL-4: Unanticipated Discovery of Human Remains. Should human remains be inadvertently discovered during ground-disturbing activities, work at the discovery locale shall be halted immediately, the HBHRCD and County Coroner contacted, and the HBHRCD's SOP (Appendix D) shall be followed, consistent with state law.

4.5.4 Mitigation Measures

Implementation of the following mitigation measures would reduce the potential for cultural resource impacts to less than significant:

- MM CUL-1: Cultural Resources Monitoring (R-354 Project site only)
- MM CUL-2: Worker Education Awareness Program
- MM CUL-3: Treatment of Unknown Cultural Resources
- MM CUL-4: Unanticipated Discovery of Human Remains

4.6 ENERGY

ENERGY - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.6.1 Discussion

Humboldt County is isolated at the end of electricity and natural gas transmission lines, and the capacity of these lines is not great enough to import all of the County’s required energy. Related to these capacity constraints, the County currently produces a large portion of its electricity locally and also supplies some of its natural gas needs. The County also has a tremendous amount of potential local energy resources, in the form of wind, wave, biomass, hydroelectric, and solar power. Roughly half of the electricity serving the County is generated at the PG&E Humboldt Bay Generating Station (Humboldt County General Plan, 2017).

The Redwood Coast Energy Authority (RCEA) was formed in 2003 and is a joint power authority (JPA) representing seven cities (Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Trinidad, and Rio Dell), the Humboldt Bay Municipal water District, and Humboldt County. The RCEA’s mission statement is:

“The Redwood Coast Energy Authority’s purpose is to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient, and renewable resources available in the region” (Humboldt County General Plan, 2017).

4.6.2 Regulatory Setting

4.6.2.1 Federal and State

There are no major federal laws, regulations, and policies pertaining to Energy that are applicable to the proposed Project.

4.6.2.2 Local

Humboldt County provides goals and policies related to energy resources within its Energy Element of the General Plan (2017). Applicable goals and policies include the following:

- **Goal E-G1. County Statewide Strategic Energy Planning.** An effective energy strategy based on self-sufficiency, development of renewable energy resources and energy conservation that is actively implemented countywide through Climate Action Plans, General Plans and the Redwood Coast Energy Authority's Comprehensive Energy Action Plan.
- **Goal E-G-2. Increase Energy Efficiency and Conservation.** Decrease energy consumption through increased energy conservation and efficiency in building, transportation, business, industry, government, water and waste management.
- **Goal E-G-3. Supply of Energy from Local Renewable Sources.** Increased local energy supply from and distributed and diverse array of renewable energy sources and providers available for local purchase and export.
- **Policy E-P13. Incentives for Using Alternative Energy.** Encourage the use of renewable energy and environmentally preferable distributed energy generation systems in the county.

4.6.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding energy are short-term.

- a. *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

4.6.3.1 All Project Sites

Less than Significant Impact. The Project involves use of heavy construction equipment powered by petroleum-based fuel sources. As such, construction activities would result in the consumption of non-renewable fossil fuels (e.g., gas and diesel) for the operation of construction vehicles and equipment. These activities would be temporary in nature. No use of energy from PG&E power grid would be required. No long-term operational use of energy resources would result. The Project would not increase demand for existing sources of energy or cause the need for development of new sources of energy. A less than significant impact would result.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

4.6.3.2 All Project Sites

No Impact. The Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The Project is in compliance with the RCEA; therefore, no impact would result.

4.6.4 Mitigation Measures

The Project would not result in significant impacts on energy; therefore, no mitigation is required.

4.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.7.1 Discussion

The Project is intended to provide pipeline and infrastructure improvements at three Project sites (R-354, R-519, and RT-102). Prior to the development of the Project, detailed engineering reports were prepared by Kleinfelder (2013, 2017) as well as Bennett Trenchless (2017) (for R-519) to provide information regarding the background conditions at the Project sites and feasibility of the proposed Project improvements. These reports are included as technical appendices to the Project design plans prepared by the primary contractor (Longitude 123, 2019).

4.7.2 Regulatory Setting

4.7.2.1 Federal and State

Alquist-Priolo Earthquake Fault Zoning Act. This Act requires that “sufficiently active” and “well-defined” earthquake fault zones be delineated by the State Geologist and prohibits locating structures for human occupancy on active and potentially active surface faults. (Note that since only those potentially active faults that have a relatively high potential for ground rupture are identified as fault zones, not all potentially active faults are zoned under the Alquist-Priolo Earthquake Fault Zone, as designated by the State of California.)

California Building Code (Cal. Code Regs., tit. 23). The California Building Code provides a minimum standard for building design, which is based on the UBC, but is modified for conditions unique to California. The Code, which is selectively adopted by local jurisdictions, based on local conditions, contains requirements pertaining to multiple activities, including: excavation, site demolition, foundations and retaining walls, grading activities including drainage and erosion control, and construction of pipelines alongside existing structures.

4.7.2.2 Local

Humboldt County provides goals and policies related to geology within its Safety Element of the General Plan (2017). Applicable goals and policies include the following:

- **S-G2. Prevent Unnecessary Exposure.** Areas of geologic instability, floodplains, tsunami run-up areas, high risk wildland fire areas, and airport areas planned and conditioned to prevent unnecessary exposure of people and property to risks of damage or injury.
- **S-P2. Coastal Zone Hazards.** Development within the coastal zone shall minimize risks to life and property in areas of high geologic, tsunami, flood, and fire hazard; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.
- **S-P7. Structural Hazards.** The County shall protect life and property by applying and enforcing state adopted building codes and Alquist-Priolo requirements to new construction.
- **S-P11. Site Suitability.** New development may be approved only if it can be demonstrated that the proposed development will neither create nor significantly contribute to, or be impacted by, geologic instability or geologic hazards.

4.7.3 Impact Analysis

- a. *Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*
- i. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*
 - ii. *Strong seismic ground shaking?*
 - iii. *Seismic-related ground failure, including liquefaction?*
 - iv. *Landslides?*

4.7.3.1 All Project Sites

Long-Term Impacts

a(i). **Less Than Significant.** The Project sites are located within the USGS Arcata South quadrangle. According to the California Department of Conservation, California Earthquake Hazards Zone Application Interactive Mapping System (EQ Zapp) (ESRI, 2019) and shown on Figure 4.7-1, the Project sites are not located within an Alquist-Priolo (A/P) earthquake fault zone. The nearest A/P active fault zones are the Arcata South fault located approximately 5.5-miles north/northeast of the R-354 Project site and the Fields Landing fault zone located approximately 6-miles south/southwest of the RT-102 Project site (Figure 4.7-1). Consequently, the repair locations are not anticipated to experience ground rupture. A less than significant impact would result.

a(ii). **Less Than Significant with Mitigation.** The Project sites are located on the floodplain/reclaimed Humboldt Bay intertidal marsh located east of downtown Eureka, within the Coast Range geomorphic province of Northern California. This province is generally characterized by northwest-trending mountain ranges and intervening valleys that are controlled by right-lateral strike-slip faulting along the San Andreas Fault zone. Humboldt County is located within a particularly seismically active area of California. Cape Mendocino (offshore of the County) experiences the highest concentration of earthquake events in the continental United States (Humboldt County, 2017). The Project sites are located within the zone identified by Humboldt County as having the greatest probability of experiencing ground shaking within their 2002 Natural Resources and Hazards Report and on their Earthquake Shaking Potential for the North Coast Region Map (Humboldt County, 2003).

As shown in Figure 4.7-1, the closest fault to the Project site is the currently inactive Freshwater Fault located approximately 3.5-miles to the east of the three Project sites. However, as indicated above the active Arcata South fault is located approximately 5.5-miles north/northeast of the R-354 Project site and the Fields Landing fault zone is located

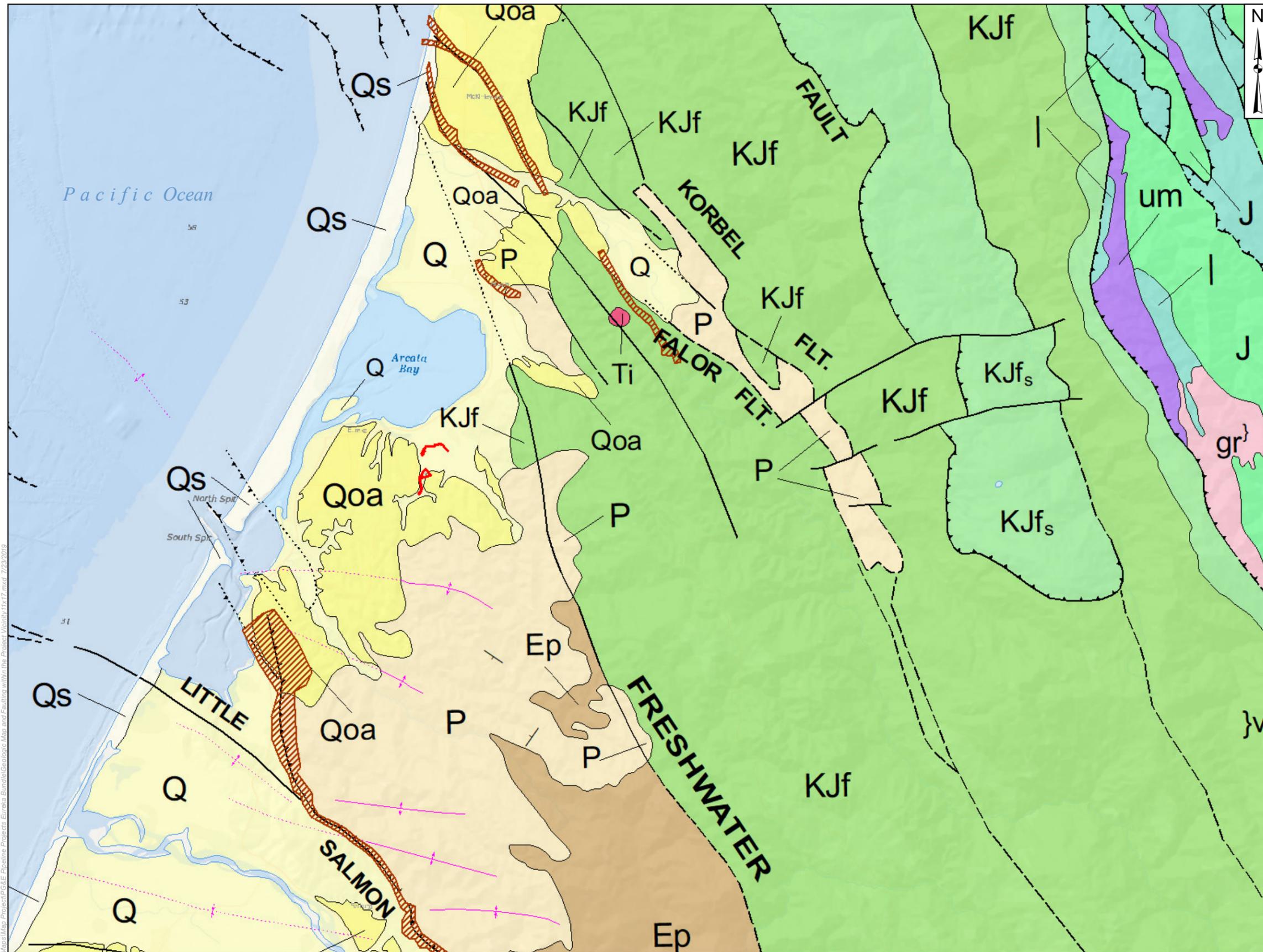
approximately 6-miles south/southwest of the RT-102 Project site. Because the Project sites are located within a seismically active area, seismic ground shaking could occur that would have the potential to affect the replacement pipeline and improved infrastructure components. To mitigate potential hazards associated with seismic ground shaking, **MM GEO-1: Preliminary Soils and Geologic Investigation Report** would require a preliminary soils and geologic investigation report to be conducted in support of the final Project design and construction. Recommendations included within this report shall be developed in accordance with California Building Code (CBC) for seismic regulation. Implementation of CBC standards and site-specific recommendations within this study would reduce potential impacts from seismic shaking on Project components to less than significant.

MM GEO-1: Preliminary Soils and Geologic Investigation Report. In accordance with the California Building Code, all Project improvements shall be evaluated in a preliminary soils and geologic investigation report. This report shall provide appropriate design features to mitigate the potential for seismic impacts.

a(iii). **Less Than Significant with Mitigation.** According to mapping provided within the Humboldt County General Plan (Seismic Safety and Relative Slope Stability Map, 2006), due to their proximity to water courses, the Project sites are located within an area of potential liquefaction. Since Humboldt County is a seismically active area of California, geologic hazards including liquefaction would have the potential to occur at the Project sites.

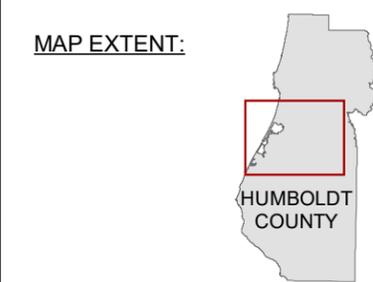
To mitigate potential hazards associated with liquefaction, **MM GEO-1: Preliminary Soils and Geologic Investigation Report** would require a preliminary soils and geologic investigation report to be conducted in support of the final Project design and construction. Recommendations included within this report should be developed in accordance with CBC for seismic regulation. Implementation of CBC standards and site-specific recommendations within this study would reduce potential impacts from liquefaction due to seismic shaking on Project components to less than significant.

a(iv). **Less than Significant.** The Project sites are located within relatively flat areas that primarily contain Occidental soils with 0 to 2 percent slopes. According to the Humboldt County Planning and Building Department ArcGIS Web Map (Seismic Safety - Soils Stability Map accessed 2019), soils at the Project sites are classified as C0, or relatively stable (Figure 4.7-2). Therefore, potential impacts from landslides are determined to be less than significant.

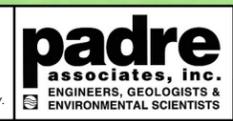


LEGEND:

- Project Location
- bedding
- + anticline, certain
- + anticline, concealed
- + syncline, certain
- + syncline, concealed
- + fold axis, concealed
- fault, certain
- fault, approx. located
- thrust fault, approx. located
- thrust fault, concealed
- contact, certain
- fault, approx. located
- fault, certain
- fault, concealed
- fault, concealed, queried
- water boundary
- thrust fault, certain
- thrust fault, approx. located
- dextral fault, approx. located
- normal fault, certain
- Alquist-Priolo Earthquake Fault Zones
- Qs - marine and nonmarine (continental) sedimentary rocks
- Q - marine and nonmarine (continental) sedimentary rocks
- Qoa - marine and nonmarine (continental) sedimentary rocks
- P - marine sedimentary rocks
- Ep - marine sedimentary rocks
- Ti - volcanic rocks
- KJf - marine sedimentary and metasedimentary rocks
- KJfs - marine sedimentary and metasedimentary rocks
- J; J? - marine sedimentary and metasedimentary rocks
- grMz; grMz? - plutonic rocks
- um - plutonic rocks
- Pz - marine sedimentary and metasedimentary rocks
- Water



Source: Esri Oceans Basemap, Department of Conservation, California Geological Survey
 Coordinate System: NAD 1983 StatePlane California I FIPS 0401 Feet
 Notes: This map was created for informational and display purposes only.



PROJECT NAME: PG&E EUREKA PIPELINES PROJECT HUMBOLDT COUNTY, CA	
PROJECT NUMBER: 1702-2341	DATE: July 2019

GEOLOGIC MAP AND FAULTING WITHIN THE PROJECT VICINITY

FIGURE 4.7-1

LEGEND:

- ★ Project Site Location
- Seismic Safety Level
- 2 - Moderate Instability
- 1 - Low Instability
- 0 - Relatively Stable



Z:\GIS\Projects\GIS Maps\Map Project\PG&E Pipeline Projects_Eureka_Bundled\ND\Fig_4_F_2-SeismicStabilityData.mxd 11/26/2019

Source: Esri Online Imagery Basemap; and County of Humboldt Seismic Stability data (<https://humboldt.gov/276/GIS-Data-Download>).
 Notes: This map was created for informational and display purposes only.

padre
 associates, inc.
 ENGINEERS, GEOLOGISTS &
 ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E PIPELINE MAINTENANCE PROJECTS EUREKA, CALIFORNIA	
PROJECT NUMBER: 1702-2341	DATE: November 2019

SEISMIC STABILITY DETERMINATION

FIGURE
4.7-2

b. Result in substantial soil erosion or the loss of topsoil?

4.7.3.2 All Project Sites

Short-Term Impacts

Less than Significant with Mitigation. Each of the Project sites would require short-term temporary disturbance of soils for Project repairs and staging of equipment as shown on Figures 2.1-3, 2.2-3, and 2.3-4 (Longitude 123, 2017, 2019). However, during construction **AMM GEO-1: Erosion Control Plan** would be implemented in order to reduce temporary potential soil erosion impacts. Each of the Project sites would be returned to pre-Project conditions. A less than significant impact to soil erosion would result following implementation of this measure

AMM GEO-1: Erosion Control Plan. Construction activities will be conducted in accordance with a Project Erosion Control Plan that includes best management practices intended to reduce the potential for erosion or significant runoff of soils from the Project site. These measures shall be included on a reference sheet with all Project plans.

4.7.3.3 R-354 and RT-102 Project Sites

Long-Term Impacts

Less Than Significant/Beneficial Impact. Project repairs at the R-354 site include permanent placement of fill intended to prevent future erosion behind the northern bridge abutment and along 150 linear feet of the waterside slope of the north levee east of Christie Bridge on Freshwater Slough. In particular, several alternatives for stabilization of the levee including biotechnical, rock rip rap, and Ecomats were considered. These alternatives were presented to regulatory agencies prior to Project development, and it was determined that EConcrete mats (articulated concrete mats) were the preferred design alternative because they would not require excavation by heavy equipment into the slough bed at the toe of levee to support placement, and would cause minimal long-term impacts, currently estimated at approximately 0.05-acres along the eroded levee. Additionally, the mats can be easily removed from the eroded portion of the northern levee if a system-wide levee improvement project to address sea-level rise concerns, currently under consideration by Humboldt County, is to be implemented in the future.

The RT-102 Project site includes the placement of a permanent concrete culvert under the pipeline. Following construction, Project repairs would result in a permanent improvement to the Project site to eliminate terrestrial erosion and runoff. Therefore, a less than significant or beneficial impact with respect to soil erosion and stability would result.

- c. *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

4.7.3.4 All Project Sites

Short-Term Impacts / Long-Term Impacts

Less than Significant/Beneficial. As previously discussed, engineering and geotechnical/hydrologic review was conducted by Kleinfelder (2013, 2017), and Bennett Trenchless (2017), as necessary to develop Project improvements that would be technically feasible at each of the three Project repair locations.

For the R-354 Project, the purpose of the Kleinfelder analysis was to evaluate if the PG&E concrete slab and abandoned gas pipeline were the cause of damage to a nearby bridge abutment and associated concrete wingwall. It was concluded within this study that natural erosion and retreat of the slough bank caused the exposure. A slope stability analysis was performed under static conditions to evaluate the stability of the waterside slope. A bank retreat analysis was also conducted. The results of this study were utilized to design the R-354 Project site improvements, including removal of the landing and bank stabilization mats. Following implementation of the Project, the slough bank should re-stabilize. A beneficial impact would result.

With respect to the R-519 Ryan Slough Project site, two geotechnical borings were drilled by Kleinfelder in 2013 to evaluate the ground conditions along the proposed trenchless crossing. Initially, it was determined by Kleinfelder that due to site conditions encountered during the borings, a number of conditions were present that could cause difficulties or delays for HDD construction methods. Additionally, it was concluded that the evaluation of differential settlement due to liquefaction along the pipeline alignment should be performed once the final layout was selected.

Using this information, in 2017 Bennett Trenchless provided an updated design and analysis of the geotechnical conditions and site constraints to determine the feasibility and proposed methodology/layout of the jacking/receiving shafts and replacement crossing corridor. Based on their analysis, due to the small diameter of the proposed pipeline, minimum length of the Ryan Slough crossing, and the need to avoid putting the pipeline in a casing due to corrosion concerns, conditions at the R-519 Project site support use of a pilot tube (PT) methodology for installation of the pipeline. It was noted within their analysis that PT is typically used in a wide variety of soil types and is primarily limited by the presence of cobbles and boulders that would halt the advance of the pilot tube string. Soils at the R-519 Project site beneath Ryan Slough would adequately support PT methodology. Bennett Trenchless also indicated in their design considerations that due to the shallow existing utilities and small diameter of the proposed pipeline, a very low risk of settlement was considered for this Project site. The design considerations also chose a depth of boring that places the crossing within dense silty/clayey sand and medium stiff fat clay that would avoid soil layers containing debris. A less than significant impact to soil stability resulting from the R-519 improvements is anticipated.

The RT-102 improvements are required to remediate erosion issues resulting from water flowing across an earthen berm that runs along the west side of Ryan Creek. Three sinkholes are present that have exposed a section of the 12-inch R-177A natural gas pipeline. Completion of the RT-102 Project is anticipated to improve the stability of the berm in this area. A beneficial impact would result.

- d. *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risk to life or property?*

4.7.3.5 All Project Sites

Long-Term Impacts

Less than Significant Impact with Mitigation. According to the Humboldt County General Plan, the County has adopted the CBC which provides soil classification guidelines for expansive soils. If a structure is located within expansive soils defined by CBC criteria, special design considerations including but not limited to a preliminary soils and geologic investigation report would be required. As shown in Table 4.7-1, soils at the Project sites are primarily comprised of Occidental soils which are found on reclaimed salt marshes and tidal marshes on alluvial plains near the Pacific Ocean. They are very poorly drained and have slow permeability. Therefore, there is a potential for expansive soil properties to exist.

To mitigate potential hazards associated with expansive soils, **MM GEO-1: Preliminary Soils and Geologic Investigation Report** would require a preliminary soils and geologic investigation report to be conducted in support of the final Project design and construction. Recommendations included within this report should be developed in accordance with CBC for seismic regulation. Implementation of CBC standards and site-specific recommendations within this study would reduce potential impacts from expansive soils on Project components to less than significant.

- e. *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

4.7.3.6 All Project Sites

Short-Term Impacts

No Impact. The Project does not include components that would require the use of septic tanks or alternative wastewater disposal systems.

f. *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

4.7.3.7 All Project Sites

Short-Term Impacts

Less Than Significant with Mitigation. According to the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA - NRCS) Web Soil Survey (2017), the Project sites contain the following dominant soil types and is located within the following geologic units (Table 4.7-1).

The Project sites are located within an area where known archaeological or paleontological sites have been identified regionally (Humboldt County, 2012). Additionally, a search was conducted within the UC Museum of Paleontology (UCMP) which found a significant number of paleontological resources recovered primarily within Pliocene and Pleistocene deposits within Humboldt County (UCMP, 2019).

Table 4.7-1. Soils Classification and Geologic Units at the Project Sites

Project Site	Geologic Unit	Soils Present
R-354	Q – Pleistocene-Holocene: Marine and non-marine sedimentary rocks. Alluvium, lake, playa and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine but includes marine deposits near the coast.	Water and Fluvents – 0 to 2% Slopes (28.6%) Occidental – 0 to 2% Slopes (71.4%)
R-519	Q – Pleistocene-Holocene: Marine and non-marine sedimentary rocks Qoa - Pleistocene: Marine and nonmarine sedimentary rocks. Older alluvium, lake, playa, and terrace deposits.	Unmapped. Soils occurring near the site include Occidental – 0 to 2% Slopes
RT-102	Q – Pleistocene-Holocene: Marine and non-marine sedimentary rocks. Alluvium, lake, playa and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine but includes marine deposits near the coast.	Weott – 0 to 2% Slopes (0.4%) Occidental – 0 to 2% Slopes (84.5%) Lepoli-Espa-Candymountain complex – 15 to 50% Slopes (15.1%)

Excavation is required at each of the Project sites to accommodate the removal and/or replacement of pipelines and repair of erosional areas. The Project sites have not been identified specifically as containing paleontological resources; however, are located within geologic deposits that have the potential for paleontological resources to occur. Therefore, in accordance with Humboldt County General Plan recommendations, **MM GEO-2: Protection of Archaeological and Paleontological Resources** would be implemented to ensure the protection of unknown resources that could be encountered during construction. A less than

significant impact to paleontological resources would result following implementation of this measure.

MM GEO-2: Protection of Archaeological and Paleontological Resources. In accordance with the Humboldt County General Plan (2017), the following mitigation measure shall be provided on all Project development plans for protection of archaeological and paleontological resources:

“The project site is not located within an area where known archaeological or paleontological sites have been identified. However, as there exists the possibility that undiscovered archaeological or paleontological resources may be encountered during construction activities, the following post-review, inadvertent archaeological discovery measures are required under State and Federal laws:

If archaeological or paleontological resources are encountered, all ground disturbing work at the find location plus a reasonable buffer zone must be immediately suspended and a qualified professional contacted to analyze the significance of the find and formulate further mitigation (e.g., project relocation, excavation plan, and protective cover) in consultation with culturally affiliated tribes or other descendant groups, where applicable.

Pursuant to California Health and Safety Code §7050.5, if human remains are encountered, all ground-disturbing work must cease, and the County Coroner contacted. The applicant and successors in interest are ultimately responsible for ensuring compliance with this condition.”

4.7.4 Mitigation Measures

Implementation of the following mitigation measure would reduce potential Project-related impacts regarding geology and soils to less than significant:

- AMM GEO-1: Erosion Control Plan
- MM GEO-1: Preliminary Soils and Geologic Investigation Report
- MM GEO-2: Protection of Archaeological and Paleontological Resources

4.8 GREENHOUSE GAS EMISSIONS

GREENHOUSE GAS EMISSIONS -Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.8.1 Discussion

The Project consists of three separate projects which would occur intermittently from July through October 2021 as follows: R-519 Ryan Slough Crossing Replacement (approximately 111 days), R-354 Freshwater Slough Crossing Decommissioning (approximately 42 days); and RT-102 Ryan Creek Exposure Remediation (approximately 43 days). The estimated GHG emissions for each phase were calculated and is discussed in the Impact Analysis discussion below.

Land uses near the Project site consist of agricultural, residential, and timber production zone land uses. The nearest residences to the Project are located approximately 1,200 feet west of R-354, approximately 200 feet west of R-519 and approximately 900 feet east of RT-102. Commercial land uses near the Project include, transient lodging facilities, indoor storage facilities, outside equipment storage yards and commercial tennis courts. Recreational land use near the Project includes the Redwood Acres Fairgrounds. Other than residences, potential noise sensitive land uses near the Project site include the Worthington Headstart (within 0.5 mile of the R-519), Changing Tides Day Care (within 0.5 mile of the R-519), La Fayette Elementary School (approximately 0.5 miles of R-354), and several churches (within 1 mile of the Project sites).

Greenhouse Gases (GHGs), which are defined as any gas that absorbs infrared radiation in the atmosphere, include, but are not limited to, water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorocarbons. These GHGs lead to the trapping and buildup of heat in the atmosphere near the earth's surface, commonly known as the Greenhouse Effect. The atmosphere and the oceans are reaching their capacity to absorb CO₂ and other GHGs without significantly changing the earth's climate. Unlike criteria pollutants and TACs, which are pollutants of regional and local concern, GHGs and climate change are a local, regional, and global issue.

As stated on California's Climate Change Portal (www.climatechange.ca.gov/Climate):

Climate change is expected to have significant, widespread impacts on California's economy and environment. California's unique and valuable natural treasures - hundreds of miles of coastline, high value forestry and agriculture, snow-melt fed fresh water supply, vast snow and water fueled recreational opportunities, as well as other natural wonders - are especially at risk.

In addition, the Intergovernmental Panel on Climate Change (IPCC), in the section of its Fifth Assessment Report by Working Group II, “Climate Change 2014: Impacts, Adaptation, and Vulnerability,” (IPCC 2014; released March 31, 2014) specific to North America (Chapter 26), stated in part:

North American ecosystems are under increasing stress from rising temperatures, CO₂ concentrations, and sea-levels, and are particularly vulnerable to climate extremes (very high confidence). Climate stresses occur alongside other anthropogenic influences on ecosystems, including land-use changes, non-native species, and pollution, and in many cases will exacerbate these pressures (very high confidence). [26.4.1; 26.4.3]. Evidence since the Fourth Assessment Report (IPCC 2007) highlights increased ecosystem vulnerability to multiple and interacting climate stresses in forest ecosystems, through wildfire activity, regional drought, high temperatures, and infestations (medium confidence) [26.4.2.1; Box 26-2]; and in coastal zones due to increasing temperatures, ocean acidification, coral reef bleaching, increased sediment load in run-off, sea level rise, storms, and storm surges (high confidence) [26.4.3.1].

Climate change is having widespread impacts on California’s economy and environment and will continue to affect communities across the State in the future. Many impacts, including increased fires, floods, severe storms, and heat waves are occurring already. Documented effects of climate change in California include increased average, maximum, and minimum temperatures; decreased spring runoff to the Sacramento River; shrinking glaciers in the Sierra Nevada; a rise in sea level at the Golden Gate Bridge; warmer temperatures in Lake Tahoe, Mono Lake, and other major lakes; and changes in elevations for plant and animal species (Office of Environmental Health Hazard Assessment, 2018).

According to the IPCC, the concentration of CO₂, the primary GHG, has increased from approximately 280 parts per million (ppm) in pre-industrial times to well over 380 ppm. The current rate of increase in CO₂ concentrations is about 1.9 ppm/year; present CO₂ concentrations are higher than any time in at least the last 650,000 years. To meet the statewide GHG reduction target for 2020, requiring California to reduce its total statewide GHG emissions to the level they were in 1990 (Health & Safety Code, § 38550), and the 2050 goal of 80 percent below 1990 levels (Executive Order S-3-05), not only must projects contribute to slowing the increase in GHG emissions, but, ultimately, projects should contribute to reducing the State’s output of GHGs. To reach California’s GHG reduction targets, it is estimated that per capita emissions will need to be reduced by slightly less than five percent per year during the 2020 to 2030 period, with continued reductions required through mid-century.

CO₂ is the most common reference gas for climate change. To account for the warming potential of different GHGs, emissions are often quantified and reported as CO₂ equivalents (CO₂e). With the warming potential of CO₂ set at a reference value of 1, CH₄ has a warming potential of 25 (i.e., 1 ton of methane has the same warming potential as 25 tons of CO₂ [IPCC 2013]), while N₂O has a warming potential of 298. There is widespread international scientific consensus that human-caused increases in GHGs have and will continue to contribute to climate change, although there is uncertainty concerning the magnitude and rate of the warming.

4.8.2 Regulatory Setting

4.8.2.1 Federal and State

The Project is located in the NCUAQMD's jurisdiction, the NCUAQMD is responsible for attaining the air quality standards established by the CARB and the USEPA. Given the global nature of climate change resulting from GHG emissions, GHG emission impacts are inherently cumulative in nature. The determination whether a project's GHG emissions impacts are significant depends on whether emissions would be a cumulatively considerable contribution to the significant cumulative impact.

Threshold of significance criteria for determining whether a project's GHG emissions is significant, either project specifically or cumulatively, is set forth in CEQA Guidelines §§ 15064(h)(3), 15064.4, 15130(b)(1)(B) and (d), and 15183.5, all of which may be used individually, collectively or in combination with one another in making such a determination. The NCUAQMD has not approved GHG emission significance thresholds for temporary construction projects or stationary sources. In 2011 the NCUAQMD adopted Rule 111 – Federal Permitting Requirements for GHG Sources. This rule established federally enforceable GHG limits for stationary sources. The requirements of Rule 111 are summarized below.

Rule 111 - Summary

- This Rule applies to any stationary source which has the potential to emit greenhouse gases, with the following exceptions.
 - a. This Rule does not apply to any stationary source which has a maximum potential to emit GHGs below 50,000 metric tons of CO₂ equivalent per year (MTCO₂e/yr) including sources with their potential to emit limited by conditions in an operating permit if the conditions are federally, or legally and practically enforceable.

4.8.2.2 Local

The Project site is located within Humboldt County. The County's General Plan Air Quality Element was adopted in 2017 and contains information and requirements for assessing air quality within County. The Air Quality Element list the following goals and policies that are applicable to the proposed Project:

- **AQ-G4 - Greenhouse Gas Emissions.** Successful mitigation of greenhouse gas emissions associated with the General Plan to levels of non-significance as established by the AB 32 and subsequent implementation of legislation and regulations.
- **AQ-P11/ AQ-S2 - Review of Projects for Greenhouse Gas Emission Reductions.** The County shall evaluate the GHG emissions of new large scale residential, commercial and industrial projects for compliance with State regulations and require feasible mitigation measures to minimize GHG emissions consistent with best

practices documented by the California Air Pollution Control Officers Association in their 2008 white paper “*CEQA & Climate Change*” or successor documents.

4.8.2.3 GHG Significance Thresholds

Humboldt County nor the NCUAQMD have approved GHG emission significance thresholds for temporary construction projects. In the absence of any applicable threshold, estimated Project GHG emissions were compared to the Bay Area Air Quality Management District (BAAQMD) significance threshold for land use development projects of 1,100 metric tons of CO₂ equivalent per year (MTCO₂e/yr).

4.8.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding greenhouse gases are short-term.

- a. *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*
- b. *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

4.8.3.1 All Project Sites

a) and b). Less than Significant. The Project would result in GHG emissions that would be well below the BAAQMD significance threshold for land use development projects of 1,100 MTCO₂e/year and the NCUAQMD stationary source limit of 50,000 MTCO₂e/year; therefore, impacts associated with GHGs are estimated to be less than significant. CO₂ is the main GHG that would be emitted from the Project. Emissions of GHGs from Project combustion sources were estimated based on emission factors obtained from the Port of Long Beach Air Emissions Inventory for marine sources, Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories, ICF International Report to the U.S. EPA, California Emissions Estimator Model (CalEEMod) for off-road industrial sources, and EMFAC2011 for onroad diesel truck sources. Estimated emissions of GHGs are presented in Table 4.8-1.

Table 4.8-1. Estimated GHG Project Emissions

EMISSIONS SUMMARY		N ₂ O	CO ₂	CH ₄	MTCO ₂ e Tons
R-354	Pounds/Day	1.08	1.38	13,160	34.1
	Tons	0.001	0.008	37.0	
R-519	Pounds/Day	0.63	1.71	12,964	81.0
	Tons	0.002	0.021	88.2	
RT-102	Pounds/Day	0.34	1.28	6,149	51.5
	Tons	0.001	0.016	56.1	
TOTAL EMISSIONS TONS/YR		0.004	0.045	181.3	166.6

4.8.4 Mitigation Measures

The following mitigation measures would be implemented to further reduce and minimize impacts to greenhouse gas emissions.

- MM AQ-1: ROG and NO_x Reduction Measures (refer to Section 4.3.4).

4.9 HAZARDS AND HAZARDOUS MATERIALS

HAZARDS AND HAZARDOUS MATERIALS - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.9.1 Discussion

The Project includes repairs to three existing gas pipeline locations within Humboldt County. The Project sites are not located on a site which is included on a list of hazardous materials sites (DTSC, 2019). During construction, small quantities of hazardous materials, such as fuels, hydraulic fluids, and oils would be used to operate construction equipment onshore at all three Project sites as well as in support of a diving spread at Freshwater Slough and Ryan Slough for the R-354 and R-519 Project repairs.

4.9.2 Regulatory Setting

4.9.2.1 Federal and State

California Toxics Rule. In 2000, the USEPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions to be applied to waters in California to protect human health and the environment. Under Clean Water Act section

303(c)(2)(B), the USEPA requires states to adopt numeric water quality criteria for priority toxic pollutants for which the USEPA has issued criteria guidance, and the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses. These federal criteria are legally applicable in California for inland surface waters, enclosed bays, and estuaries.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLA, commonly known as Superfund, provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to provide for cleanup when no responsible party could be identified. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Resource Conservation and Recovery Act (RCRA). The RCRA authorizes the USEPA to control hazardous waste from “cradle-to-grave” (generation, transportation, treatment, storage, and disposal). RCRA Hazardous and Solid Waste Amendments from 1984 include waste minimization, phasing out land disposal of hazardous waste, and corrective action for releases. The Department of Toxic Substances Control is the lead state agency for corrective action associated with RCRA facility investigations and remediation.

Elder California Pipeline Safety Act of 1981. The California Pipeline Safety Act gives regulatory jurisdiction to the California State Fire Marshal (CSFM) for the safety of all intrastate hazardous liquid pipelines and all interstate pipelines used for the transportation of hazardous or highly volatile liquid substances. The law establishes the governing rules for interstate pipelines to be the Federal Hazardous Liquid Pipeline Safety Act and federal pipeline safety regulations. Government Code sections 51010 through 51018 provide specific safety requirements that are more stringent than the federal rules, including periodic hydrostatic testing of pipelines, pipeline leak detection, and a requirement that all leaks be reported. Amendments to the Act require that pipelines include leak prevention and cathodic protection, with acceptability to be determined by the CSFM. All new pipelines must be designed to accommodate the passage of instrumented inspection devices (i.e., smart pigs). Under California Code of Regulations, title 19, Public Safety, the CSFM develops regulations relating to fire and life safety. These regulations have been prepared and adopted to establish minimum standards for the prevention of fire and for protection of life and property against fire, explosion, and panic. The CSFM also adopts and administers the regulations and standards considered necessary under the California Health and Safety Code to protect life and property.

4.9.2.2 Local

Humboldt County provides goals and policies related to hazards and hazardous materials within its Safety Element of the General Plan (2017). Applicable goals and policies include the following:

- **S-G5. Airport Safety.** Land use and development in the vicinity of airports that minimizes exposure to unsafe levels of noise and aircraft hazards consistent with the applicable Airport Land Use Compatibility Plan.
- **S-P33. Hazardous Waste.** Eliminate the use of toxic materials within Humboldt County, where feasible, and require the reduction, recycling, and reuse of such materials, to the greatest extent possible, where complete elimination of their use is not feasible. Require new development which may generate significant quantities of hazardous wastes to be consistent with all the goals and policies of the Hazardous Waste Management Plan.

4.9.3 Impact Analysis

The Project includes short-term pipeline maintenance and/or replacement. The majority of potential impacts regarding hazards and hazardous materials would occur during construction. Repair of R-354 and replacement of R-519 would result in a beneficial impact to pipeline hazards during subsequent operations.

- a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*
- b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

a) and b).

4.9.3.1 All Project Sites

Less than Significant with Mitigation. As stated above, small quantities of hazardous materials, such as fuels, hydraulic fluids, and oils would be used to operate construction equipment onshore at all three Project sites as well as in support of a diving spread at Freshwater Slough and Ryan Slough for the R-354 and R-519 Project repairs. Additionally, the pipelines present at R-354 and R-519 would need to be pigged/flushed/grouted prior to removal and/or replacement activities. The R-354 pipeline contains an anti-corrosive somastic which may include the presence of asbestos containing materials (ACM). Once it has been exposed, the R-519 crossing would also be inspected for the presence of somastic coating and if present, tested for the presence of ACM. Potential impacts to the surrounding environment(s) could result if an unanticipated release of these materials were to occur. Potential upset events that could occur during Project implementation include the following scenarios as further discussed below:

- Incidental spills of lubricating oils, hydraulic fluids, and waste oils from equipment or fueling of equipment;
- Pigging/flushing of existing pipeline contents prior to removal (R-354 and R-519);

- Damage or disturbance to active pipelines or utilities; and
- Exposure of persons to ACM during pipeline removal/transport.

Incidental Spills from Construction Equipment or Fueling of Equipment. During construction, small quantities of hazardous materials, such as fuels, hydraulic fluids, and oils would be used during construction to operate construction equipment. In accordance with **MM HAZ-1: Use and Storage of Lubricating Oils, Hydraulic Fluids, and Waste Oils** all fuels, hydraulic fluids, and oils supplied for onshore activities shall be stored in proper containment devices at the designated staging areas. In accordance with **MM HAZ-2: Fueling**, all fueling operations shall occur at each designated staging area utilizing best management practices in areas with secondary containment. Regardless, potential impacts to the environment could occur from accidental spills involving fuels and petroleum-based liquids. However, in compliance with **AMM HAZ-1: Oil Spill Contingency and Response Plan (OSCRP)**, a Project-specific OSCRCP would be implemented in the case of a minor spill, and sorbent materials would be kept on-site during construction for immediate response. Implementation of these mitigation measures would reduce the potential for incidental spills to the extent feasible. A less than significant impact with mitigation would result.

MM HAZ-1: Use and Storage of Lubricating Oils, Hydraulic Fluids, and Waste Oils.

PG&E shall ensure that all Project contractors maintain good housekeeping practices to avoid washing of lubricants or other hydrocarbon from the work sites into adjacent water courses. All lubricating oils, hydraulic fluids, waste oils and related materials shall be stored in contained areas.

MM HAZ-2: Fueling. To reduce incidental fueling spills, the contractor shall ensure that equipment shall be refueled at designated areas in accordance with best management practices (BMPs) in areas with secondary containment.

AMM HAZ-1: Oil Spill Response and Contingency Plan. PG&E or its primary contractor will prepare a Project-specific OSRCP that clearly identifies the responsibilities of Project contractors and PG&E personnel. The OSRCP will list and identify the location of oil spill response equipment and response times for deployment. Contracts with off-site spill response companies will be in-place and will provide additional containment and clean-up resources as needed. The OSRCP will be submitted to the Humboldt Bay Harbor Recreation and Conservation District staff at least 60 days prior to commencement.

4.9.3.2 R-354 and R-519 Project Sites

Less than Significant with Mitigation.

Pigging/Flushing of Existing Pipeline Contents Prior to Abandonment (R-354 and R-519). Prior to opening to the environment or removal of the retired 8-inch-diameter gas pipeline (Line 347B) crossing at the R-354 worksite and removal/replacement of the 4-inch-diameter gas transmission pipeline (Line 137C) Ryan Slough crossing at the R-519 worksite; each pipeline would be pigged and flushed to ensure the residual hydrocarbon levels in the pipeline are less

than 15 ppm as per regulatory standards for abandonment projects. The wastewater from the flushing would be captured in containment and transported to an approved offsite treatment and disposal facility. Once each pipeline segment flush water has been certified at less than 15 PPM, the pipeline segment would be filled with cement slurry. The cement slurry specification shall be based on California Code of Regulations, Title 23, Waters, Division 1, Central Valley Flood Protection Board, Volume 32, Section 124, Abandoned Pipelines and Conduits, (c), (1) and shall consist of a three-sack neat cement mix, or equivalent. Once the cement slurry in the pipeline segment has cured sufficiently (approximately 48 hours), the pipeline(s) can be cut and removed. This procedure would ensure that the pipelines are free of hazardous materials prior to removal and that no potential for release to the marine environment would occur. A less than significant impact from hazardous materials would result.

Exposure of Persons to Asbestos-Containing Materials During Pipeline Removal / Transport (R-354 and R-519). The retired L-137B crossing located at the R-354 worksite is comprised of 8-inch diameter (nominal), 0.188-inch wall, steel pipe coated with approximately 0.5 inch of somastic anti-corrosive coating. The existing L-137C crossing at the R-519 Project site includes a 4-inch diameter pipeline; however, it is not known if there is any weight coating, somastic coating, or other pipe coating on this pipeline as it is currently submerged under Ryan Slough.

Prior to the removal of the pipelines, divers would need to cut the pipeline by removing a ring of weight coating (if present). Once retrieved to the shoreline, the pipelines would be further cut into truckable sections for transport and recycling/disposal. In accordance with **AMM HAZ-2: Testing for Asbestos Containing Materials**, Project materials having the potential to contain asbestos would be tested prior to cutting/handling/disposal to avoid exposure of persons or the environment to ACM. If ACM is found, the pipelines would be handled and transported in accordance with **MM HAZ-3: Handling and Disposal of Asbestos Containing Materials**. A less than significant impact would result with the implementation of these measures.

AMM HAZ-2: Testing for Asbestos Containing Materials. Project materials having the potential to contain asbestos shall be tested prior to handling/disposal to avoid exposure of persons or the environment to ACM.

MM HAZ-3: Handling and Disposal of Asbestos Containing Materials (If Found). If asbestos containing materials are detected in the pipeline coating materials, handling and removal of these materials shall be performed utilizing a certified asbestos abatement contractor to ensure proper handling and disposal for protection of the environment.

4.9.3.3 R-519 Project Site

Less than Significant Impact.

Damage or Disturbance to Active Pipelines or Utilities. At the R-519 Project site, several utilities are located within the east worksite gravel staging area. Known utilities passing under or over this gravel area consist of the existing Line 137C on the north edge of the gravel area, a water line that runs parallel to Myrtle Avenue on the south side of the gravel area, a

telecommunications line that runs roughly parallel to the slough within the western section of the gravel area, and an overhead electric line that clips the northwest corner of the gravel triangle. Additionally, there are numerous existing utilities on the west end of the proposed crossing at the west worksite. These include a set of overhead electrical lines that cross the slough toward the north end of the clearing as well as the southern tip of the valve lot. There are also several gas transmission lines and a water line that cross the west end of the proposed crossing. Underground, the clearing is impacted by Line 137C, Line 177A, a 12 inch pipeline, a waterline aligned on the western edge of the clearing, and an unknown 0.5 inch line that runs at an angle through the south side of the clearing and the northeast corner of the shaft.

Project repair methodology has been designed in consideration of these existing utilities. First, due to the existing utility restrictions at the Project site, the smaller of the two shafts, the receiving shaft, would be constructed at the western worksite. Additionally, shaft construction at both shaft sites shall start with vacuum excavation of the footprint of the shaft to a depth of 8 feet below ground level. This would be done to ensure that any undetected underground utilities passing through the planned shaft sites are located without damaging them.

As indicated within the R-519 Project design plans (Longitude 123, 2019), since both shaft sites were surveyed and the northern and eastern boundary (12 foot by 12 foot "L") of the receiving shaft (west side) was vacuum excavated to a depth of 6 feet in the May 2017 pothole survey, there is a high level of confidence that both shaft locations would be free of underground utilities with the exception of the 0.5 inch pipe of unknown type that was found in the northeastern corner of the planned receiving shaft location. This 0.5-inch pipe would be removed to facilitate the construction of the receiving shaft. Based on these Project design considerations, no damage or disturbance to active pipelines or utilities is expected. A less than significant impact would result.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

4.9.3.4 All Project Sites

No Impact. There are no existing or proposed schools within 0.25 mile of the Project sites. The closest school is an elementary school (La Fayette Elementary) located approximately 0.5 mile from the R-354 Project site in Myrtle town. Additionally, the Project sites are not located on a site which is included on a list of hazardous materials sites (per the provisions of Gov. Code § 65962.5, commonly referred to as the "Cortese List") (DTSC, 2019). No impact would result.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

4.9.3.5 All Project Sites

No Impact. The Project sites are not located on a site which is included on a list of hazardous materials sites (DTSC, 2019). No impact would result.

- e. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

4.9.3.6 All Project Sites

Less Than Significant with Mitigation. The Project sites are not located within the vicinity of a private airstrip, however the nearest public airport to the Project sites is the Murray Field Airport located north of the R-354 Project site adjacent to Humboldt Bay. This airport is greater than 2.0 miles from the R-519 and RT-102 Project sites, however the R-354 Project site is located within the outer edge of the Murray Field Safety Zone (Zone D). As specified in the Murray Field Airport Master Plan, this outer boundary indicates that the existing site uses conform to the adopted Planning Area of the Airport. As such, repairs to the existing gas pipeline within this area should remain in conformance. Regardless, **MM HAZ-4** would be implemented to ensure that potential impacts remain less than significant.

MM HAZ-4: Murray Field Airport Notification. At least two weeks prior to initiation of Project activities at the R-354 Project site, PG&E will provide notification to the Humboldt County Airports Department regarding Project activities. Notification will be sent to: Humboldt County, 1106 2nd St. Eureka, CA 95501. (707) 839-5401.

- f. *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

4.9.3.7 All Project Sites

No Impact. The Project would not impair implementation of or physically interfere with an adopted emergency response or evacuation plan. No impact would result.

- g. *Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?*

4.9.3.8 All Project Sites

No Impact. According to Humboldt County Map of Central Humboldt Flood Zones and Fire Hazard Areas (CALFIRE, 2008) the Project sites are located within a 100-year floodzone and are not located within a fire hazard area. No impact would result.

4.9.4 Mitigation Measures

Implementation of the following mitigation measures would reduce potential Project-related impacts regarding hazards and hazardous materials to less than significant:

- AMM HAZ-1: Oil Spill Response and Contingency Plan
- AMM HAZ-2: Testing for Asbestos Containing Materials
- MM HAZ-1: Use and Storage of Lubricating Oils, Hydraulic Fluids, and Waste Oils

- MM HAZ-2: Fueling
- MM HAZ-3: Handling and Disposal of Asbestos Containing Materials
- MM HAZ-4: Murray Field Airport Notification

4.10 HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) Result in a substantial erosion or siltation of on- or off-site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.10.1 Discussion

The Project sites are located within the Humboldt Plain hydrologic area (NCRWQCB, 2018). The Project sites are located within the Freshwater Creek watershed and are specifically located within Freshwater Slough, Ryan Slough, and Ryan Creek. These waterbodies are connected to the Eureka Slough which flows into Humboldt Bay. The sloughs are tidally influenced, and water levels rise and fall with the associated tides. Levees were historically constructed on the banks of the sloughs to reclaim marsh lands for agricultural uses. These levees confine the sloughs and reduce flooding into adjacent areas. Based on the Kleinfelder geotechnical report, the anticipated groundwater elevation at the R-519 pipeline location is approximately 5 feet above mean sea level (Kleinfelder, 2013, 2017).

A 2018 Water Quality Assessment Report prepared by the North Coast Regional Water Quality Control Board (NCRWQCB) identified that the Freshwater Creek is impacted with sedimentation/siltation due to ground-disturbing activities within the watershed. NCRWQCB has not formally listed Freshwater Creek as a 303(d) impaired water body under the Clean Water Act but is in the process of developing Total Maximum Daily Load (TMDL) limits for this water body (NCRWQCB, 2019).

4.10.2 Regulatory Setting

4.10.2.1 Federal and State

Federal Clean Water Act (CWA). The CWA is comprehensive legislation (it generally includes the Federal Water Pollution Control Act of 1972, its supplementation by the CWA of 1977, and amendments in 1981, 1987, and 1993) that seeks to protect the nation’s water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the U.S. These water quality standards are promulgated by the USEPA and enforced in California by the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs).

- Section 401 (33 U.S.C. § 1341) specifies that any applicant for a federal permit or license to conduct any activity which may result in any discharge into the navigable waters of the U.S. to obtain a certification or waiver thereof from the state in which the discharge originates that such a discharge will comply with established state effluent limitations and water quality standards. U.S. Army Corps of Engineers projects are required to obtain this certification.
- Section 404 (33 U.S.C. § 1344) authorizes the U.S. Army Corps of Engineers to issue permits for the discharge of dredged or fill material into waters of the U.S., including wetlands, streams, rivers, lakes, coastal waters or other water bodies or aquatic areas that qualify as waters of the U.S.

Rivers and Harbors Act. This Act governs specified activities in “navigable waters” (waters subject to the ebb and flow of the tide or that are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce). Section 10 provides that construction of any structure in or over any navigable water of the U.S., or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters, is unlawful unless the U.S. Army Corps of Engineers approves the work and issues a Rivers and Harbors Act section 10 Permit (which may occur concurrently with Clean Water Act section 404 permits).

Porter-Cologne Water Quality Control Act. Porter-Cologne is the principal law governing water quality in California. The Act established the SWRCB and nine RWQCBs, which have primary responsibility for protecting water quality and beneficial uses of state waters. Porter-Cologne also implements many provisions of the federal Clean Water Act, such as the NPDES permitting program. Pursuant to Clean Water Act section 401, applicants for a federal license or permit for activities that may result in any discharge to waters of the U.S. must seek a Water

Quality Certification from the state in which the discharge originates; such Certification is based on a finding that the discharge will meet water quality standards and other appropriate requirements of state law. In California, RWQCBs issue or deny certification for discharges within their jurisdiction. The SWRCB has this responsibility where projects or activities affect waters in more than one RWQCB's jurisdiction. If the SWRCB or a RWQCB imposes a condition on its Certification, those conditions must be included in the federal permit or license.

4.10.2.2 Local

Humboldt County provides goals and policies related to water quality within its Safety Element of the General Plan (2017). Applicable goals and policies include the following:

- **S-P15. Construction within Special Flood Hazard Areas.** Construction within a floodplain identified as the 100-Year Flood Boundary on FEMA's Flood Insurance Rate Map shall comply with the County's Flood Damage Prevention Regulations. Fill in the floodplain shall only be allowed if it can be demonstrated that the fill will not have cumulative adverse impacts on or off site and such fill shall not be detrimental to productive farm land, and is otherwise in conformance with the County's Flood Damage Prevention Regulations.

4.10.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities. The only permanent impact with respect to hydrology and water quality includes the construction of a new concrete culvert at the RT-102 Project site that would improve drainage across the existing berm and would reduce the potential for additional erosion of the creek bank.

- a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

4.10.3.1 All Project Sites

Less than Significant with Mitigation.

Erosion and Sedimentation. The R-354 Project site activities would include construction activities on the banks and within the bed of Freshwater Slough to remove an existing retired pipeline that is exposed on the north bank. The R-519 Project site activities would include work on the banks and bed of Ryan Slough to replace an existing active pipeline that is exposed with the channel and decommission and remove the exposed pipeline. The RT-102 Project site activities would include removal of an existing redwood roadway buried within the bank of Ryan Creek, installation of a new concrete drainage culvert, and backfill and restoration of the existing berm and creek bank.

Potential adverse impacts would be short-term and temporary. Increased erosion and sedimentation would have the potential to occur if Project activities result in soil disturbance and

runoff carrying sediment from the work areas into the adjacent water bodies. The disturbed areas could result in long-term impacts to water quality from erosion and sedimentation if not properly stabilized, restored, and revegetated using Best Management Practices. Construction activities are planned to occur within the dry summer months. Pilot bore construction methods would be utilized at R-519 Project site. The pilot bore methodology uses hydraulic jacks to push a metal casing under the creek bed and does not utilize drilling mud, thereby avoiding the potential for an inadvertent release of drilling mud into the water body. Open trenches would be backfilled, re-countered, and compacted immediately following construction activities. Restoration of the affected areas would occur during the same dry season, thereby avoiding the exposure of disturbed substrated to streamflow within the affected areas during the wet season. Impacts from erosion and sedimentation within the affected waterbodies are anticipated to be significant, but mitigable with the implementation of mitigation measure **AMM GEO-1: Erosion Control Plan**. A less than significant impact to soil erosion would result following implementation of this measure.

Fuel and Oil Spill Risk. Potential water quality impacts from fuel or oil spills associated with the use of construction equipment would be reduced through the implementation of **MM HAZ-1: Use and Storage of Lubricating Oils, Hydraulic Fluids, and Waste Oils**, **MM HAZ-2: Fueling**, and **AMM HAZ-1: Oil Spill Contingency and Response Plan**.

4.10.3.2 R-354 and R-519 Project Sites

Less than Significant Impact.

Pigging and Flushing Activities. As stated in Section 4.9, Hazards and Hazardous Materials, the former natural gas pipelines at the R-354 and R-519 locations would be pigged and flushed with freshwater prior to removal which would clean the interior of the pipelines of any residual fluids. The wastewater from the flushing would be captured in containment and transported to an approved offsite treatment and disposal facility.

In-Stream Work. Project activities at the R-354 and R-519 Project sites would include minor activities within the stream channels to remove existing exposed pipelines from the bed or banks of the respective sloughs. The excavation activities within the channels would result in increased temporary turbidity within the vicinity of the work area. The turbidity impacts are anticipated to be minor and would be limited to the immediate work area due to the slack nature of currents within the sloughs. The Applicant has proposed to conduct turbidity monitoring during all in-water work to ensure that turbidity levels upstream and downstream of the Project site are compliant with regulatory requirements. Additional measures will be implemented if necessary, to reduce turbidity levels if determined to be necessary based on site conditions at the time of construction and the influence of in-water work on ambient turbidity levels in proximity to the Project site(s). If determined to be necessary, a turbidity curtain may be installed at low tide around in-water work areas to reduce the potential for significant turbidity impacts. A less than significant impact would result.

4.10.3.3 R-519 and RT-102 Project Sites

Less than Significant with Mitigation.

Diversion and Dewatering Activities. A temporary diversion would be installed to divert surface flows around the RT-102 Project site. Impacts to water quality associated with the diversion of the RT-102 Project site is less than significant with the implementation of **MM BIO-4: Channel Diversion Plan**.

Dewatering of the R-519 Project site would occur either directly from the excavations or utilizing dewatering wells. Impacts to water quality associated with dewatering of the R-519 is less than significant with the implementation of **AMM HYD-1: Dewatering Plan**.

AMM HYD-1: Dewatering Plan. The Applicant will prepare a Dewatering Plan that describes the proposed treatment methods to be utilized prior to the discharge of groundwater from the proposed excavation at the R-519 Project site so that the discharged water will meet or exceed water quality standards adopted by the NCRWQCB. Discharge of the water will be conducted as to not cause erosion at the discharge point. The Dewatering Plan will be submitted to the District for review and approval prior to the start of construction activities.

- b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

4.10.3.4 All Project Sites

Less than Significant Impact. The Project activities would utilize water available from local municipal sources for construction-related water needs. The Project would involve temporary de-watering of the work areas during excavation and pilot tube pipeline replacement activities. The dewatering activities would be short-term in duration; therefore, the extraction of groundwater would not decrease groundwater supplies or interfere substantially with groundwater recharge of sustainable use of groundwater resources. This impact would be less than significant.

- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

i. Result in a substantial erosion or siltation of on- or off-site?

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff?

iv. Impede or redirect flood flows?

4.10.3.5 All Project Sites

Long-Term Impacts

Less than Significant Impact. The Project would not substantially alter the existing drainage pattern of the Project sites, including through the alteration of a water course, or substantially increase the rate or amount of surface runoff in a manner which would result in on-site or off-site flow. At the RT-102 Project site, the construction of a new concrete culvert would improve drainage across the existing berm and would reduce the potential for additional erosion of the creek bank. The Project would not result in additional impervious surfaces and would not significantly alter the existing topography or drainage characteristics at each of the Project sites. This impact would be less than significant.

Short-Term Impacts

Less than Significant with Mitigation. As proposed in mitigation measure **AMM HYD-1**, Project impacts from construction dewatering would be reduced through the implementation of a Dewatering Plan. Temporary water body impacts associated with work within the bed or banks would be minor and temporary in duration. Temporary impacts would be restored and the work site re-contoured to natural conditions such that biological and hydrological functions and values of the affected areas are retained. This impact would be less than significant with the implementation of **AMM-HYD-1**.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

4.10.3.6 All Project Sites

Less than Significant Impact. According to the State of California's Tsunami Inundation Map for Emergency Planning, Arcata South Quadrangle, the proposed Project sites are located within the tsunami inundation area as designated by the California Emergency Management Agency (CEMA) and the California Geological Survey (CGS) (CEMA, CGS 2009). The proposed Project activities are temporary in duration. Following the completion of construction activities, the new pipeline at the R-519 location would be completely buried and protected against flooding. This impact would be less than significant.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

4.10.3.7 All Project Sites

Less than Significant with Mitigation. As discussed above, mitigation measures **AMM GEO-1**, **MM HAZ-1**, **MM HAZ-2**, **AMM HAZ-1**, and **AMM HYD-1** would be required to prevent impacts to water quality within the affected waterbodies. The Project activities are limited to construction-related impacts and would not interfere with the implementation of a water quality control plan or sustainable groundwater management plan. This impact would be less than significant.

4.10.4 Mitigation Measures

Implementation of the following mitigation measures would reduce potential Project-related impacts regarding hydrology and water quality to less than significant:

- AMM GEO-1: Erosion Control Plan
- AMM HAZ-1: Oil Spill Response and Contingency Plan
- MM HAZ-1: Use and Storage of Lubricating Oils, Hydraulic Fluids, and Waste Oils
- MM HAZ-2: Fueling
- AMM HYD-1: Dewatering Plan

4.11 LAND USE AND PLANNING

LAND USE AND PLANNING - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.11.1 Discussion

The Project sites are located in unincorporated Humboldt County. The R-354 Project site is located furthest north along Freshwater Slough approximately 0.5 miles upstream from its confluence with Eureka Slough. The R-519 Project site crosses Ryan Slough, just north of the Myrtle Avenue Bridge. The RT-102 Project site is located west of Mitchell Road along Ryan Creek within the McKay Community Forest.

Surrounding land uses include concentrated residential development generally to the west within the City of Eureka, and undeveloped agricultural/forest land generally to the east within Humboldt County. The land use designations and zoning for the Project sites are as follows:

- R-354 - Agricultural Exclusive (AE) and Natural Resources (NR).
- R-519 - Agricultural Exclusive (AE), Natural Resources (NR), and Residential Low Density (RL).
- RT-102 - Agricultural Exclusive (AE), Residential Low Density (RL), and Timberlands (TC).

Agricultural Exclusive. This plan designation applies to the bottomland farms and lands that can be irrigated; also used in upland areas to retain agricultural character. Typical uses include dairy, row crops, orchards, specialty agriculture, and horticulture. Residential subdivision is not supported. Residential uses must support agricultural operation. Density range is 20-60 acres/unit.

Natural Resources. The purpose of this designation is to protect and enhance valuable coastal fish and wildlife habitats and provide for public and private use of their resources, including hunting, fishing, and other forms of recreation.

Residential Low Density. this designation is used for areas suitable for residential use where urban services are available or are anticipated to be available. Single family units on individual lots are the dominant use, but the designation can accommodate a mix of housing types including townhouses and common-wall clustered units.

Timberland. This designation is utilized to classify land that is primarily suitable for the growing, harvesting, and production of timber. Prairie and grazing lands may be intermixed. The density range is 40-160 acres/unit.

The Project sites are located within in the Coastal Zone. Although Humboldt County has a certified Local Coastal Program, the County has deferred coastal development permitting for the Project to the Coastal Commission due to the nature of the Project. California Coastal Act policies are therefore applicable to the Project. Coastal Act policies address issues including maintenance of coastal public access, recreation, marine and land environments, and development.

4.11.2 Regulatory Setting

4.11.2.1 Federal and State

There are no Federal or State laws and regulations pertaining to this issue area relevant to the Project. Regional and local goals, policies, and/or regulations applicable to the Project are listed below.

4.11.2.2 Local

There are no applicable local goals or policies pertaining to land use that are relevant to the proposed Project.

4.11.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding land use and planning are short-term.

a. *Physically divide an established community?*

4.11.3.1 All Project Sites

No Impact. The Project due to its nature as gas pipeline maintenance activities does not include any components that would physically divide a community. No impact would result.

b. *Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?*

4.11.3.2 All Project Sites

Less than Significant Impact. The Project includes pipeline maintenance at three Project sites by either permanently decommissioning and replacing previously retired natural gas pipelines and/or reducing pipeline exposure due to erosion, thereby improving the operating condition and safety of the system in each area. Construction activities would result in short-term temporary impacts to the work sites. Upon completion of Project activities, each Project site would

be restored to its natural function consistent with the zoning and land use designations for the three sites.

The Project would require additional permits/approvals, as listed in Section 1.5, Approvals and Regulatory Requirements, that would be obtained prior to the start of construction. In addition, implementation of and compliance with any conditions required by other agencies with jurisdiction over the Project would be consistent with applicable plans, policies, and regulations. Therefore, with implementation of these measures, this impact would be less than significant.

4.11.4 Mitigation Measures

The Project would not result in significant land use and planning impacts with implementation of the aforementioned mitigation and compliance with permit conditions; therefore, no mitigation is required.

4.12 MINERAL RESOURCES

MINERAL RESOURCES - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.12.1 Discussion

According to the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), the Project site is not located within an active oil and gas development area. The closest oil and gas fields are located north of Fortuna, southeast of the Project site: Tompkins Hill Gas and Table Bluff Gas (DOGGR, 2019).

Additionally, the Project sites are not included within a California Department of Conservation Mineral Resource Zone study area. However, mineral production primarily limited to sand, gravel, and rock extraction (including over ninety extraction sites) is prevalent throughout the County (Humboldt County General Plan, 2017). The closest rock extraction site is located approximately 3 miles north-northeast of the R-354 Project site.

4.12.2 Regulatory Setting

4.12.2.1 Federal and State

Surface Mining and Reclamation Act (SMARA) (Pub. Resources Code, §§ 2710-2796). The California Department of Conservation is the primary agency with regard to mineral resource protection. In accordance with SMARA, the California Geological Survey classifies the regional significance of mineral resources and assists in designating lands containing significant aggregate resources. Four Mineral Resource Zones (MRZs) are designated to indicate the significance of mineral deposits.

4.12.2.2 Local

There are no local goals or policies with respect to mineral resources that are applicable to the proposed Project.

4.12.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding mineral resources are short-term.

- a. *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?*
- b. *Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

4.12.3.1 All Project Sites

a) and b). No Impact. The Project sites are located along Freshwater Slough, across Ryan Slough, and along Ryan Creek. None of the Project sites are located within State of California designated mineral resource zones or are near any permitted mineral extraction areas. Additionally, Project activities would not result in the loss of availability to a locally important mineral resource recovery site; therefore, there would be no impact.

4.12.4 Mitigation Measures

The Project would not result in significant impacts on mineral resources; therefore, no mitigation is required.

4.13 NOISE

NOISE - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.13.1 Discussion

Land uses near the Project site consist of agricultural, residential, and timber production zone land uses. The nearest residences to the Project are located approximately 1,100 feet west of R-354, approximately 160 feet west of R-519 and approximately 900 feet east of RT-102. Commercial land uses near the Project include, transient lodging facilities, indoor storage facilities, outside equipment storage yards and commercial tennis courts. Recreational land use near the Project include the Redwood Acres Fairgrounds. Other than residences, potential noise sensitive land uses near the Project site include the Worthington Headstart (within 0.5 mile of the R-519), Changing Tides Day Care (within 0.5 mile of the R-519), La Fayette Elementary School (approximately 0.5 miles of R-354), and several churches (within 1 mile of the Project sites).

4.13.1.1 General Characteristics of Noise

Noise is generally defined as unwanted or objectionable sound. Measurement of sound involves determining three variables: 1) magnitude, 2) frequency, and 3) duration. Human ears respond to a very wide range of sound pressures producing numbers of awkward size when sound pressures are related on an arithmetic (1, 2, 3...) scale. It is customary to express sound pressure level in decibels (dB), which are logarithmic (1, 10, 100...) ratios comparing sound pressures to a reference pressure. The reference pressure commonly used in noise measurement is 20 microPascals (μPa or rms), which is considered to be the quietest sound a normal young adult human ear can hear in the frequency range that the ear is most sensitive to. This sound level is assigned the value 0 dB. Higher intensity sound is perceived as louder. Sound intensity is commonly measured on a weighted scale [dBA or db(A)] to correct for the relative frequency response of the human ear. The "A-weighted" noise level de-emphasizes low and very high

frequencies of sound in a manner similar to the human ear’s de-emphasis of these frequencies (OSHA, 2013; AIHA, 2003).

Except under special conditions, a change in sound level of 1 dB cannot be perceived. Outside of the laboratory, a 3 dB change is considered a just-noticeable difference, and a change in level of at least 5 dB is required before any noticeable change in community response would be expected. Some typical sound pressure levels for common sounds are provided in Table 4.13-1.

Table 4.13-1. Common Sound Levels/Sources and Subjective Human Responses

Sound Level (dBA)	Typical Outdoor Noise Source	Typical Indoor Noise Sources	Typical Human Response/Effects
140	Carrier Jet takeoff (50 feet)	--	--Threshold for Pain--
130	Siren (100 feet) Live Rock Band	--	---Hearing Damage---
120	Jet takeoff (200 feet) Auto horn (3 feet)	--	--
110	Chain Saw Snow Mobile	--	---Deafening---
100	Lawn Mower (3 feet) Motorcycle (50 feet)	--	--
90	Heavy Duty Truck (50 feet)	Food Blender (3 feet)	---Very Loud---
80	Busy Urban Street, Daytime	Garbage Disposal (3 feet)	
70	Automobile (50 feet)	Vacuum Cleaner (9 feet)	---Loud---
60	Small plane at ¾ mi	Conversation (3 feet)	
50	Quiet Residential Daytime	Dishwasher Rinse (10 feet)	---Moderate---
40	Quiet Residential Nighttime	Quiet Home Indoors	---Quiet---
30	Slight Rustling of Leaves	Soft Whisper (15 feet)	---Very Quiet---
20	--	Broadcasting Studio	
10	--	Breathing	--Barely Audible--
0	--	--	--Threshold of Hearing--

Source: AIHA 2003, and OSHA 2013

When considering how noise could affect nearby sensitive receptors (residential dwellings, transient lodging, hospitals and other long-term care facilities, public or private educational facilities, libraries, churches, and places of public assembly), it is important to understand how sound level diminishes as distance from the source increases. For a “point” source (such as construction within a fixed area) of sound in free space, the rate at which the sound attenuates is inversely proportional to the square of the distance from the source. This means the sound level would drop 6 dB each time the distance from the source is doubled. Decibels, measuring sound energy, combine logarithmically. A doubling of sound energy (for instance, from two identical

automobiles passing simultaneously) creates a 3 dB increase (i.e., the resultant sound level is the sound level from a single passing automobile plus 3 dB). When the difference between two sound levels is greater than about 10 dB, the lesser sound is negligible in terms of affecting the total level (OSHA, 2013).

The duration of noise and the time period at which it occurs are important factors in determining the human response to sound. For example, noise induced hearing loss is directly related to the magnitude, frequency, and duration of exposure. Annoyance due to noise is also associated with how often noise is present and how long it persists. One approach to quantifying time-varying noise levels is to calculate the Energy Equivalent Sound Level (L_{eq}) for the time period of interest. The L_{eq} represents a sound level which, if continuous, would contain the same total acoustical energy as the actual time-varying noise which occurs during the observation period (OSHA, 2013).

In a residential or other noise sensitive environment, noise is more disturbing at night than during the day. Thus, noise indices have been developed to account for the differences in intrusiveness between daytime and nighttime noise. The Community Noise Level Equivalent (CNEL) and the Day-Night Average Sound Level (L_{dn}) are such indices. CNEL and L_{dn} values result from the averaging of hourly L_{eq} values for a 24-hour period, with a weighting factor applied to the nighttime L_{eq} values (and the evening values for CNEL). The CNEL penalizes noise levels during the night (10:00 p.m. to 7:00 a.m.) by 10 dB to account for the increased sensitivity of people to noise after dark. Evening noise levels (7:00 p.m. to 10:00 p.m.) are penalized 5 dB by the CNEL. The L_{dn} also penalizes nighttime noise levels by 10 dB, but does not penalize evening levels. These two indices are generally equivalent. In general, the CNEL may be thought qualitatively as an accumulation of noise associated with individual events occurring throughout a 24-hour period. The noise of each individual event is accounted for in a separate, discrete measurement that integrates the changing sound level over time as, for example, when an aircraft approaches, flies overhead, then continues off into the distance. These integrated sound levels for individual operations are referred to as SELs. The accumulation of the SELs from each individual operation during a 24-hour period determines the CNEL for the day.

To limit population exposure to physically or psychologically significant noise levels, the State and various local cities and counties in the State have established guidelines and ordinances to control noise as discussed in the Regulatory Setting subsection below.

4.13.2 Regulatory Setting

4.13.2.1 Federal and State

State regulations for limiting population exposure to physically and/or psychologically significant noise levels include established guidelines and ordinances for roadway and aviation noise under California Department of Transportation as well as the now defunct California Office of Noise Control. The California Office of Noise Control land use compatibility guidelines provided the following:

- An exterior noise level of 60 to 65 dBA Community Noise Equivalent Level (CNEL) is considered "normally acceptable" for residences.
- A noise level of 70 dBA CNEL is considered to be "conditionally acceptable" (i.e., the upper limit of "normally acceptable" noise levels for sensitive uses such as schools, libraries, hospitals, nursing homes, churches, parks, offices, and commercial/professional businesses).
- A noise level of greater than 75 dBA CNEL is considered "clearly unacceptable" for residences.

4.13.2.2 Local

The Project site is located within Humboldt County. Local goals and policies within the County that are applicable to the proposed Project are included below:

- **N-G1 – Excessive Noise.** A quiet and healthful environment with limited disagreeable noise.
- **N-G2 – Incompatible Land Uses.** Land uses arranged to reduce annoyance and complaints and minimize the exposure of community residents to excessive noise.
- **N-P1 - Minimize Noise from Stationary and Mobile Sources.** Minimize stationary noise sources and noise emanating from temporary activities by applying appropriate standards for average and short-term noise levels during permit review and subsequent monitoring.
- **N-P2 - Protection from Excessive Noise.** Protect persons from existing or future excessive levels of noise which interfere with sleep, communication, relaxation, health or legally permitted use of property.
- **N-S3 - Environmental Review Process.** For noise sensitive locations where noise contours do not exist, the environmental review process required by the California Environmental Quality Act shall be utilized to generate the required analysis and determine the appropriate mitigation per Plan and state standards. Future noise levels shall be predicted for a period of at least 10 years from the time of building permit application.
- **N-S7 - Temporary Noise Performance Standards (L_{max}).** The following noise standards, unless otherwise specifically indicated, shall apply to all property within their assigned noise zones and such standards shall constitute the maximum permissible noise level within the respective zones. As stated in the Noise Element, exceptions to this noise standard include "Heavy equipment and power tools used during construction of permitted structures when conforming to the terms of the approved permit." Since the Project would be approved under a Harbor District Permit, this standard does not apply.

Table 4.13-2. County Temporary Noise Standards

County Zone Classification	Daytime 6:00 A.M. to 10:00 P.M. (L _{max})	Nighttime 10:00 P.M. to 6:00 A.M. (L _{max})
Agricultural, Industrial and Mining	80	70
Commercial	75	65
Residential and Public Lands	65	60

Source: Humboldt County, 2017

One of the primary sources of noise impacts to the County is from traffic on U.S. Highway 101 (HWY 101). A noise survey conducted by the County in 2016 indicated that the area of the Indianola Cutoff exit from HWY 101 (approximately 2 miles from the R-354 Project site) had a CNEL of 60 dBA at a distance of 1,228 feet from the centerline of the highway (Humboldt County, 2017). Additionally, the County indicates in the General Plan that Myrtle Avenue, Murray Field and the Northwestern Pacific Railroad (NWPRR) are prominent sources of noise with the County. Myrtle Road is located with the Project site, the 101 freeway and the NWPRR are located approximately 0.75 miles north of R-354 Project site, and Murray Field is located approximately 0.75 miles northeast of R-354 Project site.

4.13.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding noise are short-term.

- a. *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

4.13.3.1 All Project Sites

Less than Significant with Mitigation. The Project primarily includes the replacement, decommissioning and removal of existing facilities. Project activities would generate temporary noise during the daytime in the Project vicinity. Noise levels and potential noise-related impacts at receptor points near the Project site depend on three factors: 1) location and type of noise-generating equipment (source); 2) distance between the noise sources and sensitive receptors; and 3) obstacles or barriers between the noise sources and sensitive receptors that may influence sound propagation. The closest sensitive receptor is a residence on Oakridge Terrace located approximately 160 feet west of the Project site (R-519 West Worksite). To estimate peak hour noise levels associated with Project implementation, the Federal Highway Administration Roadway Construction Noise Model (RCNM) was used to model noise levels at the closest residence. The modeled peak day scenario consists of shaft construction at the R-519 site, including the use of an excavator, vacuum excavator and wheeled loader. The RCNM results show a peak hour noise level of 69.6 dBA L_{max} and 69.3 dBA Leq during shaft excavation at the nearest residence. Although the County’s temporary noise standards do not apply to the Project, the 65 dBA L_{max} standard for residential land uses would be exceeded at the closest residence.

However, the following mitigation measures are provided to avoid potential noise complaints and ensure noise levels would be less than significant.

MM N-1: Scheduling. Work involving heavy equipment at the R-519 site shall be conducted during the hours of 7 a.m. to 10 p.m. to the extent feasible.

MM N-2: Advanced Notification. Adjacent residents shall be given advanced written notification of proposed construction activities, scheduling, and hours of construction. Signage shall also be posted at the Project sites to notify the general public.

No new long-term noise sources would be created nor would existing noise levels be exacerbated. No long-term noise impacts would therefore result.

b. Generation of excessive groundborne vibration or groundborne noise levels?

4.13.3.2 All Project Sites

Less than Significant Impact. The Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment, and the California Department of Transportation (Caltrans) Transportation and Construction-Induced Vibration Guidance Manual recommend maximum peak particle velocity (PPV) of 0.02 inch per second PPV for the protection of residential buildings and a maximum vibration level for human exposure in residential areas is 80 vibration decibels (vdB) (FTA 2006 and Caltrans 2013). The FTA and Caltrans further indicate that a PPV of 0.04 inch per second is barely perceptible by humans. The closest sensitive receptors residential receptors within 0.25 mile of the Project site.

The Project would require the temporary use of terrestrial construction equipment and vehicles. Table 4.13-3 lists the vibration levels for select construction equipment similar to that proposed for use at the Project site and the estimated PPV values for construction equipment at a distance of 200 feet (closest receptor to R-519). The estimate of the attenuation of vibration levels for construction equipment shown in Table 4.13-3 was calculated using the following formula:

$$PPV_{\text{equip}} = PPV_{\text{ref}}(25/d)^{1.5}$$

Where:

$$PPV_{\text{Equip}} = \text{Estimated PPV}$$

$$PPV_{\text{ref}} = \text{PPV at 25 feet (Table 3.13-6)}$$

$$D = \text{Distance in feet from equipment}$$

$$1.5 = \text{standard attenuation rate through the ground}$$

Table 4.13-3. Construction Equipment Vibration Levels

Equipment	PPV at 25 Feet from Source (inches/second)	Velocity Level at 25 Feet from Source (vdB)	Attenuated PPV at 200 Feet from Source (inches/second)
Excavator*	0.003	58	0.0001
Loaded Haul Trucks	0.076	86	0.0034
Pilot Tube Spread **	0.210	86	0.0039

Notes:

- * PPV and velocity level for small bulldozer used to approximate excavator PPV and velocity level.
- ** PPV and velocity level for caisson drilling used to approximate Pilot Tube Method PPV and velocity level.

Based on the estimated PPV values the identified sensitive receptors are located far enough from the vibration source (Construction Equipment) that vibrations would be barely perceptible by humans. Project construction may result in varying degrees of temporary ground vibration in the immediate area of the Project site; however, ground vibration outside of the immediate Project site would attenuate to be negligible. No permanent increase in ground-borne vibration would result from the Project.

- c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

4.13.3.3 All Project Sites

Less than Significant Impact. Based on the conclusions discussed in the above sections the Project would not expose people residing or working in the area near the Project to excessive noise levels; therefore, the impacts would be less than significant.

4.13.4 Mitigation Measures

Implementation of the following mitigation measure would reduce potential Project-related impacts regarding noise to less than significant:

- MM N-1: Scheduling
- MM N-2: Advance Notification

4.14 POPULATION AND HOUSING

POPULATION AND HOUSING - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.14.1 Discussion

According to the U.S. Census Bureau, Humboldt County had a population of 134,623 people per the 2010 Census with an average household size of 2.31 (U.S. Census Bureau, 2019). All three Project sites are located east of the City of Eureka, outside of residential communities.

4.14.2 Regulatory Setting

4.14.2.1 Federal and State

No Federal or State laws relevant to this issue area are applicable to the Project.

4.14.2.2 Local

There are no applicable local goals or policies pertaining to population and housing relevant to the proposed Project.

4.14.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding population and housing are short-term.

- a. *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*
- b. *Displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere.*

4.14.3.1 All Project Sites

a) and b). No Impact. The Project includes pipeline maintenance resulting in pipeline decommissioning and/or replacement. The Project would not lead to the expansion of use of gas transmission infrastructure. The Project is short-term and would not provide new housing or long-term employment. There is no housing located in the Project site and the Project would not include the construction of any housing. Short-term construction employment would be available, many of which would be for persons with specialized skills (e.g., equipment operators) that are expected to come from the Project region. Because the Project is a pipeline maintenance project resulting in pipeline decommissioning and/or replacement, it would not displace existing housing or people, necessitating the construction of replacement housing elsewhere. Therefore, no impact would occur.

4.14.4 Mitigation Measures

The Project would not result in significant impacts on population and housing; therefore, no mitigation is required.

4.15 PUBLIC SERVICES

PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.15.1 Discussion

Project site service providers are listed below in Table 4.15-1.

Table 4.15-1. Summary of Public Service Providers

Service	Providers
Fire Protection	Humboldt Bay Fire, CAL FIRE, Humboldt Del Norte Unit (HUU); Humboldt County Third District Volunteer Fire Department
Police Protection	Humboldt County Sheriff's Office
Schools	Eureka City Unified School District; Humboldt County School District
Parks	Humboldt County Parks

4.15.1.1 Fire Protection

The majority of fire departments in Humboldt County are associated with a special district (i.e., fire protection districts and community services districts), which were formed to provide services within a specific jurisdictional boundary. Areas outside the boundaries of a special district receive fire protection services from Volunteer Fire Companies or “goodwill service” provided by firefighter resources from a nearby district (Humboldt County – Fire Protection Services, 2019).

Humboldt Bay Fire (HBF) was founded in 2011 through a Joint Powers Authority consolidating the Humboldt No. 1 Fire Protection District and City of Eureka Fire Department. Located on Humboldt Bay, HBF serves the City of Eureka and Greater Eureka area (Humboldt Bay Fire, 2019). In addition, The California Department of Forestry and Fire Protection (CAL FIRE) provides fire protection to several unincorporated communities in Humboldt County.

4.15.1.2 Police Protection

The Humboldt County Sheriff's Department is responsible for law enforcement in unincorporated areas of Humboldt County. The Main Station deputies serve the Humboldt Bay Area and the unincorporated areas surrounding Eureka, Freshwater, and the Eel River Valley (Humboldt County – Humboldt County Sheriff's Office, 2019).

4.15.1.3 Schools

Eureka City Unified School District and Humboldt County School District provides elementary, middle, and high school education in the vicinity of the Project site. Project site RT-102 is within the Eureka City Unified School District. Project sites R-354 and R-519 are within the Humboldt County School District. The closest school to the Project sites within the Eureka City Unified School District is the La Fayette Elementary School (Eureka City Unified School District, 2019).

4.15.1.4 Parks

Impacts to parks are discussed in Section 3.16, Recreation.

Humboldt County provides goals and policies related to public services within its Community Infrastructure and Services Element of the General Plan (2017). Such goals include providing adequate public services and facilities to accommodate the level of development planned by the County, providing effective and responsive fire and police protection, and minimizing the potential loss of life and property resulting from natural or human-caused hazards.

4.15.2 Regulatory Setting

4.15.2.1 Federal and State

There are no applicable Federal or State laws/regulations pertaining to public services that are relevant to the proposed Project.

4.15.2.2 Local

There are no applicable local goals or policies pertaining to public services relevant to the proposed Project.

4.15.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding public services are short-term.

a. *Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?*

- Fire protection?
- Police protection?
- Schools?
- Parks?
- Other public facilities?

4.15.3.1 All Project Sites

No Impact. The Project is a short-term pipeline maintenance project resulting in pipeline decommissioning and/or replacement and does not involve the construction of any residences, buildings, or infrastructure. The Project would not require any additional services outside of these mentioned above and currently available. Therefore, no impact would occur.

4.15.4 Mitigation Measures

The Project would not result in significant impacts on public services; therefore, no mitigation is required.

4.16 RECREATION

RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.16.1 Discussion

The three Project sites are located along the eastern boundary of the City of Eureka, California within Humboldt County (Figure 1.2-1). The R-354 Project site is located furthest north along Freshwater Slough approximately 0.5 miles upstream from its confluence with Eureka Slough. The R-519 Project site crosses Ryan Slough, just north of the Myrtle Avenue Bridge. The RT-102 Project site is located west of Mitchell Road along Ryan Creek within the McKay Community Forest. There are no parks or other recreational facilities within the immediate vicinity of the three Project sites.

4.16.2 Regulatory Setting

4.16.2.1 Federal and State

There are no applicable Federal or State laws/regulations pertaining to recreation relevant to the Project area.

4.16.2.2 Local

There are no applicable local goals or policies pertaining to recreation relevant to the proposed Project.

4.16.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding recreation are short-term.

- a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

4.16.3.1 All Project Sites

No Impact. As a result of construction activities in the area, it is possible that construction workers may utilize nearby park and recreation facilities in the short-term; however, due to the limited number of workers and the short-term nature of the Project, the Project would not increase the use of existing parks or recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Therefore, there would be no impact.

- b. *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

4.16.3.2 All Project Sites

No Impact. The Project does not include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment; therefore, no impact would occur.

4.16.4 Mitigation Measures

The Project would have no impacts on recreation; therefore, no mitigation is required.

4.17 TRANSPORTATION

TRANSPORTATION - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.17.1 Discussion

The roadway network in Humboldt County includes 1,400 miles of County maintained roads and city streets, 378 miles of State highways, and numerous roadways on Federal lands. These roadways provide for the movement of goods and people on California’s north coast. The Humboldt County – maintained roadway system is primarily made up of two-lane roads that traverse varying degrees of flat, rolling, and mountainous terrain (Humboldt County General Plan, 2017).

4.17.2 Regulatory Setting

4.17.2.1 Federal and State

There are no applicable Federal or State laws/regulations pertaining to transportation relevant to the Project area.

4.17.2.2 Local

Humboldt County provides goals and policies related to transportation within its Circulation Element of the General Plan (2017). Applicable goals and policies include the following:

- **Goal C-G1. Circulation System Safety and Functionality.** A safe, efficient, accessible and convenient circulation system in and between cities, communities, neighborhoods, hamlets, and adjoining regions taking into consideration the context-specific needs of all users², consistent with urban, suburban, rural or remote community character.

² All users is defined in the Complete Streets Act to include: motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation, in a manner that is suitable to the rural, suburban, or urban context of the general plan.

- **Policy C-P5. Level of Service Criteria.** The County shall strive to maintain Level of Service C operation on all roadway segments and intersections, except for U.S. 101, where Level of Service D shall be acceptable. Level of Service improvements for automobiles should not adversely affect Level of Service and/or Quality of Service for other modes of transportation, if possible.

4.17.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding transportation are short-term.

- a. *Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

4.17.3.1 All Project Sites

Less than Significant Impact. Project construction would temporarily add trips to the Project vicinity through duration of construction activities, including haul trips, worker trips, material delivery trips, and heavy equipment mobilization/demobilization trips. The temporary trips would not have an adverse effect on traffic operations or increase congestion on area roadways in the long-term. Project construction would range from 42 to 111 days, depending on the Project site. Therefore, potential traffic impacts related to construction would be less than significant.

- b. *Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?*

4.17.3.2 All Project Sites

Less than Significant Impact. There would be necessary vehicle trips during Project construction. There would be approximately five to 13 construction workers at any given time, depending on the Project site. The increase in construction worker trips would not result in a change to the Level of Service (LOS) rating. There would be an increase in vehicle miles traveled (VMT) in order for construction workers to reach the Project site. However, this impact would be less than significant as workers would likely be sourced from local areas such as Eureka. There would also be increased traffic from construction trucks leaving the Project site with cut pipe and other construction materials removed from the Project site, resulting in a less than significant impact.

- c. *Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

4.17.3.3 All Project Sites

No Impact. The Project does not include a change in the existing roadways or intersections. Therefore, no impacts would occur.

d. Result in inadequate emergency access?

4.17.3.4 All Project Sites

Less than Significant Impact. The Project site would be easily accessed in case of an emergency. There is direct access to each Project site for emergency personnel. Therefore, the potential impacts related to emergency access would be less than significant.

4.17.4 Mitigation Measures

The Project would not result in significant impacts to transportation; therefore, no mitigation is required.

4.18 TRIBAL CULTURAL RESOURCES

TRIBAL CULTURAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Listed or eligible for listing in the California Register of historical resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.18.1 Discussion

To date, no Native American tribes have requested government to government consultation formally with the Lead Agency as required under Assembly Bill 52 (AB 52). As discussed in Section 4.5 (Cultural Resources), Padre conducted a records search at the NWIC and reviewed PG&E’s cultural resources files relevant to the Project site. The search was conducted to identify any previously recorded cultural resources and previously conducted cultural resources studies within a 0.25-mile radius of the Project site.

The records search revealed that 12 cultural resource studies have been completed within the Project site, and nine cultural resource studies have been completed within a 0.25-mile radius. The records search also indicated that 11 previously recorded cultural resources are located within the Project site, and four previously recorded cultural resources within a 0.25-mile radius. These resources are all historic aged, and no prehistoric resources were identified.

Padre conducted an intensive pedestrian survey of the Project site. The survey relocated 11 previously recorded cultural resources and identified two new historic-aged cultural resources:

an earthen levee on the east bank of Ryan Slough and an earthen levee on the north bank of Freshwater Slough. No prehistoric resources were observed.

On July 26, 2019, Padre submitted a Sacred Lands File Search List Request Form to the NAHC. On August 8, 2019, the NAHC responded that a search of the sacred lands file did not indicate the presence of sacred sites within the Project site. The NAHC also provided a list of tribes with traditional lands or cultural places located within the boundaries of the Project site. The list included the following tribes:

- Bear River Band of Rohnerville Rancheria
- Big Lagoon Rancheria
- Blue Lake Rancheria
- Cher-Ae Heights Indian Community of the Trinidad Rancheria
- Hoopa Valley Tribe
- Wiyot Tribe
- Yurok Tribe

On September 12, 2019, Padre mailed letters to each of the tribes on the list provided by the NAHC; they were asked to provide pertinent information or to express any concerns that they may have about the proposed Project. Padre made follow-up phone calls on September 30, 2019. Table 4.18-1 provides the results of consultation with the Native American representatives.

Table 4.18-1. Native American Consultation Phone Log

Contact Date	Name, Affiliation	Discussion
-	Barry Brenard, Chairperson, Bear River Band of Rohnerville Rancheria	No phone call made. Consultation with Erika Cooper is the official response for the Bear River Band of Rohnerville Rancheria.
9/30/19	Erika Cooper, Tribal Historic Preservation Officer (THPO), Bear River Band of Rohnerville Rancheria	Ms. Letter left a voicemail for Ms. Cooper.
9/30/19	Virgil Moorehead, Chairperson, Big Lagoon Rancheria	Ms. Letter left a voicemail in the general voicemail box for the tribe.
9/23/19	Janet Eidsness, THPO, Blue Lake Rancheria	Ms. Eidsness called Ms. Letter and followed-up with an email. Ms. Eidsness stated that she was not aware of any Native American sites in any of the three Project sites. She also requested that she be notified prior to conducting any future fieldwork in order to provide input on methods and share pertinent information.
-	Claudia Brundin, Chairperson, Blue Lake Rancheria	No phone call made. Consultation with Janet Eidsness is the official response for the Blue Lake Rancheria.

Table 4.18-1. Native American Consultation Phone Log

Contact Date	Name, Affiliation	Discussion
-	Jacob Pounds, Assistant THPO, Blue Lake Rancheria	No phone call made. Mr. Pounds was copied on the email message from Ms. Eidsness to Ms. Letter.
9/30/19	Garth Sundberg, Chairperson, Cher-Ae Heights Indian Community of the Trinidad Rancheria	Ms. Letter was transferred to Rachel Sundberg's voicemail and left a message. Ms. Sundberg is the THPO for the tribe.
9/30/19	Ryan Jackson, Chairperson, Hoopa Valley Tribe	Ms. Letter left a message with the tribal executive assistant.
9/30/19	Tom Torma, THPO, Wiyot Tribe	This individual no longer works for the tribe.
9/30/19	Ted Hernandez, Chairperson, Wiyot Tribe	Mr. Hernandez is now the THPO for the tribe. Ms. Letter left a voicemail for Mr. Hernandez on September 30, 2019. Mr. Hernandez left a voicemail for Ms. Letter on October 3, 2019 and requested an email of the consultation letter. Ms. Letter sent the email on October 4, 2019. Mr. Hernandez responded on October 21, 2019 that he had additional questions about the Project but would not be available until after November 8, 2019. Ms. Letter contacted Mr. Hernandez via email on November 11, 2019 and left a voicemail on November 13, 2019. Ms. Letter spoke with Mr. Hernandez on November 21, 2019. Mr. Hernandez said that he reviewed the email from Ms. Eidsness and stated that he was comfortable with her comments and concurred with her recommendations.
9/30/19	Rosie Clayburn, THPO, Yurok Tribe	Ms. Clayburn deferred to the Wiyot tribe because the Project site is in their territory.
-	Joe James, Chairperson, Yurok Tribe	No phone call made. Consultation with Rosie Clayburn is the official response for the Yurok Tribe.

4.18.2 Regulatory Setting

4.18.2.1 Federal and State

Native American Graves Protection and Repatriation Act of 1990. Assigns ownership or control of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are excavated or discovered on federal lands or tribal lands after passage of the act to lineal descendants or affiliated Indian tribes or Native Hawaiian organizations; establishes criminal penalties for trafficking in human remains or cultural objects; and requires federal agencies and museums that receive federal funding to inventory Native American human remains and associated funerary objects in their possession or control and identify their cultural and geographical affiliations within 5 years, and prepare summaries of information about Native American unassociated funerary objects, sacred objects, or objects of cultural patrimony. This is

to provide for repatriation of such items when lineal descendants, Indian tribes, or Native Hawaiian organizations request it.

Executive Order B-10-11. EO B-10-11 establishes as state policy that all agencies and departments shall encourage communication and consultation with California Indian Tribes and allow tribal governments to provide meaningful input into proposed decisions and policies that may affect tribal communities.

4.18.2.2 Local

Humboldt County provides goals and policies related to cultural resources within its Conservation and Open Space Element of the General Plan (2017). Applicable goals and policies include the following:

- **CU-P2. Native American Tribal Consultation.** Native American Tribes (as defined below in CU-S3) shall be consulted during discretionary project review for the identification, protection and mitigation of adverse impacts to significant cultural resources. Consultation on ministerial permits shall be initiated if it has been determined the project may create a substantial adverse change to a significant cultural resource. At their request, Tribes shall be afforded the opportunity to review and provide comments to the County early in project review and planning (screening) about known or potential Tribal cultural resources located in project areas within their respective tribal geographical area of concern.

4.18.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding tribal cultural resources are short-term.

- a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*
 - i. *Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code section 5020.1, subdivision (k), or*
 - ii. *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*

4.18.3.1 All Project Sites

Less than Significant Impact. No tribal cultural resources have been identified in the Project boundary and the Lead Agency has satisfied the requirements of AB 52 for the Project. Therefore, the Project would not result in a substantial adverse change to a tribal cultural resource. Impacts would be less than significant.

4.18.4 Mitigation Measures

The Project would not result in significant impacts to tribal cultural resources; therefore, no mitigation is required.

4.19 UTILITIES AND SERVICE SYSTEMS

UTILITIES AND SERVICE SYSTEMS - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.19.1 Discussion

The Project includes pipeline maintenance resulting in pipeline decommissioning and/or replacement. The Project is short-term and would not result in the construction of new utility or service systems, nor create a new demand for permanent utilities or service systems. The Humboldt Waste Management Authority (HWMA) was established by a Joint Powers Agreement comprised of the County of Humboldt and the Cities of Arcata, Blue Lake, Eureka, Ferndale and Rio Dell in 1999 (HWMA, 2019). The HWMA currently operates the Eureka Recycling Center, Hawthorne Street Transfer Station and a Hazardous Waste Facility. The Cummings Road Landfill closed in 2015. The Hawthorne Street Transfer Station serves as the regional disposal location for member agencies and the general public (HWMA, 2019).

4.19.2 Regulatory Setting

4.19.2.1 Federal and State

There are no applicable Federal or State laws/regulations pertaining to utilities and service systems that are relevant to the proposed Project.

4.19.2.2 Local

There are no applicable local goals or policies pertaining to utilities and service systems that are relevant to the proposed Project.

4.19.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding utilities and service systems are short-term.

- a. *Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

4.19.3.1 All Project Sites

No Impact. The Project is a short-term pipeline decommissioning and/or replacement project. No new wastewater treatment facilities are proposed or expected; therefore, no impact would occur.

- b. *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

4.19.3.2 All Project Sites

Less Than Significant. Water for the Project would be obtained from the Humboldt Bay Municipal Water District or other supplier for short-term Project construction needs. No new or expanded water entitlements would be needed; therefore, a less than significant impact would occur.

- c. *Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

4.19.3.3 All Project Sites

No Impact. The Project is a short-term pipeline decommissioning and/or replacement project. An increase in wastewater demand is not proposed or expected; therefore, no impact would occur.

d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

4.19.3.4 All Project Sites

Less than Significant Impact. Much of the construction materials used for the Project would be recycled/reused by the contractor. Project-generated solid waste that would require disposal would be disposed of at the Hawthorne Street Transfer Station. The Hawthorne Street Transfer Station transports waste to either Potrero Hills Landfill in Solano County, California, or the Dry Creek Landfill near Medford, Oregon, both of which have sufficient capacity to accept the Project's small volume of solid waste. Therefore, this impact would be less than significant.

e. Comply with federal, state, and local statutes and regulations related to solid waste?

4.19.3.5 All Project Sites

No Impact. All solid waste generated by the Project would be disposed of in accordance with all Federal, State, and local statutes and regulations related to solid waste. Therefore, no impact would occur.

4.19.4 Mitigation Measures

The Project would not result in significant impacts on utilities and service systems; therefore, no mitigation is required.

4.20 WILDFIRE

WILDFIRE - If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.20.1 Discussion

The wildfire hazard in the County has been analyzed using the methodology of the California Department of Forestry and Fire Protection’s (CAL FIRE) Fire and Resource Assessment Program (FRAP) (2007) and ranges from moderate to very high in severity classification (Humboldt County General Plan – Safety Element, 2017). Project site R-519 is located within moderate and high severity zones. Project sites R-354 and RT-102 do not occur within a severity zone classification (Cal Fire, 2019).

CAL FIRE is responsible for wildland fires on State Responsibility Areas (SRA), which includes most of the rural privately-owned lands within the County. In addition, the Humboldt County Community Wildfire Protection Plan (CWPP) (2013) serves as a framework for fire coordination, prevention, and protection throughout the County. The CWPP also contains significant finding and recommendations relating to fire protection capability, fire safe education, fire risk and hazard assessment, fire risk reduction and management, community preparedness and response, and fiscal issues relating to fire protection (Humboldt County General Plan – Safety Element, 2017).

4.20.2 Regulatory Setting

4.20.2.1 Federal and State

State Responsibility Area (SRA). The California Public Resources Code (Section 4101 et seq.) includes fire safety requirements for which the Department of Forestry and Fire Protection (CAL FIRE) has adopted regulations that apply to state responsibility areas (SRAs). SRAs are

areas where CAL FIRE has primary responsibility for fire protection. During the fire hazard season, these regulations: (a) restrict the use of equipment that may produce a spark, flame, or fire; (b) require the use of spark arrestors on equipment that has an internal combustion engine; (c) specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and (d) specify fire-suppression equipment that must be provided onsite for various types of work in fire-prone areas.

4.20.2.2 Local

Humboldt County provides goals and policies related to wildfire within its Safety Element of the General Plan (2017). Applicable goals and policies include the following:

- **Goal S-G-4. Fire Risk and Loss.** Development designed to reduce the risk of structural and wildland fires supported by fire protection services that minimize the potential for loss of life, property, and natural resources.
- **Policy S-P17. Joint Planning and Implementation.** The County shall plan collaboratively with local fire agencies and companies, CAL FIRE, and Federal fire organizations on countywide fire prevention and response strategies. Implementation shall be coordinated to maximize efficiency and ensure efforts are complimentary.

4.20.3 Impact Analysis

The Project is a short-term pipeline maintenance project resulting in pipeline maintenance and/or replacement and does not involve long-term operation activities; therefore, all impacts regarding wildfire are short-term.

- Substantially impair an adopted emergency response plan or emergency evacuation plan?*
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

4.20.3.1 All Project Sites

a) – c). No Impact. The Project would result in only temporary construction impacts. No permanent operational impacts would result from the Project putting the population or Project site at risk for wildfires. Therefore, no impact would occur.

- d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

4.20.3.2 All Project Sites

Less than Significant Impact. No permanent operational impacts would result from the Project putting the population or Project site at risk for downstream flooding or landslides. During construction activities, an increase of construction personnel would be on-site; however, this short-term activity would not increase the potential risk of people or facilities to such potential impacts. Therefore, this impact would be less than significant impact.

4.20.4 Mitigation Measures

The Project would not result in significant impacts to wildfire; therefore, no mitigation is required.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE-	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.21.1 Impact Analysis

a. *Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

Less than Significant with Mitigation. As described in Section 4.4 (Biological Resources), the Project would not significantly adversely affect fish or wildlife habitat, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate plant or animal community, or reduce the number or restrict the range of an endangered, rare, or threatened species. With implementation of mitigation measures **AMM BIO-1** through **AMM BIO-7** and **MM BIO-1** through **MM BIO-4**, the minor, temporary, and localized impacts on special-status species and their habitats would be less than significant.

The Project’s potential effects on historic and archaeological resources are described in Section 4.5 (Cultural Resources) and Section 4.18 (Tribal Cultural Resources). Based on cultural resources records of the area, no cultural resources are known to be present within the Project footprint. Implementation of mitigation measures **MM CUL-1** through **CUL-4** would reduce the

potential for Project-related impacts on previously undiscovered cultural and Tribal cultural resources to a less than significant level.

- b. Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects.)*

Less than Significant Impact. For any Project-related impact to contribute cumulatively to the impacts of past, present, or reasonably foreseeable projects, the other projects would need to result in an impact on the same resource area, occur at the same time, or occur within an area overlapping the proposed Project. No such project within Humboldt County was identified that would result in a cumulative impact.

Past, present, and reasonably foreseeable projects within the vicinity of the proposed Project is limited to the McKay Tract Community Forest Project (Humboldt County 2019). However, project implementation is not scheduled during the same timeframe as the proposed Project. The following is a summary of the McKay Tract Community Forest Project:

- The County of Humboldt is considering accepting 1,000 acres of forestland within the Mc Kay Tract, located southeast of Eureka, to own and manage as a community forest.
- The community forest would be managed for multiple purposes including public access and recreation, timber harvest, and watershed and resource conservation.
- The community forest could be managed by Public Works in association with the County Parks and Trails system, which currently totals nearly 950 acres across 17 park units.
- Public access points and trails will be developed incrementally in logical sequence over the course of several years. The timeframe will depend on funding and grant opportunities, volunteer interest, and working through the appropriate planning processes.

- c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less than Significant with Mitigation. The Project’s potentially adversely effect on human beings is addressed throughout this document. As discussed in Section 4.1 (Aesthetics), Section 4.15 (Public Services) and Section 4.16 (Recreation), the Project would not affect resources used or enjoyed by the public, residences, or others in the area. The Project would not affect agriculture or forest resources (Section 4.2); energy (Section 4.6); land use and planning (Section 4.11); mineral resources (Section 4.12); population and housing (Section 4.14); or utilities and service systems (Section 4.19).

Potential Project-related effects on public safety and well-being are discussed in sections on cultural resources (Section 4.5, **MM CUL-1**); geology, soils, and paleontological resources (Section 4.7, **AMM GEO-1**, **MM GEO-1**, and **MM-GEO-2**); hazards and hazardous materials (Section 4.9, **AMM HAZ-1**, **MM HAZ-1**, through **MM HAZ-4**); and hydrology and water quality (Section 4.10 **AMM GEO-1**, **AMM HAZ-1**, **MM HAZ-1**, **MM HAZ-2**, as well as **AMM HYD-1**). None of these analyses identified a potential adverse effect on human beings that could not be avoided or minimized through implementation of identified mitigation measures or compliance with standard regulatory requirements. With mitigation in place, all Project impacts on human beings would be less than significant.

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