California Public Utilities Commission

Fulton-Fitch Mountain Reconductoring Project

Draft Supplemental Initial Study/Mitigated Negative Declaration

State Clearinghouse No. 2017072049

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TABLE OF CONTENTS

List of Appendices

List of Tables

List of Figures

TABLE OF CONTENTS

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ACRONYMS AND ABBREVIATIONS

Symbols

2017 Final MND	Final Initial Study/Mitigated Negative Declaration for PG&E's Fulton-Fitch Mountain Reconductoring Project

A

AAC	all-aluminum conductor
AB	Assembly Bill
ACSS	aluminum conductor steel supported
APM	applicant proposed measure
approved project	Fulton-Fitch Mountain Reconductoring Project described in the 2017 Final MND and approved by the CPUC

B

BAAQMD	Bay Area Air Quality Management District
BMP	best management practice

C

CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide

CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CTS	California tiger salamander
CUPA	Certified Unified Program Agency

D

dBA	A-weighted decibels

E

EIR	Environmental Impact Report
EMF	electric and magnetic fields

F

FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
Fulton-Hopland Line	Fulton-Hopland 60-kilovolt Power Line
FYLF	Foothill yellow-legged frog

G

Geysers #12-Fulton Line	Geysers #12-Fulton 230-kV Transmission Line
Geysers #17-Fulton Line	Geysers #17-Fulton 230 kV Transmission Line
Geysers-Fulton lines	Geysers #12 and Geysers #17 circuits
GHG	greenhouse gas
GIS	geographic information system
GO	General Order
Gov't	Government

H

HCP	PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan
HFTD	High Fire-Threat District

ACRONYMS AND ABBREVIATIONS

I

IS/MND	Initial Study/Mitigated Negative Declaration

K

kcmil	1,000 circular mils
KOP	key observation point
kV	Kilovolt

L

L_{eq}	equivalent noise level
L_{max}	maximum noise level
LCSU	Landscape Character Subunits
LDSP	light duty steel pole
LRA	Local Responsibility Areas
LOS	level of service
LZ	helicopter landing zone

M

MM	mitigation measure
MND	Mitigated Negative Declaration
MRZ	mineral resource zone
MT	metric ton

N

N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
ND	Negative Declaration
NO_x	nitrogen oxide
NOI	Notice of Intent

O

Ozone Attainment Plan	San Francisco Bay Area 2001 Ozone Attainment Plan for the 1-Hour National Ozone Standard

P

PFM	Petition for Modification
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	particulate matter less than 2.5 micrometers in size
PM_{10}	particulate matter up to 10 micrometers in size
PRC	Public Resources Code
proposed modifications	changes to the approved project described in PG&E's PFM #1
PS	Pull Site
PTC	Permit to Construct

R

RETI	Renewable Energy Transmission Initiative
ROG	reactive organic gas
ROW	right-of-way

S

SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SODS	Sudden Oak Death Syndrome
SRA	State Responsibility Areas
SRPCS	Santa Rosa Plain Conservation Strategy
SWPPP	Stormwater Pollution Prevention Plan

T

TAC	Toxic Air Contaminant
TSP	tubular steel pole

U

Unified Program	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
US	United States
US 101	United States Highway 101
USA	Underground Service Alert
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

V

VMT	vehicle miles traveled

W

WBWG	Western Bat Working Group

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE

SAN FRANCISCO, CA 94102-3298

Mitigated Negative Declaration

PACIFIC GAS AND ELECTRIC COMPANY

FULTON-FITCH MOUNTAIN RECONDUCTORING PROJECT

APPLICATION NO. A.15-12-005/ PETITION FOR MODIFICATION OF DECISION NO. D.17-12-012

PROJECT INFORMATION

Title:	Fulton-Fitch Mountain Reconductoring Project
Location:	Sonoma County, California
Lead Agency Contact:	Lisa Orsaba, Project Manager California Public Utilities Commission Energy Division 505 Van Ness Avenue, 4th Floor San Francisco, California 94102 (415) 703-1966; lisa.orsaba@cpuc.ca.gov
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BACKGROUND AND PROJECT DESCRIPTION

Application No. A.15-12-005/Decision No. D.17-12-012

Pursuant to California Public Utilities Commission (CPUC) General Order 131-D, Pacific Gas and Electric Company (PG&E) filed an application (A.15-12-005) with the CPUC on December 3, 2015, for a Permit to Construct (PTC) the Fulton-Fitch Mountain Reconductoring Project (proposed project). The application included a Proponent's Environmental Assessment (PEA), prepared by PG&E pursuant to CPUC's Rules of Practice and Procedure Rule 2.4. After deeming the application complete on April 29, 2016, the CPUC prepared an Initial Study (IS) in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code § 21000 et seq) to determine if the proposed project would result in any significant adverse effects on the environment, and if preparation of an Environmental Impact Report was

required. The IS used the significance criteria outlined in Appendix G of the CEQA Guidelines effective in 2016 (Title 14 California Code of Regulations [CCR] § 15000 et seq).

According to Article 6 (Negative Declaration [ND] Process) and § 15070 (Decision to Prepare a ND or Mitigated Declaration [MND]) of the CEQA Guidelines, a public agency shall prepare, or have prepared a ND or MND for a project subject to CEQA review when:

(a) The Initial Study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or

(b) The Initial Study identifies potentially significant effects, but:

(1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review, would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and

(2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

The results of the IS indicated that the proposed project would not result in a significant unavoidable impact. All potentially significant impacts of the proposed project could be avoided or minimized to less-than-significant levels, and therefore, the CPUC determined no Environmental Impact Report was required.

On July 21, 2017, the CPUC published a Draft IS/MND and circulated the document for a 30-day public review period. On October 11, 2017, the CPUC published a Final IS/MND (2017 Final MND), which included the CPUC's responses to comments received during the public comment period. The 2017 Final MND includes minor revisions to the proposed project and feasible mitigation measures (MMs) structured in accordance with the criteria in §15370 of the CEQA Guidelines, which PG&E agreed to implement as conditions of project approval. On December 14, 2017, the CPUC issued its decision (D.17-12-012) to adopt the 2017 Final MND and grant PG&E a PTC (approved project).

The linear project alignment is 9.9 miles long and comprised of a Northern Segment (8.1 miles) and a Southern Segment (1.8 miles) located between Fulton Substation and Fitch Mountain Substation. The Northern Segment is in unincorporated Sonoma County and the Town of Windsor. The Southern Segment is in unincorporated Sonoma County and in the unincorporated community of Larkfield-Wikiup. The approved project includes (1) replacing existing 60-kilovolt (kV) conductors and replacing 70 wood poles in the Northern Segment; (2) replacing existing 60-kV and 230-kV conductors and retaining 21 existing tubular steel poles (TSPs) in the Southern Segment; and (3) making modifications to Fitch Mountain Substation.

The objectives of the approved project are to alleviate a potential overload condition identified by the California Independent System Operator, and to increase the capacity of the Fulton-Hopland line to help meet increasing demand in the region. The approved project involves reinforcing the electric transmission system in central Sonoma County by replacing the

conductor on a 9.9-mile-long section of the Fulton-Hopland 60-kV Power Line (Fulton-Hopland line) between Fulton Substation and Fitch Mountain Substation. The approved project also involves replacing poles along 8 miles of the Fulton-Hopland line, replacing conductor on 1.4 miles of the Geysers #12-Fulton 230-kV Transmission Line (Geysers #12 or 230-kV line), and making modifications to Fitch Mountain Substation.

Construction of the Northern Segment is complete and has been constructed as proposed and approved by the CPUC. Construction of the Southern Segment has not been initiated.

Petition for Modification of Decision No. D.17-12-012

Following CPUC approval of the proposed project, PG&E identified corrosion on the cross-arms of TSPs in the Southern Segment that could potentially cause cross-arm failure during reconductoring activities. On June 29, 2018, PG&E submitted a Petition for Modification (PFM) of Decision No. D. 17-12-012 in accordance with Rule 16.4 of the CPUC's Rules of Practice and Procedure. PG&E's PFM includes proposed modifications to the approved project that were not specified in the 2017 Final MND, including replacing the 21 TSPs in the Southern Segment and related construction activities as part of the reconductoring process. The CPUC is required to issue a separate decision on PG&E's PFM.

In 2019, the CPUC prepared an IS and Supplemental MND for PG&E's PFM of the approved project pursuant to Title 14 CCR, §15163 (Supplement to an EIR[1]) to determine if the proposed modifications would result in any new or substantially greater impacts beyond those identified for the approved project. The IS for the Supplemental MND used the significance criteria outlined in Appendix G of the CEQA Guidelines effective as of December 28, 2018. The results of the IS indicated that the proposed modifications would not result in new substantial environmental impacts. As with the approved project, all potentially significant impacts of the proposed modifications could be avoided or minimized to less-than-significant levels with implementation of MMs. The Supplemental MND includes minor revisions to the environmental analysis and to one mitigation measure (MM Traffic-1) that make the 2017 Final MND adequate pursuant to Title 14 CCR § 15163.

ALTERNATIVES

The purpose of an alternatives analysis pursuant to CEQA is to identify options that would feasibly attain the project's objectives while reducing the significant environmental impacts resulting from the proposed project. CEQA does not require the inclusion of an alternatives analysis in MNDs (including Supplemental MNDs) because the environmental determination concludes that, with incorporation of MMs, all significant adverse effects resulting from the

[1] In general practice, these conditions also apply to the preparation of a supplement to an MND.

project could be avoided or reduced to less-than-significant levels. Therefore, no alternatives analysis is necessary.

ENVIRONMENTAL DETERMINATION

The CPUC prepared this IS to determine if the proposed modifications would result in any new or substantially greater significant adverse effects on the environment. The analysis presented in the IS is based on the significance criteria in Appendix G of the CEQA Guidelines (effective as of December 28, 2018). The IS relies on information in the 2017 Final MND; PG&E's Supplemental PEA filed on June 29, 2018; PG&E's responses to data requests; and the CPUC's independent analysis.

The 2017 Final MND includes applicant proposed measures (APMs) identified by PG&E to address potentially significant impacts. In some cases, APMs were eliminated or superseded (i.e., replace) by MMs as described in the 2017 Final MND. The remaining APMs are considered to be part of the description of the approved project and thus required. The 2017 Final MND also includes MMs that were adopted by the CPUC when the proposed project was approved. In addition to the retained APMs, MMs from the 2017 Final MND would be applied to the proposed modifications, to the extent applicable, to avoid or minimize all potentially significant impacts to less-than-significant levels. One measure, MM Traffic-1, was revised based on the analysis presented in the Supplemental MND (Section 3.17: Transportation). Additions and deletions to MM Traffic-1 are shown in underline and strikethrough, respectively. MMs from the 2017 Final MND and the revised version of MM Traffic-1 from the Supplemental MND are provided in the following sections.

A revised Mitigation Monitoring and Reporting Program (MMRP) with the changes to MM Traffic-1 is provided in Appendix D of the Supplemental MND. The revised MMRP would ensure the required APMs and MMs are implemented adequately and provides information on the timing of implementation and performance standards.

The CPUC prepared a Mitigation Monitoring, Compliance, and Reporting Plan (MMCRP) for the approved project (February 2018), which identified specific requirements to ensure compliance with the MMRP. The MMCRP serves as a guide for CPUC and PG&E staff working on the project and describes roles, responsibilities, communication procedures, and expectations. Applicable revisions to the MMRP as a result of approval of the Supplemental MND will be incorporated into the MMCRP as necessary.

MITIGATION MEASURES

Agriculture and Forestry Resources

MM Agriculture-1: Minimize Impacts on Active Agricultural Areas
PG&E shall minimize disruptions to existing agriculture operations and avoid impacts on agricultural infrastructure (i.e., irrigation lines, wells, pumps, ditches, and drains). Work areas and overland access routes shall avoid active agricultural areas (i.e., farms, orchards, vineyards) and agriculture infrastructure where feasible. If necessary, and upon agreement with farmers, agricultural infrastructure shall be protected with temporary materials (i.e., steel plates, blankets, etc.) to prevent inadvertent damage during construction. Crop removal shall be avoided to the greatest extent feasible. If crops cannot be avoided, impacts shall be limited to the minimum necessary to construct the project, and PG&E shall provide the owner with fair market compensation to replace the crops and any damaged infrastructure. If grading occurs in active agricultural areas, topsoil shall be salvaged and replaced once construction is complete.

Biological Resources

MM Biology-1: General Biological Monitoring (Supersedes APM BIO-1b and APM BIO-1c)
Biologist Approval and Qualifications. CPUC-approved qualified biologists will conduct biological surveys and monitoring for the project. Qualified biologists are defined as individuals with a bachelor's degree or above in a biological science field and demonstrated field experience. Approved and qualified biologists shall conduct required surveys and monitoring for special-status species and active nests. Qualified avian biologists are defined as individuals with demonstrated field expertise in ornithology, in particular, nesting behavior and nest detection. Monitoring biologists conducting avian nest checks shall have demonstrated experience surveying or monitoring nesting birds. Qualified botanists are defined as individuals with demonstrated field expertise in botany. Qualified herpetologists are defined as individuals with demonstrated experience with California reptile and amphibian species. Biologists qualified for construction monitoring shall hold at minimum 1 to 2 years of construction-related biological monitoring experience. Biologists qualified as a lead field monitoring biologist shall have 5 or more years of related experience. **General Monitoring Procedures.** The approved biologist shall conduct general biological monitoring during construction activities that may disturb sensitive biological resources. The general biological monitoring (as required by this measure) may be conducted concurrently with other required monitoring activities, as appropriate. The biological monitor shall be responsible for ensuring compliance with avoidance and minimization procedures, regularly attending morning tailboard meetings with workers, and administering the required biological training requirements. **Resource Delineation.** Prior to construction or access in any area containing or potentially containing sensitive habitats, the biological monitor shall mark or otherwise delineate the limits of sensitive habitats and resources (i.e., wetlands and other water features, suitable aquatic habitat) for avoidance, and where necessary, post signs at access route entrances to inform workers of special access considerations (i.e., seasonal restrictions, biological monitor escort, etc.). Resource markings and signs shall be maintained and repaired as needed and as directed by the biological monitor. A biological monitor shall be present during the initial construction access in all unpaved areas to identify and mark sensitive resources for avoidance. The biological monitor shall also be present during all grading and vegetation clearing (e.g., mowing, trimming, and removal) within 50 feet of sensitive habitats or resources unless otherwise agreed by the CPUC biologist, lead environmental monitor, and PG&E's lead biologist. The biological monitor shall have full authority to halt construction once safe to do so if a resource has or may be impacted.

The biological monitor shall also visit each active work site at least once a week to inspect the work area for the presence of biological resources, verify that all avoidance measures (e.g., flagging or fencing) are in place, and document any species relocation or impacts.

MM Biology-2: Special-status Plants (Supersedes APM BIO-4)

Focused Surveys. Qualified botanist(s) shall conduct protocol-level botanical surveys, employing the CNPS "Intuitive Controlled" survey method or other accepted botanical survey protocol. The surveys shall include a floristic inventory and focused search for special-status plants with potential to occur in project areas where suitable habitat is present. Special-status plant surveys shall be conducted during the appropriate blooming period for each species and prior to construction activities. Special-status plant survey(s) shall be conducted within 2 years of mobilization.

The survey results shall be summarized in a report and provided to the CPUC no less than 30 days prior to construction. The survey report shall identify the botanists' names and qualifications, and a description of the survey dates, methods, and a description of the survey efforts, including a list of the species that were searched for, results of the plant inventory evaluation, and suitable habitat that was encountered. The report shall include maps (1: 3,000 scale) that identify final project work areas and access routes, the locations of suitable habitat within the project study area as defined in the IS/MND, and the extent of focused plant surveys that cover project areas located in suitable habitat. If any special-status plant individuals or populations are encountered, the plants shall be enumerated and described in the report. Maps in the report shall identify point locations for individual plants and boundaries for plant populations. The report shall include recommendations for avoiding the plants, where feasible.

If special-status plants cannot be avoided, the plant impacts shall be enumerated and described in the survey report. PG&E shall consult with USFWS and CDFW should any state- or federally-listed plants be found that cannot be avoided, to determine if permit authorizations are required. PG&E shall provide the CPUC with any permits and authorizations obtained from USFWS and CDFW.

Special-status plants within and adjacent to work areas and access routes shall be marked and completely avoided, to the extent feasible, by a qualified botanist.

Salvage and Replanting Plan. If impacts on the special-status plant species cannot be avoided and if impacts would be substantial, as determined by the CPUC taking into consideration the rarity of the species in the project area and the extent of the impact, PG&E shall prepare and implement a Salvage and Replanting Plan. The plan would specify, at a minimum, the following:

- Location of the mitigation site(s) (extent of the plants within and adjacent to project areas).
- Procedures for procuring plants, such as transplanting or collecting seed from plants to be impacted, including storage locations and methods to preserve the plants.
- Procedures for propagating collected seed, including storage methods.
- Quantity and species of plants to be planted or transplanted.
- Planting procedures, including the use of soil preparation and irrigation.
- Schedule and action plan to maintain and monitor the mitigation site for a minimum 3-year period.
- Reporting procedures, including the contents of annual progress reports.
- List of criteria (e.g., growth, plant cover, survivorship) by which to measure success of the plantings.
- Contingency measures to implement if the plantings are not successful (i.e., weed removal, supplemental plantings, etc.).

PG&E shall submit the plan to the CPUC for review and approval no less than 30 days prior to impacting or collecting special-status plants. At a minimum, the transplanted/created population(s) shall have approximately the same characteristics as the impacted population (within 10-percent density, total population number, and non-native/invasive). Seasonal population changes may be taken into account by identifying and documenting the characteristics of an appropriate representative reference site prior to impacting a population. Reference sites that will be used must be identified and described in the Salvage and Replanting Plan.

If CPUC determines that the Salvage and Replanting Plan is not likely to be successful (due to the species' life form, habitat requirements, or other factors), then either (1) impacts on the special-status

plants in questions must be avoided, or (2) a financial contribution will be made to an organization that restores/protects special-status plant populations in the project region.

MM Biology-3: California Red-legged Frog (Supersedes APM BIO-1d, APM BIO-1m, and APM BIO-6)

Habitat Survey and Mapping. A qualified biologist shall identify potentially suitable aquatic habitat for CRLF (i.e., ponds, creeks, and perennial and seasonal streams) within 500 feet of all project disturbance areas and watercourse crossings. PG&E shall submit maps (1: 3,000 scale) to the CPUC identifying the locations of potentially suitable aquatic habitat features and upland habitat within 500 feet of the project features, no less than 30 days before construction. The maps shall identify access route segments, pole locations, and work area limits that would be surveyed and fenced, monitored, or otherwise avoided as specified below.

Substantial barriers or topography that would prevent CRLF dispersal should be identified on the maps. Potentially suitable habitat that is fragmented or disconnected by such barriers shall not be subject to the provisions set forth in this measure, as determined in coordination with the CPUC.

Permits and Agency Authorizations. PG&E shall consult with USFWS to obtain permit authorizations for any necessary take coverage prior to conducting work activities within aquatic or upland habitat for CRLF. PG&E shall provide the CPUC with any required permits and authorizations obtained from USFWS, including correspondence regarding habitat determinations or avoidance and minimizations procedures. CRLF may only be handled by a qualified biologist with approval and all appropriate permit authorizations from USFWS.

Avoidance, Minimization, and Monitoring. The following procedures shall be implemented during construction within CRLF habitat, unless conflicts arise between applicable USFWS permit conditions. In such cases, USFWS permit conditions shall supersede these procedures, and CPUC shall be provided with copies of the permits and all associated reports documenting compliance with permit conditions:

- The names and qualifications of biologists that would conduct the CRLF procedures described below shall be submitted to the CPUC for approval, unless USFWS has granted prior approval and a copy of the approval letter is submitted to CPUC.
- No more than 24 hours prior to initial ground disturbance in mapped CRLF habitat, an approved biologist shall conduct a pre-activity survey for CRLF within the mapped habitat, as defined above. The pre-activity survey shall consist of walking the work area limits and adjacent areas to determine if any CRLF are present. All areas within the survey area shall be inspected that could be used by CRLF for feeding, breeding, sheltering, and movement, including suitable mammal burrows.
- Construction activities within watercourse crossings may only occur when the feature is dry or if the crossing method fully spans the feature (refer to MM Hydrology-4).
- Aquatic habitat adjacent to work areas and along access routes shall be adequately flagged for avoidance, where necessary.
- Construction activities within 500 feet of mapped aquatic habitat shall be restricted to the dry season (April 15 through October 15), to the extent feasible, or when water is not present. If construction activities must occur in these areas during the wet season (October 16 through April 14), an approved biologist shall determine which of the following measures should be implemented at each work area based on the CRLF habitat characteristics and work activities that would occur:
  - **Option 1 – Install Exclusion Fencing.** Temporary exclusion fencing shall be installed around the limits of work areas and access routes to ensure CRLF cannot enter the area. Installation of exclusion fencing shall occur under the supervision of an approved biologist and immediately following a clearance survey of the area. The fencing shall have a minimum aboveground height of 36 inches, and the bottom of the fence should be keyed in at least 4 inches deep and backfilled with soil, sand bags, gravel, or other means to prevent CRLF from passing under the fencing. The fencing shall be installed in a manner that reduces the potential for trapping migrating wildlife. Cover boards shall be installed along the perimeter of fencing to provide protection from the sun and predators, where necessary and appropriate. Gates shall be installed in the fencing that allow project access and adequately exclude wildlife. The exclusion fencing shall remain in place and maintained for the duration of construction activities at the location during the wet season.

Prior to entering and beginning work in fenced areas each day, designated personnel shall inspect the work area and both sides of the fence perimeter for CRLF and any trapped wildlife. The designated personnel must be trained by an approved biologist on CRLF identification, the laws protecting the species, and procedures to implement if the species is observed. If CRLF or trapped wildlife are observed, an approved biologist shall be notified immediately to determine the appropriate procedures to implement.

- **Option 2 – Monitor Construction Activities.** In lieu of exclusion fencing, an approved biologist shall monitor the initial ground-disturbing construction activities in each work area. Following the initial activities, at a minimum, an approved biologist shall conduct morning sweeps of each work area prior the start of construction activities. An approved biologist would then conduct spot check-monitoring at each location for the remainder of the work day.

Neither Options 1 or 2 would be required if a qualified CRLF biologist determines that non-ground-disturbing activities (i.e., access on established roads or overland routes) would have no potential effect on CRLF. Such exceptions shall be subject to CPUC approval and shall not apply to areas where grading or vegetation clearing would occur.

- If any CRLF adults, subadults, juveniles, tadpoles, or eggs are found during the pre-activity surveys, fence installation, daily checks of fencing, or monitoring, construction shall be halted (when safe to do so) in the vicinity of the observation that may pose a risk to the animal, as determined by an approved biologist, and USFWS shall be contacted to determine how to proceed. Alternatively, if a Biological Opinion has been obtained from USFWS for the project that addresses CRLF, then the associated measures and relocation protocols may be implemented. CPUC shall be notified by email within 24 hours of any CRLF observations.
- An approved biologist shall oversee the installation of erosion and sediment controls within mapped habitat to ensure the materials do not pose a risk to CRLF. Plastic monofilament or loosely woven erosion control netting, or any similar materials that may entangle special-status wildlife, shall not be used.
- Vehicle and equipment speeds shall not exceed 5 mph while on unpaved areas within 300 feet of suitable aquatic habitat.
- After a rain event (greater than 0.1 inch of rainfall), workers shall check underneath vehicles (i.e., tires, tracks, etc.) for the presence of wildlife. Any discovered wildlife shall be reported to an approved biologist for relocation assistance.

MM Biology-4: Foothill Yellow-legged Frog (Supersedes APM BIO-1b, APM BIO-1c, and APM BIO-1m)

Habitat Survey and Mapping. A qualified biologist shall identify potentially suitable aquatic habitat for FYLF (i.e., perennial streams with cobble or rock substrate, or seasonal streams with cobble or rock substrate and standing water, or visible moisture in the immediate vicinity) within 10 feet of all project disturbance areas and watercourse crossings. PG&E shall submit maps (1: 3,000 scale) to the CPUC identifying the locations of suitable FYLF aquatic habitat, and upland habitat within 10 feet of the feature, no less than 30 days before construction. The maps shall identify access route segments, pole locations, and work area limits that would be surveyed and monitored, as defined below.

Avoidance, Minimization, and Monitoring. No more than 24 hours prior to initial ground disturbance in mapped FYLF habitat, an approved biologist shall conduct pre-activity surveys for FYLF. The pre-activity survey shall consist of walking the work area limits and adjacent areas to determine if any FYLF are present. All areas within the survey area that could be used by FYLF for feeding, breeding, sheltering, and movement shall be inspected. The survey shall include an adequate examination of damp areas within or in proximity to creeks.

If FYLF are observed during the pre-activity surveys, an approved biologist shall conduct daily sweeps of work areas within the mapped habitat for FYLF prior to work activities to identify any FYLF that may have entered the adjacent work area. The daily sweeps shall consist of walking the limits of construction areas and access routes to identify any FYLF that may be present. If FYLF are found in work areas, the animal shall be provided with the opportunity to leave on its own accord. If necessary, and upon approval by the CDFW, the animal may be moved out of harm's way by an approved biologist in possession of all required permits and authorizations from the CDFW.

MM Biology-5: Special-status and Protected Migratory Birds (Supersedes APM BIO-2)

Nest Surveys. If work is scheduled during the nesting season (generally from February 1 through August 31, but may be earlier or later depending on species nesting patterns and weather conditions), nest detection surveys will occur within 7 days prior to the start of work activities at designated construction areas, staging areas, and landing zones to determine nesting status. Nest surveys will be accomplished by ground surveys within 500 feet of work areas, to the extent accessible, and/or by helicopter between 500 feet and 0.5 mile of work areas. Survey areas will generally correspond with the species-specific standard buffers set forth in *Nesting Birds: Species-Specific Buffers for PG&E Activities* located in Appendix D. Surveys will be conducted during the appropriate time of day and season for the species expected to be present. Access for ground surveys will be subject to PG&E's easement and property access permissions. Passerine survey areas will generally be 250 feet from all work areas. The non-special-status raptor survey area will generally be 500 feet from work areas where trees and other suitable nesting substrate are located. Helicopter surveys for special-status raptors will be conducted within 0.5 mile of all project work areas.

After construction begins in an area, avian biologists or approved avian monitors shall inspect suitable nesting habitat within 250 feet (passerines) and 500 feet (raptors) of active work areas on a weekly basis during the nesting season to identify and document any new active nests that may be present (see nest monitoring and reporting below – and considerations for nesting in active work areas). If special-status raptor nests cannot be observed from the ground, weekly checks for special-status raptors may occur by helicopter during periods when helicopters are in use. Helicopter flight restrictions for nest detection surveys may be in effect for densely populated residential areas, and will include observance of appropriate established buffers and avoidance of hovering in the vicinity of active nest sites.

A CPUC-approved and qualified avian biologist shall conduct surveys for nesting birds.

Active vs. Inactive Nests. When a nest of any bird species is located within the required survey/potential disturbance area, an approved avian biologist shall determine whether the nest is active. A nest shall be defined as active once it contains eggs or young, or potentially contains eggs or young if presence cannot be reasonably determined. An inactive nest is defined as a nest that has been abandoned by the adult bird or once fledglings are no longer dependent on the nest site or parental care.

Standard Nest Buffers. If active nests are found, the biologist will establish a species-specific standard nest buffer around each active nest, as listed in *Nesting Birds: Species-Specific Buffers for PG&E Activities*. For special-status raptor nests, a nest buffer shall be implemented once an approved avian biologist determines that the nest territory is occupied by adults. Construction activities would be restricted within the buffers depending on the nature and location of the activities and results of nest monitoring (see below).

Buffer Adjustments. Where feasible, standard buffers will apply, although the biologist may increase or decrease the standard buffers in accordance with the factors set forth in *Nesting Birds: Species-Specific Buffers for PG&E Activities*. For high-disturbance helicopter activities near work areas with active nests, standard buffer distances may be increased up to double the distance with agreement between the CPUC biologist, lead environmental monitor, and PG&E's lead biologist. Nest buffers shall not restrict construction-related traffic using existing roads. Nesting pair acclimation to disturbance in areas with regularly occurring human activities will be considered when establishing reduced nest buffers. Nest buffers shall be implemented until the approved avian biologist determines that the nest is no longer active. Active nests will not be impacted during tree or structure removal.

Buffer Reductions. The standard buffer distances for nests may be reduced on a case-by-case basis based on site-specific conditions set forth in *Nesting Birds: Species-Specific Buffers for PG&E Activities*, such as avian biology, nest concealment, existing conditions, habituation, environmental conditions, and level of project activity, upon agreement between the CPUC biologist, lead environmental monitor, and PG&E's lead project biologist. Buffer reduction will be included in the weekly monitoring report and will document:

- Species and listing status
- Location description
- Pre-existing conditions present on site
- Description of the work to be conducted within the reduced buffer, including equipment type, and start date

- Size and expected duration of proposed buffer reduction
- Reason for buffer reduction
- Name of the biologist(s) who observed the nest and approved the buffer reduction
- Proposed frequency of monitoring necessary for the nest given the type of bird and surrounding conditions as determined by the approved avian biologist

Nesting in Active Work Areas. If birds are found building nests within the standard buffer distance after specific project activities begin and the activities are not expected to increase in duration, intensity, or distance from the nest, it shall be assumed that the birds are tolerant of those specific project activities. If the specific project activities change within the standard buffer increase in duration, intensity, or distance, the avian monitor shall observe the nest until it can be determined the birds are tolerant of the new activities. If the avian monitor determines that the nesting birds are not tolerant of project activities, the buffer shall be expanded and may be expanded beyond the standard buffer distance if necessary.

Nest Monitoring. Active nests will be periodically monitored at a frequency and length of time necessary to ensure that nesting pairs continue to tend the nest, and until the monitoring biologist has determined that the young have fledged, or once construction ends. At minimum, nest monitoring will occur weekly. For reduced buffers, nest monitoring will initially occur daily to determine whether a larger buffer is necessary. Daily nest monitoring will occur during helicopter operations within standard buffer distances. Per the discretion of the monitoring biologist and CPUC biologist, vegetation removal by hand may be allowed within standard nest buffers or in areas of potential nesting activity. The monitoring biologist will have authority to order the cessation of nearby project activities, once safe to do so, if nesting pairs exhibit signs of disturbance.

Reporting. Survey results shall be submitted to the CPUC on a weekly basis. Nest locations and buffers shall be mapped using a Geographic Information System (GIS). Nest information and monitoring observations shall be documented and provided to the CPUC weekly, and include the following information:

- Date, time, and length of observation period
- Nest status (active or inactive)
- Species and listing status
- Nest location, including approximate nest height
- Behavioral observations
- Site conditions, including construction activities
- Estimated incubation start date, if possible
- Estimated fledge date
- Number of eggs or hatchlings, if observed
- Buffer size implemented

No avian reporting shall be required for construction activities outside of the nesting season unless species are observed nesting outside of the normal season or special-status bird species are observed in the project area.

Nesting Deterrents. As appropriate, nest deterrent strategies may be used to prevent birds from nesting in construction equipment or staged materials. Nest deterrent strategies may include exclusion netting, covering equipment with tarps, or covering small holes. The monitoring biologist shall review bird netting use daily due to risk of entanglement.

Design Guidelines. PG&E shall adhere to recommendations published by the Avian Power Line Interaction Committee, Reducing Avian Collisions with Power Lines: The State of the Art in 2012, as feasible.

MM Biology-6: Special-status and Protected Bats (Supersedes APM BIO-5)

Roosting Habitat Assessment. Prior to construction, a CPUC-approved qualified biologist with expertise in bats shall conduct a pre-construction assessment for suitable special-status or otherwise protected[2] bat roosting habitat that may be impacted within approximately 50 feet of project work areas and access routes where grading and vegetation removal may occur. The qualified biologist shall identify all suitable bat roosts that may be impacted, including man-made structures, snags, rotten stumps, mature trees with broken limbs, trees with exfoliating bark, bole cavities or hollows, and dense foliage. The qualified biologist shall document the results of the pre-construction assessment and record the location of suitable bat roosts. The potential use of these roosts (e.g., day roost, night roost, maternity roost, hibernation roost) shall also be described. The results shall be submitted to the CPUC at least 30 days prior to construction.

Avoidance and Minimization. Where suitable special-status or otherwise protected bat roosts are identified, the following procedures shall be implemented:

- Suitable bat roosts shall be marked and avoided to the extent practicable.
- When possible, removal of trees identified as providing suitable bat roosting habitat should be conducted during seasonal periods of bat activity, including:
  - (1) Between March 1 and April 15, or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than ½ inch of rainfall within 24 hours occurs; or
  - (2) Between September 1 and about October 15, or before evening temperatures fall below 45 degrees Fahrenheit and/or more than ½ inch of rainfall within 24 hours occurs.
- If it is determined that a special-status or otherwise protected bat maternity roost is potentially present, the roosts shall not be removed during the breeding season (April 15 to August 31) to the extent practicable. If such a potential bat maternity roost must be removed during the breeding season, then the following shall be implemented:
  - (1) Acoustic emergence surveys or other appropriate methods shall be conducted/implemented to further evaluate if the roost is an active maternity roost; the methods and findings of this work would both be subject to CPUC approval;
  - (2) If it is determined that the roost is not an active maternity roost, then the roost may be removed in accordance with the other requirements of this measure;
  - (3) If it is found that an active maternity roost is present, the roost shall not be physically disturbed during the breeding season and an approved bat biologist shall determine if any buffers around the roost are needed.
- Potential suitable non-maternity roosts that cannot be avoided shall be removed on warm days in late morning to afternoon when any bats present are likely to be warm and able to fly.
- An approved bat biologist shall oversee removal of suitable roosts. The biologist shall first inspect all crevices and cavities and attempt to expose any bats that may be present by carefully peeling away bark or cover material and opening crevices, to the extent possible.
- Prior to trimming or removing suitable roosts, the approved bat biologist shall instruct workers to create noise and vibration disturbance on the roost (e.g., concussive hitting with tools and/or chainsaw cutting) for several minutes.
- If a cavity cannot be thoroughly inspected on a tree, snag, or stump, clearing crews shall remove smaller limbs and sections above the cavity and carefully expose it so bats may crawl out and fly away. Clearing crews shall wait up to 10 minutes in between each cut to determine if the cavity is empty. Sections of trees and branches that may contain bats shall be set aside and away from work areas so that any remaining bats may escape.

[2] For purposes of this measure, "otherwise protected" bats will include any significant local breeding population that could be adversely impacted by the project, as defined by a local bat expert, and approved by the CPUC.

MM Biology-7: Revegetation, Restoration, and Monitoring Plan (Supersedes APM BIO-1l and APM BIO-4)

PG&E shall prepare and implement a Revegetation, Restoration, and Monitoring Plan that addresses procedures for quantifying vegetation impacts from construction activities and revegetation and/or restoration requirements for applicable vegetation resources. The plan shall include appropriate revegetation and/or restoration performance standards, monitoring procedures, and reporting procedures for the following vegetation resources, as defined below, and the referenced measures:

- Special-status plant populations (refer to MM Biology-2).
- Suitable habitat for special-status plants and wildlife (specifically grassland, woodland, and forest).
- Sensitive natural plant communities (specifically riparian habitat and Oregon oak woodland) (refer to MM Biology-9).
- Large valley and small valley oaks of qualifying size (refer to APM BIO-10).

The plan shall be submitted to the CPUC for review and approval no less than 60 days before construction.

Performance Standards. All temporarily disturbed areas shall be restored to near pre-construction conditions to ensure potentially significant permanent impacts do not occur as a result of the project. Pre-construction conditions, including vegetation cover estimates and percentage of Cal-IPC list invasive weeds (plants rated as "High" and "Moderate"), shall be documented for each project work area as described below in the Pre-Construction Report. Annual performance standards and final success criteria shall be developed for each vegetation resource that demonstrates an adequate progression toward pre-construction conditions such that habitat functions and values and species composition of the restored vegetation are comparable to those of nearby comparable vegetation within 3 years.

The plan shall define annual quantitative thresholds for both vegetation resources and invasive plant species and identify corrective actions to implement if the annual thresholds are not achieved. Work sites that have been proven to meet the final success criteria shall not require further monitoring and reporting.

Monitoring Procedures. A qualified biologist or botanist shall monitor vegetation resources that are impacted. The plan shall identify appropriate post-construction monitoring procedures for each vegetation resource, including specific methods, frequencies, and timing for seasonal requirements.

Pre-Construction Report(s). Prior to construction, a qualified biologist or botanist shall survey all final work areas and overland access routes to identify the vegetation resources that may be impacted, including their location, composition, condition, and extent of planned project disturbance. Survey efforts may be conducted in conjunction with focused surveys required for special-status species, as described in applicable measures. Anticipated impacts on vegetation resources shall be quantified and documented in the report, such as special-status plant individuals or the characteristics of populations (i.e., estimated size and cover estimates); the types and numbers of tree and shrub individuals; and restoration acreages for grassland, woodland, and forest vegetation communities). The baseline conditions for adjacent and comparable vegetation resources shall also be documented in the report. Such areas may be used as a control for post-construction monitoring to determine relative restoration performance and account for seasonal fluctuations in invasive species composition, general growth rates, and overall coverage.

The report shall include maps (1: 3,000 scale) that identify the types and locations of the vegetation resources that may be impacted, the limits of the planned work areas, and project access routes. An initial report shall be submitted to the CPUC no less than 30 days before construction. Separate reports may be submitted for each project segment, if necessary. If new impacts or restoration procedures are identified, the plan shall be updated and submitted in track changes to the CPUC.

Post-Construction Reports. PG&E shall prepare and submit Post-Construction Reports to the CPUC on an annual basis until construction is complete. Post-Construction Reports shall include table summaries of actual project impacts, and maps of the areas that identify the limits of actual impacts. The summary table shall include the location name/ID for each impact area, anticipated impact acreage from the Pre-Construction Report, and actual impact acreage during construction. The report shall include a brief statement about revegetation, restoration, and monitoring procedures that would be implemented where impacts occurred, as defined in the approved plan.

Annual Monitoring Reports. Once revegetation and restoration begins, PG&E shall conduct surveys during the growing season and submit Annual Monitoring Reports to the CPUC. The reports shall summarize revegetation and restoration efforts for each applicable impact area, provide data on performance standards and success criteria, and detail any corrective actions necessary to close out sites. Monitoring results will be updated in the plan only when applicable (i.e., seasonally or annually). Once the success criteria have been achieved for each location, monitoring and reporting would no longer occur for the location.

PG&E shall provide written updates to CPUC upon request regarding seasonally dependent restoration and corrective actions prior to submission of the annual monitoring reports.

MM Biology-8: Minimize Noxious Weeds

Precautions shall be taken to minimize the introduction of any invasive weeds. Construction equipment shall be cleaned of caked-on dirt and plant materials before entering unpaved project areas. Erosion control materials and planting seed mixes shall not introduce invasive weed species. Only certified weed-free straw and mulch shall be used on the site.

MM Biology-9: Sensitive Natural Plant Communities

Prior to construction, a qualified biologist shall survey all final work areas and identify the extent of sensitive natural plant communities, specifically riparian habitat and Oregon oak woodland, as described in MM Biology-7 in the Pre-Construction Report.

If sensitive natural plant communities are found in work areas and overland access routes, work areas and overland access routes shall be repositioned where possible to avoid adverse impacts to the sensitive natural plant communities.

If tree impacts cannot be avoided in sensitive natural plant communities, PG&E shall attempt to trim native trees rather than removing them. Native trees over 6-inch diameter at breast height (dbh) trimmed over 25 percent will be assessed by an arborist. Should the arborist conclude that it is likely the trees will not survive the trimming, PG&E shall ensure the trees are replaced at a 1:1 ratio. Native trees over 6-inches dbh that are removed shall be replaced at a 1:1 ratio in the closest appropriate location, by planting seed and/or container stock. Sensitive natural plant communities shall be restored at a ratio of 1:1.

Sensitive natural plant communities that are impacted during construction, and any replanting sites, shall be addressed in the Annual Monitoring Reports, as described in MM Biology-7.

MM Biology-10: Sudden Oak Death Procedures

All workers shall be trained on requirements and BMPs for reducing the spread of the Sudden Oak Death pathogen prior to working on the site.

All equipment, vehicles, and tools shall be thoroughly cleaned of plant material and soil prior to entering unpaved project areas.

A qualified botanist, biologist, or arborist shall inspect all work areas and access routes for signs of vegetation infected with the Sudden Oak Death pathogen prior to construction. If any work areas are found that contain infected vegetation, PG&E shall implement the following BMPs for Sudden Oak Death recommended by California Oak Mortality Task Force, to the extent feasible:

- Cleaning stations shall be set up at staging yards and all wash water shall be contained within the cleaning area.
- Mud and debris shall be scraped, brushed, or hosed from vehicles, equipment, and tools within designated cleaning areas at project staging yards if working within infected areas.
- A power washer shall be used, where feasible.
- All personnel shall clean boots and clothing of mud and vegetation debris if working within infected areas.

Work in infected areas shall be performed during the dry season (May through October), to the extent feasible, to avoid tracking out infected mud.

MM Biology-11: Wetland Mitigation

Waters of the US and state shall be avoided by the project where possible, and impacts shall be minimized to the extent practicable using BMPs during construction. These practices shall include delineating wetlands and waters on project maps and flagging the extent of wetlands and waters within work areas to keep workers and equipment out of the area to be preserved, and using erosion control measures, such as straw wattles, hay bales, and drain inlet controls to keep sediment and debris from entering jurisdictional waters. Design and installation of temporary bridges, such as steel plates, shall be such that the water flow (velocity and low-flow channel width) is not impaired. During project construction, a biological monitor shall be on site to monitor the integrity of wetlands and other waters while major earth moving activities are underway.

For those wetland areas that are impacted as part of the proposed project, appropriate permits shall be acquired from USACE and RWQCB prior to any impacts occurring to regulated waters of the US and/or state. Copies of applicable permits from USACE and RWQCB shall be provided to the CPUC prior to grading, and any conditions in these permits shall become a condition of project approval. Any other conditions that are stipulated for wetland impacts by USACE and/or RWQCB shall also become conditions of project approval. Impacted wetland areas shall be compensated for at a 2:1 ratio via (1) purchase of mitigation credits from a USACE- and RWQCB-approved wetland conservation bank or (2) wetland creation/habitat enhancement.

- **Option 1 – Purchase of Wetland Mitigation Credits.** Prior to purchasing mitigation credits from a qualified conservation bank, approval from USACE and RWQCB shall be required. Mitigation credits shall be purchased prior to breaking ground on the project site.
- **Option 2 – Wetland Creation/Enhancement.** If PG&E elects to create/enhance wetlands on site in lieu of purchasing mitigation credits from an approved mitigation bank, compensation wetlands shall be created/enhanced on site and shall resemble those wetlands affected by the project (i.e., in-kind replacement). If wetlands cannot be created in-kind and on-site, wetland creation/enhancement shall be implemented offsite. Any wetland creation/enhancement plan shall be submitted to the CPUC, USACE and RWQCB for approval. Mitigation requirements shall include that all impacted wetlands are replaced at a minimum 2:1 ratio (for each square foot of impact, one square foot of wetland would be enhanced/created) or as otherwise specified in permitting conditions imposed by USACE and/or RWQCB. Any site where wetlands are created/enhanced must be preserved in perpetuity via recordation of a perpetual restrictive deed recorded on the Title of the property. In addition, a 5-year monitoring plan shall be implemented by a qualified biologist. At the end of the 5-year monitoring period, USACE and RWQCB shall render a conclusion if the created/enhanced wetlands are successful.

Cultural and Tribal Cultural Resources

MM Cultural-1: Archaeological Monitoring and Cultural Resource Discoveries (Supersedes APM CR-2)

Archaeological Monitoring for Previously Undiscovered Cultural Resources. A CPUC-approved cultural resources specialist/archaeologist shall be onsite to spot-check the initial 10 feet of pole hole augering greater than 3 feet in diameter (limited to TSPs) and grading in previously undisturbed areas greater than 6 inches in depth. If qualifying excavations occur simultaneously at multiple locations, the cultural resources specialist/archaeologist shall spot-check each location throughout the workday until ground-disturbing activities are complete at each location. If signs of a resource are encountered during spot-checking, monitoring shall become full time until ground-disturbing activities are complete in the work area. The cultural resources specialist/archaeologist must have experience with California/regional history and local Native American history, traditions, and customs and shall meet the US Secretary of Interior Professional Qualifications Standards as published in 36 CFR Part 61. The cultural resources specialist/archaeologist shall be responsible for evaluating any cultural resources discovered during construction for signs of prehistoric Native American culture and for coordinating outreach efforts with the NAHC and local Native American tribes if potential tribal cultural resources are found. If they request to participate, Native American tribes shall be given the opportunity to monitor construction activities

within 100 feet of identified prehistoric Native American resources or tribal cultural resources. Any tribal monitoring activities should be coordinated with the cultural resources specialist/archaeologist.

Cultural Resource Discoveries. If signs of a previously undiscovered cultural resource are encountered, all construction activities within 100 feet of the resource site shall halt, and the cultural resources specialist/archaeologist shall be contacted to implement required evaluation and treatment procedures, described below. Construction supervisors and workers shall be informed that the site is off-limits, and if necessary, the cultural resources specialist/archaeologist shall install flagging to designate the limits of the site.

If the resource is located within Caltrans right-of-way, PG&E shall also immediately notify the Caltrans Office of Cultural Resources Studies, District 4 of the discovery.

The cultural resources specialist/archaeologist shall evaluate the resource and determine whether it is (1) a historic resource as defined in CEQA Guidelines Section 15064.5 and thus eligible for listing in the CRHR, (2) a unique archaeological resource as defined in PRC §21083.2(g), or (3) a potential tribal cultural resource as defined in PRC §21074(a). If it is determined that the resource does not meet any of these criteria, work may resume in the area, and a summary of the discovery findings and evaluation conclusions shall be documented and provided to the CPUC with Weekly Compliance Reports. The methods and results of the evaluation shall also be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). If the resource meets any of the criteria listed above and is therefore considered a significant resource under CEQA, work shall remain halted at an appropriate distance from the find, and the cultural resources specialist/archaeologist shall consult with the CPUC regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b).

If the cultural resources specialist/archaeologist determines that the resource could be a tribal cultural resource, he or she shall, within 48 hours of the discovery, notify each Native American tribe identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the project site of the discovery. The responding tribes shall be given an opportunity to participate in determining the appropriate mitigation methods in consultation with the CPUC. The CPUC shall request that the tribes respond to the notifications within 3 days.

Preservation in place (i.e., avoidance) is the preferred method of mitigation for cultural and tribal cultural resources and shall be required to mitigate impacts on previously undiscovered resources. Other methods of mitigation shall only be used if the cultural resources specialist/archaeologist, in coordination with the CPUC, determines that the method would provide equivalent or superior mitigation of the impacts on the resource. The alternative methods of mitigation may include data recovery and documentation of the information contained in the site to answer questions about local history and prehistory (see MM Cultural-4). Work in the area may commence upon completion of treatment, as approved by the CPUC.

MM Cultural-2: Cultural Resource Training

All project personnel shall receive adequate cultural resource training prior to working on the project. The training shall address appropriate work practices necessary to effectively implement project requirements, including APMs and mitigation measures, for historical resources, archaeological resources, tribal cultural resources, and human remains. The training shall address the potential for exposing subsurface resources, basic signs of a potential resource, and required procedures if a potential resource is identified consistent with the procedures set forth in MM Cultural-1, MM Cultural-3, MM Cultural-4, and all procedures required under Health and Safety Code § 7050.5 and PRC §§ 5097.94, 5097.98, and 5097.99 for the discovery of human remains. The training shall also identify requirements for working near archaeological resource site CA-SON-1256, as defined in APM CR-1.

PG&E shall submit the cultural resource training material to the CPUC for approval no less than 30 days before construction, and it may be submitted in conjunction with the general Worker Environmental Training Program for the project.

MM Cultural-3: Pre-Construction Cultural and Tribal Cultural Resource Surveys
Prior to construction at any project area, PG&E shall compare areas of proposed ground disturbance with the project geographic information system (GIS) layers that show cultural resource survey areas. PG&E shall verify that proposed ground disturbance areas have been surveyed for cultural resources. If the areas of proposed ground disturbance have been surveyed (and no known resources are located in the area), then no additional measures are required and construction may commence. If the areas have not been surveyed (such as due to minor relocation of a project feature or access road), no ground disturbance shall be permitted prior to completion of surveys by a CPUC-approved cultural resource specialist/archaeologist. If a resource is found, it shall be avoided. If it cannot be avoided, PG&E shall follow the procedures in MM Cultural-1.

MM Cultural-4: Data Recovery
If a CRHR-eligible, unique archaeological, or tribal cultural resource cannot be completely avoided or protected from direct project impacts, data recovery investigations shall be required to reduce adverse effects to the characteristics of each site that contribute to its significance or CRHR-eligibility. For sites eligible under Criterion (d), significant data shall be recovered through excavation and analysis. For sites eligible under Criteria (a), (b), or (c), data recovery may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation-phase studies shall guide plans and data thresholds for data recovery. Treatment shall be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery occurs, PG&E shall prepare a Research and Data Recovery Plan for each individual site where data recovery is necessary. The plans shall be submitted to the CPUC for approval, and data recovery procedures shall not occur at the sites until authorized by the CPUC. The plan shall describe the specific procedures that would be implemented during data recovery, as appropriate for the type of resource. Sampling for data recovery excavations shall follow standard statistical sampling methods, but sampling shall be confined to the direct impact area. The methods and results of evaluation and data recovery work at an archaeological find shall be documented in a professional-level technical report to be filed with CHRIS, a copy of which shall be submitted to the CPUC. Artifacts collected during data recovery shall be cataloged and permanently curated with an appropriate institution.

Geology, Soils, and Mineral Resources

MM Geology-1: Geotechnical Investigation Report (Supersedes APM GS-2)
PG&E shall have a professional geotechnical engineer conduct a geotechnical investigation in areas that are suspected to have unstable soils or landslide susceptibility and shall add the analysis to the Geotechnical Investigation Report required by APM GS-3. The Geotechnical Investigation Report shall provide site-specific recommendations for poles, work areas, and access routes where there is an elevated risk of geologic hazards. PG&E shall submit the Geotechnical Investigation Report to the CPUC no less than 60 days prior to construction. Where geotechnical hazards are found to occur, appropriate engineering design and construction measures from the Geotechnical Investigation Report shall be incorporated into the final project designs, as deemed appropriate by a California-licensed Geotechnical Engineer or Certified Engineering Geologist. Design measures that would mitigate seismic and landslide-related impacts shall include, but are not limited to, retaining walls, removal of unstable materials, and avoidance of highly unstable areas. Disturbed and engineered slopes shall be monitored by qualified construction personnel on an occasional basis (bi-monthly or as needed) until the slope is fully stabilized and no longer poses an increased risk of failure or erosion as compared to similar undisturbed slopes in the immediate vicinity.

Hazards and Hazardous Materials

MM Hazards-1: Hazardous Materials Procedures and Worker Training (Supersedes APM HM-1, HM-2, and APM BIO-1i)

PG&E shall develop and implement specific hazardous material procedures as an element of the SWPPP (MM Hydrology-1) to ensure hazardous materials are properly handled, stored, and transported, and that any inadvertent leaks or spills are adequately cleaned and reported. At a minimum, the SWPPP shall address the following procedures related to the use of hazardous materials during construction and emergency response:

- Proper disposal of contaminated soils and materials (i.e., cleanup materials).
- Daily inspection of vehicles and equipment for leaks, particularly in parking areas near sensitive resource areas during construction and spill containment procedures.
- Emergency response and reporting procedures to address hazardous material releases.
- Fueling of any vehicles, equipment, and helicopters in staging yards or on streets paved with secondary containment and away from sensitive resource areas (e.g., preserves, designated open space areas, conserved habitat).
- Fuels and lubricating oils for vehicles and heavy equipment will not be stored or transferred within 100 feet of any waterbodies, unless otherwise isolated from waterbodies by secondary containment.
- Emergency spill supplies and equipment shall be available to respond in a timely manner if an incident should occur.
- Response materials such as oil-absorbent material, tarps, and storage drums shall be available at the project site at all times during construction and shall be used as needed to contain and control any minor releases.
- The absorbent material shall be removed promptly and disposed of properly.
- Placement of as needed, minor amounts of fuel, lubricants, and hydraulic fluid for equipment operation in appropriate storage tanks on the bed of fueling vehicles.
- Location of bulk lubricating oil, hydraulic fluids, and other materials used for vehicle and equipment maintenance shall be stored at the main construction yard.
- Use of secondary containment and spill rags when fueling.
- Discourage "topping-off" fuel tanks.
- Spill kits for all fuel trucks and fueling areas.

All workers shall be trained on the specific procedures for hazardous materials and emergency response as an element of the required worker environmental training prior to working on the project site.

MM Hazards-2: Construction Fire Prevention Plan

PG&E shall prepare a Construction Fire Prevention Plan that addresses procedures for fire prevention at active construction sites. The Construction Fire Prevention Plan shall include requirements for carrying emergency fire suppression equipment, conducting "tailgate meetings" that cover fire safety discussions, restricting smoking, idling vehicles, and restricting construction during red flag warnings. The Construction Fire Prevention Plan shall address the following fire risk reduction measures:

- Training and briefing all personnel working on the project in fire prevention and suppression methods.
- Conducting a fire prevention discussion at each morning's safety meeting.
- Storage of prescribed fire tools and backpack pumps with water within 50 feet of work activities.
- Water sources including water storage tanks or water trucks that would be used in case of a fire.
- Assigning personnel to conduct a "fire watch" or "fire patrol" to ensure that risk mitigation and fire preparedness measures are implemented, immediate detection of a fire, and to coordinate with emergency response personnel in the event of a fire.

The Construction Fire Prevention Plan shall be submitted to the CPUC for review and approval at least 30 days prior to construction within the Northern Segment.

Hydrology and Water Quality

MM Hydrology-1: SWPPP Development and Implementation (Supersedes APM WQ-1)
A Qualified Stormwater Pollution and Prevention Plan (SWPPP) Developer (QSD) shall prepare a SWPPP for the project in accordance with the State Water Resources Control Board (SWRCB) Construction General Permit (CAS-2012-006-DWQ). The SWPPP shall address adequate procedures and standards required for specific project activities including, but not limited to, BMPs for erosion and sedimentation control; dewatering; hazardous materials identification, handling, storage, and disposal; and emergency response and cleanup. The SWPPP shall include an inspection and monitoring program that conforms to the requirements included in MM Hydrology-2. A QSD shall oversee implementation of the SWPPP and monitoring program. PG&E shall submit the SWPPP to the CPUC for review and comment no less than 30 days prior to construction. PG&E shall submit all filings, revisions, and Notices of Termination to the CPUC, as well as inspection reports, rain event action plans, and annual reports upon request. BMP materials identified in the SWPPP shall be stored and available on site prior to initiating ground-disturbing activities. All necessary erosion and sediment control BMPs shall be installed prior to conducting grading or vegetation clearing activities during the wet season and before the onset of any anticipated storm events. Temporary BMPs such as silt fences or wattles, which are intended to minimize sediment transport from temporarily disturbed areas, shall remain in place until disturbed areas have stabilized.

MM Hydrology-2: SWPPP Monitoring Program (Supersedes APM WQ-2)
SWPPP monitoring shall be completed by a Qualified SWPPP Practitioner (QSP) on a weekly basis during the construction period and at least once every 24 hours before, during, and after forecast rain events (any likely precipitation event forecast of 50 percent or greater probability). The purpose of the monitoring program shall be to ensure all BMPs described in the SWPPP are installed, maintained, and functioning adequately. Should any BMP failure be observed during monitoring, additional BMPs shall be implemented to prevent further erosion or sedimentation to downstream waters. A checklist form identified in the SWPPP shall be completed for each inspection by the QSP. The checklist forms shall be submitted to the CPUC with weekly monitoring reports. Annual reports prepared in accordance with the Construction General Permit shall also be submitted to the CPUC. The CPUC shall be notified within 24 hours of any BMP failures or discharge violations and provided with a description of corrective actions that have or will be implemented to resolve the issue. SWPPP monitoring shall occur until all project areas are sufficiently stabilized, as defined in the SWPPP. At a minimum, all disturbed areas must achieve 70 percent or greater vegetation cover and meet the Construction General Permit requirements for filing Notices of Termination to end SWPPP coverage and the associated BMP and monitoring requirements.

MM Hydrology-3: Dewatering Procedures (Supersedes APM WQ-3)
Groundwater extracted during construction dewatering shall not be discharged to any surface waters or storm drains. If dewatering is necessary, the water shall either be used (1) to irrigate upland areas, (2) for dust control, or (3) for other construction process (e.g., concrete production). Any groundwater that is suspected of contamination shall be tested at a state certified laboratory and shall be stored in a Baker Tank until water quality testing has been completed. Any contaminated groundwater encountered during dewatering shall be disposed of in accordance with all applicable laws and the procedures described in the SWPPP.

MM Hydrology-4: Watercourse Avoidance and Crossing Plan (Supersedes APM WQ-3 and APM BIO-3)

PG&E shall prepare a Seasonal Watercourse Avoidance and Crossing Plan that defines specific methods for (1) completely avoiding impacts on wetlands and streams, to the extent feasible, and (2) defining specific water quality impact minimization measures that would be implemented at each crossing location that cannot be fully avoided by construction activities.

PG&E shall submit the plan to the CPUC no less than 60 days prior to use of construction of surface water crossings or work within 50 feet of surface water resources. At a minimum, the plan shall provide the following information for each location where a wetland or watercourse is crossed by an access route or is within 50 feet of a work area:

- Available methods for complete avoidance (i.e., fencing, flagging, or alternative routes) or an explanation why complete avoidance is not feasible, where applicable.
- Proposed crossing methods.
- Anticipated impacts that cannot be avoided and anticipated permitting requirements for those impacts with an explanation why alternate crossing methods are not feasible.
- Methods that would be implemented to reduce water quality impacts, avoid inadvertent impacts on aquatic resources, and avoid direct impacts on potentially suitable aquatic habitat for CRLF and FYLF (refer to MM Biology-3). Methods could include restricting crossing to dry periods; installing temporary bridges; or placing fiber-glass mats, steel plates, or wooden beams to protect the feature.

PG&E shall obtain all necessary state and federal permits for impacts on waters of the state and/or US and supply copies of all permits to the CPUC prior to construction. PG&E shall comply with all applicable Nationwide Permit regional and general conditions for any impacts on waters subject to federal jurisdiction under the Clean Water Act. PG&E shall submit agency permits or verification documents and proof of compliance to the CPUC no less than 30 days prior to impacting waters of the state or US.

MM Hydrology-5: Culvert Design

PG&E shall design any repaired or replaced culverts to meet the standards outlined in the Sonoma County Flood Control Design Criteria. At a minimum, all culverts shall be designed to avoid any increase in flooding or erosion on adjacent stream banks or slopes. Design features shall be avoided that decrease water flow or impede the movement of aquatic wildlife. The culvert design shall be provided to Sonoma County for review, and any approvals shall be obtained prior to construction. Any Sonoma County comments or approvals for the culvert design shall be submitted to the CPUC for record keeping.

Noise

MM Noise-1: General Construction Noise

PG&E shall implement the following procedures for all construction activities:

- **Public Notice.** Noise-sensitive receptors (e.g., residences and officials for schools, places of worship, and parks) within 500 feet of work areas shall be provided written notice at least 7 days prior to beginning construction to inform them of the scheduled construction activities and potential noise disruptions. The notice shall describe procedures for submitting any noise complaints during construction, including a phone number for submitting such complaints.
- **Mufflers and Maintenance.** Construction equipment shall be properly equipped with feasible noise control devices (e.g., mufflers) and properly maintained in good working order.
- **Idling.** Vehicles and equipment shall only idle when necessary.
- **Stationary Equipment.** Stationary equipment (i.e., compressors and generators) shall be positioned as far away from sensitive receptors as practicable, and equipped with engine-housing enclosures.

- **Sensitive Periods.** To the extent practicable, construction activities that have a high likelihood of resulting in a noise nuisance for residents in the vicinity shall not be scheduled during sensitive morning or evening periods (7:00 am to 9:00 am, and 7:00 pm to 10:00 pm), to limit the potential for noise nuisance. Nighttime work between the hours of 10:00 pm and 7:00 am shall not occur, with the exception of installing and removing guard structures at the US 101 crossing.
- **Noise Complaints.** A Construction Noise Coordinator shall be designated to be responsible for responding to any local complaints about construction noise. The Construction Noise Coordinator shall determine the likely cause of the complaint and ensure that reasonable adjustments in the work activities are made to address the problem, to the extent possible. The phone number for noise complaints shall be clearly posted at key work areas in public locations, such as at the entrances to staging areas. Noise complaints shall be addressed within 1 week. PG&E shall provide monthly reports to CPUC that include a record of any complaints received with a description of the likely cause and how the complaint was resolved.

MM Noise-2: Schools

PG&E shall coordinate with school administrators for Mark West Elementary School and San Miguel Elementary School prior to helicopter activities within 500 feet to determine the schedule for noise-sensitive periods, defined as but not limited to instructional periods when school is in session. PG&E shall schedule helicopter activities, within these distances, when school is not in session (i.e., before or after instructional periods). PG&E shall provide CPUC with a summary of coordination efforts, including the names and contact information for school administrators who were consulted, the locations of noise-sensitive facilities, and the schedules used to determine the least disruptive timing for construction to occur.

Helicopter activities within 500 feet of noise-sensitive school facilities shall not occur during the school day, unless school administrators agree to shorter distances in writing.

MM Noise-3: Helicopter Activities

PG&E shall implement the following procedures for helicopter activities:

- **Public Notice.** Residences and places of worship (e.g., The Cove) within 500 feet from any location where helicopter activities may occur, including flight paths if applicable, shall be provided written notice at least 30 days prior to beginning helicopter activities to inform them of the schedule for helicopter use and potential noise disruptions. Methods for receptors to reduce noise in structures shall be included in the notice (i.e., closing doors and windows facing the alignment). The notice shall describe procedures for submitting any noise complaints during construction and provide a phone number for submitting such complaints, as required by MM Noise-1.
- **Flight Paths.** Helicopter flight paths shall be planned along routes that would result in the least noise exposure possible to receptors. If helicopter noise complaints are received, work crews will attempt to adjust the flight paths to reduce noise exposure to the complainant, without substantially increasing noise exposure to other receptors.
- **Helicopter Hovering.** Light/medium lift helicopters shall not operate closer than 50 feet from any receptors. Heavy lift helicopters shall not operate closer than 400 feet from receptors, unless actively working at pole locations along the alignment. Helicopters may operate closer than these distances if all affected receptors agree in writing to a shorter distance. Prior to reducing the minimum distance from receptors, PG&E shall provide the CPUC with the names, contact information, and written agreements for all affected persons within the applicable distances. The written agreements shall clearly identify the anticipated helicopter noise levels, daily schedule, and duration of helicopter activities in the vicinity.
- **Helicopter LZs.** Helicopter LZs within staging areas shall be positioned as far as possible from receptors. Helicopter LZs shall not be positioned closer than 500 feet from any receptor. Helicopter LZs for heavy lift helicopters shall not be positioned closer than 4,000 feet from schools. Helicopters may land closer than these distances if all affected receptors agree in writing to allow a shorter distance.

- **Helicopter Touch Down.** Helicopter touch down shall not occur in the Southern Segment or within 500 feet of receptors in the Northern Segment. Helicopter touch down may occur closer than these distances if all affected receptors agree in writing to allow a shorter distance.

Paleontological Resources

MM Paleontology-1: Paleontological Monitoring (Supersedes APM PAL-3)

Paleontological monitoring shall be required for all construction that involves cutting of previously undisturbed soils within geologic units with moderate to high paleontological sensitivity, as identified in Table 3.12-1. Paleontological monitoring shall be conducted by qualified paleontological monitors under the direction of a CPUC-approved, qualified paleontologist. The qualified paleontologist shall have a Master's or PhD in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques. Paleontological monitors shall have experience in the collection and salvage of fossil remains. At a minimum, spot-check monitoring shall occur during pole hole augering more than 3 feet in diameter (limited to TSPs) within qualifying geologic units until the maximum depth has been reached. The tailings from such pole hole augering shall be temporarily preserved in place until the paleontological monitor can inspect them for presence of paleontological resources.

Full-time monitoring shall be required during grading activities that are greater than 6 inches in depth in previously undisturbed areas, and greater than 2 feet in depth in previously disturbed areas (i.e., historically disked areas, etc.), or beyond the known depth of disturbance, in qualifying geologic units. If no paleontological resources are found after at least 50 percent of qualifying grading is completed at a work site, then full-time monitoring shall be reduced to spot-check monitoring at the discretion of the paleontologist with notification to the proponent's specialists and the CPUC.

If a potential paleontological resource is identified when the monitor is not present, the monitor shall be contacted immediately and work shall temporarily stop in the immediate area until the potential resource can be evaluated by the monitor per provisions in MM Paleontology-2.

Monitoring activities shall be documented in monitoring logs and reports, which shall include the activities observed, geology encountered, description of any paleontological resources encountered, and measures taken to protect or salvage discovered resources. Photographs and other supplemental information shall be included as necessary.

MM Paleontology-2: Previously Undiscovered Paleontological Resources (Supersedes APM PAL-1 and APM PAL-4)

In the event that a previously undiscovered paleontological resource is uncovered during project implementation, all ground-disturbing work within 50 feet of the discovery shall be halted and the paleontological resource specialist shall be immediately notified. A CPUC-approved, qualified paleontologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, the qualified paleontologist shall evaluate the resource and determine whether it meets the definition of "unique" under CEQA, Appendix G, Part V. If the resource is determined to be unique, a determination and associated plan for protection of the resource shall be provided to CPUC for review and approval. If the resource is determined not to be unique, work may commence in the area.

If the resource is determined to be a unique paleontological resource, work shall remain halted, and the qualified paleontologist shall consult with PG&E staff, CPUC staff, and the landowner regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts on paleontological resources and shall be required unless there are other equally effective methods. Other methods may be used but must ensure that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of the CPUC-approved,

qualified paleontologist. All recovered fossils shall be curated at an accredited and permanent scientific institution according to the 2010 Society of Vertebrate Paleontology standard guidelines, or as relevant at the time of project implementation. Work may commence upon completion of treatment, as approved by CPUC.

If a unique paleontological resource is discovered, a final summary report shall be completed and submitted to the CPUC. This report shall include discussions of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils. The report shall also include an itemized inventory of all collected and catalogued fossil specimens.

Recreation

MM Recreation-1: Trail Conditions and Repairs

PG&E shall prepare a Pre-Project Trail Condition Report prior to construction that documents the condition of designated trails located within project work areas or access routes. The Pre-Project Trail Condition Report shall be submitted to the CPUC no less than 30 days before construction.

PG&E shall repair all damage to trails (e.g., rutting) caused by construction vehicles and equipment by the completion of construction. PG&E shall prepare a Post-Project Trail Condition Report documenting the final state of all trails within project work areas and access routes. The Post-Project Trail Condition Report shall be submitted to the CPUC within 30 days of completing construction in each project segment. PG&E shall complete all trail repairs to the approval of the CPUC.

MM Recreation-2: Trail Detours and Notifications

PG&E shall provide temporary trail detours in regional parks, where feasible. Trail detours must be located on existing trails or unvegetated areas, and shall not be located where they could impact a sensitive biological and cultural resources. Trail detours may be placed along the perimeter of active work areas or through inactive work areas when it is safe to do so. Proposed trail detours within regional parks shall be agreed upon by the Sonoma County Regional Parks Department prior to implementation.

Signs shall be posted at park and trail entrances to inform park users of construction activities that may be encountered, such as vehicles and equipment on trails, excavations, and helicopter activities. The signs shall include a map of trail closures, trail detours, and construction areas to avoid.

Transportation

MM Traffic-1: Construction Traffic Management[3]
Construction Traffic. ~~Construction traffic shall be routed around roadways and intersections that are currently operating below LOS standards t~~To the greatest extent possible,~~ including the intersection at Faught Road and Old Redwood Highway. C~~ construction traffic through the intersection at Faught Road and Old Redwood Highway shall be avoided by using Airport Boulevard and alternate local roads to access the project alignment. Construction traffic through the intersection shall be limited to an absolute minimum~~ and shall not exceed 10 vehicle trips during weekday peak commute periods (7:00 am to 9:00 am, and 4:00 pm to 6:00 pm)~~. **Lane and Road Closures.** Lane closures shall be limited to the minimum number necessary. Guard structures shall be installed to prevent lane closures where possible. At least one lane must remain open on all roadways unless full road closures are necessary for safety purposes or to complete a short-term construction activity. Full road closures shall not occur frequently or last for more than a few ~~minutes~~ days at a time. ~~Lane closures in the Southern Segment shall not occur during weekday peak commute periods (7:00 am to 9:00 am, and 4:00 pm to 6:00 pm). In addition, lane closures shall not occur on Lavell Road and Faught Road during pickup times at San Miguel Elementary School and Mark West Elementary School (1:00 pm to 3:45 pm Monday, Tuesday, Thursday, and Friday, and 12:15 pm to 1:45 pm Wednesdays when school is in session).~~ ~~Should a lane closure be unavoidable during peak commute hours or school commute hours, a traffic model shall be run to demonstrate that the lane closure and detour routes do not cause a significant impact to LOS, as defined in this traffic analysis. If modeling shows that significant impacts to LOS could occur, other measures shall be incorporated and remodeled to demonstrate less than significant impacts, or the closure shall be limited to off-peak and off-school-commute hours.~~ Access shall be maintained to driveways, residential communities, and parking lots. Guard structures shall be installed if overhead reconductoring activities would affect access for more than 15 minutes per day. **Detour Routes.** Detour routes shall be selected in coordination with Caltrans and Sonoma County when encroachment permits are obtained. ~~Traffic detours shall not divert existing traffic volume that would cause roadway or intersection LOS to drop below acceptable standards (LOS D for roadways and LOS F for intersections).~~ Safe detour routes shall be provided for pedestrians and cyclists along lane closures, and where traffic control occurs. Barriers shall be installed between the pathway and vehicle traffic, if necessary, to provide a safe clearance from traffic. **Encroachment Permits.** PG&E shall obtain encroachment permits from Caltrans prior to working within the US 101 ROW and from Sonoma County prior to working within the Sonoma County ROW. PG&E shall provide the CPUC with all encroachment permits obtained from Caltrans and Sonoma County prior to work in the State or County ROW. Any modified or updated encroachment permits shall also be provided to the CPUC.

[3] MM Traffic-1 was revised as described in the impact discussion for Transportation in the 2019 Supplemental MND.

MM Traffic-2: Overhead Construction Safety
Guard structures shall be installed where necessary and feasible during reconductoring activities. Alternatively, flaggers may be positioned to maintain public access. If public access cannot safely continue during overhead activities, PG&E shall clearly mark the unsafe area with signs and flagging to keep the public from accessing the area. If access to properties must be closed during overhead activities or residences must be temporarily evacuated during helicopter activities in the Southern Segment, PG&E shall coordinate the timing of construction activities with the affected property owners and residents.

MM Traffic-3: Roadway Damage
PG&E shall conduct a Pre-Construction Road Condition Assessment along public roadways where construction would occur, heavy equipment would travel frequently, and at the entrances of all staging areas to document any existing roadway damage to the asphalt or concrete curbs. PG&E shall submit photos and coordinates of any existing roadway damage to the CPUC, Caltrans, and Sonoma County no less than 30 days prior to construction. If roadways are damaged by construction activities, the damaged area(s) shall be documented and repaired no more than 60 days following construction activities. If the damage could cause a substantial traffic hazard, the location shall be marked appropriately and repaired within 48 hours. Any roadway damages shall be repaired to pre-project conditions and following applicable Caltrans and Sonoma County repair standards.

MM Traffic-4: Emergency Access
PG&E shall notify local emergency service providers (i.e., local fire districts, law enforcement offices, hospitals, and ambulance and paramedic services) no less than 1 week before construction activities and provide the locations of roadway segments where lane closures and detour routes may occur. The notice shall also identify the approximate timing and duration of lane closures and detour routes that may affect traffic and emergency access.

MM Traffic-5: Public Transit
PG&E shall notify Sonoma County Transit (SCT) no less than 30 days before construction in the Southern Segment and identify roadway segments where bus routes and bus stops are located that may be affected during construction. The notice shall identify the approximate timing and duration that each bus stop may be affected. If necessary, bus stops shall be temporarily relocated or buses shall be rerouted until construction affecting the bus stop is complete, as determined through coordination with SCT. PG&E shall ensure signs are posted at affected bus stop no less than 7 days before bus stop closures. The signs shall provide information on the closest alternate bus stop for the route and the scheduled duration of relocation.

FINDINGS

The IS was prepared to identify the potential impacts on the environment from construction and operation of the PG&E Fulton-Fitch Mountain Reconductoring Project (Application No. A.15-12-005/PFM of Decision No. D.17-12-012), and to evaluate the significance of these impacts. Based on the IS and the Findings listed below, the CPUC (Lead Agency) has determined that the approved project with the proposed modifications would not have a significant effect on the environment.

- With the implementation of the incorporated APMs and MMs, the approved project with the proposed modifications would not significantly degrade the quality of the environment.
- With the implementation of the above MMs, both short-term and long-term environmental impacts associated with the approved project with the proposed modifications would be less than significant.
- When potential impacts associated with implementing the approved project with the proposed modifications are considered cumulatively, the incremental contribution of the project-related impacts is insignificant.
- Based on the IS, there is no evidence that implementing the approved project with the proposed modifications would have significant impacts on people.

Signature pending final document

Lisa Orsaba, Project Manager
Energy Division
California Public Utilities Commission

Date

ENVIRONMENTAL DETERMINATION

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the proposed project (Application 15-12-005) with the proposed modifications (Petition for Modification of Decision 17-12-012), involving at least one impact that is potentially significant but can be reduced to "less than significant with implementation of mitigation" as indicated by the checklist on the following pages:

☒ Aesthetics	☒ Agriculture and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural and Tribal Cultural Resources	☐ Energy
☒ Geology, Soils, and Paleontological Resources	☐ Mineral Resources	☐ Greenhouse Gas Emissions
☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality	☐ Land Use and Planning
☒ Noise	☐ Population and Housing	☒ Recreation
☒ Transportation	☒ Utilities and Public Services	☒ Wildfire
☒ Mandatory Findings of Significance		

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 revisions in the project have been made by or agreed to by the applicant. 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 (EIR) is required.	☐
I find that the proposed project MAY have a "potentially significant impact" or "potentially significant impact unless mitigated" 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, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An EIR 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 pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	☐

Signature pending final document

Lisa Orsaba, Project Manager
Energy Division
California Public Utilities Commission

Date

1 INTRODUCTION

1.1 BACKGROUND

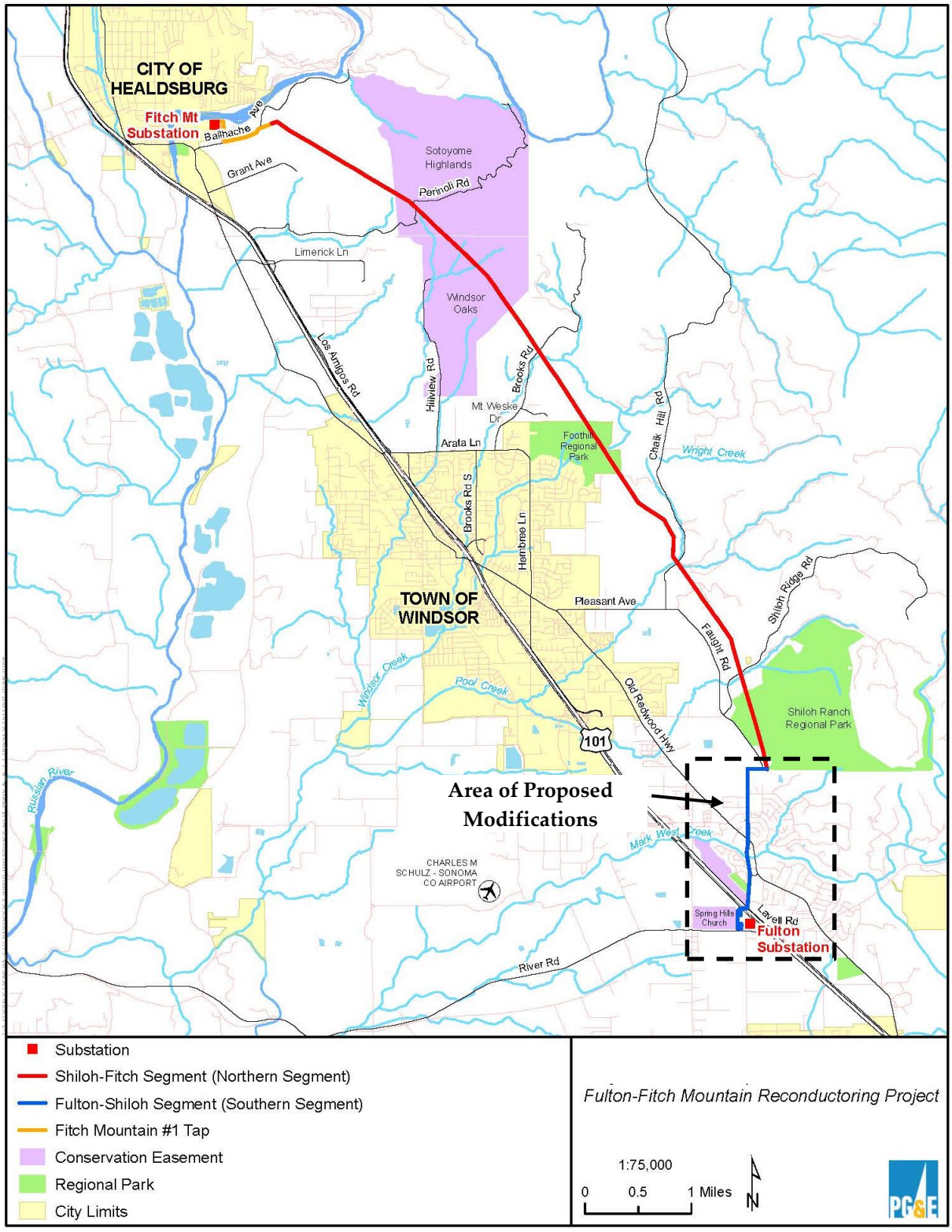
Pursuant to the California Environmental Quality Act (CEQA), the California Public Utilities Commission (CPUC) prepared an Initial Study/Mitigated Negative Declaration (IS/MND) for Pacific Gas and Electric Company's (PG&E's) Fulton-Fitch Mountain Reconductoring Project (Application A. 15-12-005). On December 18, 2017, the CPUC issued a decision to adopt the Final IS/MND (2017 Final MND) and grant PG&E a Permit to Construct the project (Decision 17-12-012). Figure 1.1-1 shows the Fulton-Fitch Mountain Project alignment.

On June 29, 2018, PG&E submitted a Petition for Modification (PFM) in accordance with Rule 16.4 of the CPUC's Rules of Practice and Procedure in which PG&E proposes to make changes to the Southern Segment of the approved project located within the community of Larkfield-Wikiup. The PFM must be approved by the CPUC in order to implement the proposed project changes.

Following the CPUC's approval of the proposed project, PG&E identified corrosion on the cross-arms of tubular steel poles (TSPs) in the Southern Segment that could potentially cause cross-arm failure during reconductoring activities. To address the risk of cross-arm failure during reconductoring, PG&E proposes to replace 21 existing TSPs in the Southern Segment of the project that support the Fulton-Hopland 60-kilovolt (kV) Power Line (Fulton-Hopland Line), Geysers #12-Fulton 230-kV Transmission Line (Geysers #12-Fulton Line), and Geysers #17-Fulton 230-kV Transmission Line (Geysers #17-Fulton Line), rather than reconductoring on the existing TSPs.

The approved project includes reconductoring and pole replacement in the Northern Segment (8.1 miles), reconductoring and limited pole replacement in the Southern Segment (1.8 miles) and modifying Fitch Mountain Substation. Approval of PG&E's PFM would increase pole replacement in the Southern Segment.

Figure 1.1-1 Project Overview Map and Area of Proposed Modification



Source: (PG&E, 2018a)

1.2 CEQA COMPLIANCE

PG&E's PFM includes proposed changes to the approved project described in the 2017 Final MND, the scope of which requires the CPUC to conduct additional CEQA review before issuing a decision to approve or deny PG&E's PFM. Title 14 of the California Code of Regulations (CCR), Sections 15162 and 15163 describe subsequent environmental impact reports (EIRs) and negative declarations (NDs)/mitigated negative declarations (MNDs) requirements.

> **§ 15162. SUBSEQUENT EIRS AND NEGATIVE DECLARATIONS**
>
> (a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:
>
> (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
>
> (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
>
> (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
>
> (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
>
> (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
>
> (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
>
> (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

(b) If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent EIR if required under subdivision (a). Otherwise the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.

(c) Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project is approved, any of the conditions described in subdivision (a) occurs, a subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent negative declaration adopted.

(d) A subsequent EIR or subsequent negative declaration shall be given the same notice and public review as required under Section 15087 or Section 15072. A subsequent EIR or negative declaration shall state where the previous document is available and can be reviewed.

§ 15163. SUPPLEMENT TO AN EIR[1]

(a) The Lead or Responsible Agency may choose to prepare a supplement to an EIR rather than a subsequent EIR if:

(1) Any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and

(2) Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.

(b) The supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised.

(c) A supplement to an EIR shall be given the same kind of notice and public review as is given to a draft EIR under Section 15087.

(d) A supplement to an EIR may be circulated by itself without recirculating the previous draft or final EIR.

(e) When the agency decides whether to approve the project, the decision-making body shall consider the previous EIR as revised by the supplemental EIR. A finding under Section 15091 shall be made for each significant effect shown in the previous EIR as revised.

[1] In general practice, these conditions also apply to the preparation of a supplement to an MND.

The CPUC has determined a Supplemental IS/MND (Supplemental MND) to the previously adopted 2017 Final MND is the appropriate type of CEQA review for PG&E's PFM for the following reasons:

- The proposed changes would not involve new significant environmental effects.
- The proposed changes would only result in minor increases in the severity of previously identified significant effects.
- The changes would not result in a new or substantially greater impact.
- All potentially significant impacts would remain less than significant after application of mitigation measures (MM).
- Only minor changes are needed to make the 2017 Final MND adequate, and thus a subsequent MND is not necessary because:
  - The same types of project activities involved with TSP replacement were previously described in 2017 Final MND for the Southern Segment and/or the Northern Segment.
  - The project alignment and study area would remain the same.
  - Existing TSPs would be replaced with similar, but slightly taller (up to 20 feet) TSPs within approximately 15 to 35 feet of their existing locations.
  - Construction work areas and temporary impacts would be similar and would occur in the same areas.

This Supplemental MND was prepared to meet the requirements described in the CEQA Guidelines. The analysis in this Supplemental MND compares the impacts of the proposed changes to those of the project as previously approved. Only information necessary to make the 2017 Final MND adequate is included, pursuant to 14 CCR § 15163(b). The same kind of notice and public review opportunity is being provided under 14 CCR § 15087 as for the 2017 Draft MND.

Since the Notice of Intent (NOI) was filed for the project, the CEQA Statute and Guidelines have been updated. The current 2019 CEQA Statute and Guidelines include numerous changes to the Appendix G checklist questions that were used to evaluate impacts in the 2017 Final MND (AEP, 2019). The most substantial changes relate to guidance regarding energy, transportation, utilities and service systems, and wildfire. Where necessary, new guidance on these topics has been incorporated into the discussion and analysis presented in Section 3.

1.3 PUBLIC REVIEW AND COMMENTS

Pursuant to 14 CCR § 15087, this Draft Supplemental IS/MND will be circulated for a 30-day public review and comment period from June 15 to July 15, 2019. During this period, interested parties may submit written comments regarding the proposed modifications and the adequacy of the Draft Supplemental IS/MND. Comments should be submitted via email, U.S. mail, or fax to the following:

Email:	fulton2fitch@panoramaenv.com
U.S. Mail:	California Public Utilities Commission Attn: Fulton-Fitch Mountain Reconductoring Project c/o Panorama Environmental, Inc. 717 Market Street, Suite 650 San Francisco, CA 94103
Fax:	(650) 373-1211

Comments received or postmarked by the close of the comment period on July 15, 2019 will be addressed when preparing the Final Supplemental IS/MND**.** The CPUC will not consider anonymous comments. The CPUC will honor requests for confidentiality to the extent allowed by law. Such requests should be clearly stated at the beginning of the comment. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be publicly disclosed in their entirety.

The CPUC will hold a public meeting to help interested parties understand PG&E's proposed modifications, the findings presented in the Draft Supplemental IS/MND, and how to participate in the CPUC's decision-making process. Written comments may be submitted in person during the meeting. The anticipated meeting schedule and location are provided below:

Schedule:	Tuesday, June 18, 2019; 6:30 p.m. to 8:00 p.m.
Location:	San Miguel Elementary School, Multipurpose Room 5350 Faught Road, Santa Rosa, CA 95403

Please check the project website for current information about the public review period and meeting schedule: https://www.cpuc.ca.gov/environment/info/panoramaenv/Fulton-Fitch/Fulton-Fitch.html

2 DESCRIPTION OF PROPOSED MODIFICATIONS

2.1 OVERVIEW

The area of proposed modifications to the project is located along the Southern Segment identified in the 2017 Final MND (Figure 2.2-1 and Figure 2.2-1). Proposed project modifications in the Southern Segment include changes to the description of approved project components and construction activities. No modifications are proposed in the Northern Segment. The actions described for reconductoring of the Northern Segment presented in the 2017 Final MND remain unchanged. No additional permits and approvals are anticipated, and no modifications to operation and maintenance are proposed.

2.2 PROJECT COMPONENTS

2.2.1 Conductor

The conductor that would be used for the Southern Segment is described in Section 2.5.1 of the 2017 Final MND. The approved project includes replacing existing conductor in the Southern Segment, including 1.8 miles of 60-kV conductor for the Fulton-Hopland line and 1.4 miles of 230-kV conductor for the Geyser #12-Fulton line that are collocated on existing TSPs. Conductor for the 230-kV Geyser #17-Fulton line would be left in place.

The proposed modifications would include replacing 21 existing TSPs that support the Fulton-Hopland line and Geysers-Fulton lines. Reconductoring of the Fulton-Hopland line would proceed. Reconductoring the full 1.4-mile length of the Geysers-Fulton #12 line would no longer be needed due to sufficient clearance provided by the new poles. Instead, existing conductor for the Geyser #12-Fulton line and Geyser #17-Fulton line would be transferred to the new poles, except along a 400-foot section that crosses United States (US) Highway 101 (US 101) where conductor would be replaced as a safety measure to avoid conductor splices across US 101. Proposed modifications to reconductoring in the Southern Segment are summarized in Table 2.2-1.

Minor changes are proposed for the type of new 60-kV conductor that would be installed for the Fulton-Hopland line. The 2017 Final MND states that the existing 4/0 aluminum would be replaced with a combination of 477 kcmil[2] aluminum composite steel-supported (ACSS) and 477 kcmil aluminum conductor composite reinforced. Because the new TSPs provide additional

[2] 1,000 circular mils

clearance, the existing 60-kV conductors would be replaced entirely with new 477 ACSS conductor.

Table 2.2-1 Comparison of Approved and Proposed Conductor Modifications

Segment	Existing Lines	Voltage (kV)	Approved Length Reconductored	Proposed Modification Length Reconductored	Proposed Modification Transferred
Southern Segment (1.8 miles)	Fulton-Hopland	60	1.8 miles	1.8 miles	--
	Geysers #12-Fulton	230	1.4 miles	400 feet	1.3 miles
	Geysers #17-Fulton	230	--	400 feet	1.3 miles

Source: (TRC, 2018; Revised 2019)

Minor changes are also proposed for the type of new 230-kV conductor that would be installed for the Geysers-Fulton lines. Where the 400-foot section of 230-kV conductor would be replaced over US 101 (between Pole 8 and Pole 7a/7b), the existing bundled 113 kcmil all-aluminum conductor (AAC) would be replaced with single-strand 945 kcmil ACSS. All other existing 230-kV conductor in the Southern Segment (also bundled 113 kcmil AAC) would not be replaced (between Pole 8 and Pole 23); it would be transferred to the new poles.

2.2.2 Poles

The existing 60-kV and 230-kV lines in the Southern Segment are installed on 21 poles, including 15 single-shaft TSPs and 3 hairpin structures consisting of two individual TSPs joined at the top. The three hairpin structures are Pole 8, located on the east side of US 101; Pole 13, located north of Mark West Creek; and Pole 21, located north of Faught Road where the alignment changes direction at a right angle. Existing pole locations and pole types in the Southern Segment are shown on Figure 2.2-1 and Figure 2.2-2, and on the detail maps in Appendix A.

In the approved project, the existing poles in the Southern Segment would be used to support the new conductor. Pole inspections were performed ahead of construction in early 2018 and revealed some degradation in the cross-arms due to interior corrosion in the connection compartments and weldments. While PG&E determined that the poles are safe and compliant with CPUC General Order (GO) 95 for their existing uses, the cross-arms may not withstand the force of tension involved with reconductoring. PG&E's engineers recommended that all 21 TSPs in the Southern Segment be replaced in order to safely reconductor the line.

The 21 existing TSPs would be replaced at a 1:1 ratio. Both TSPs used for hairpin structures would be replaced with single-shaft TSPs; the replacement poles would not be joined at the top as they are now. The configuration of conductor on the new TSPs would remain the same, except at the three hairpin structure locations where conductor would be arranged on the two separated structures. At the hairpin structure locations, the 230-kV conductor for the Geysers-Fulton #12 line would be arranged vertically on the northern- or western-most poles,

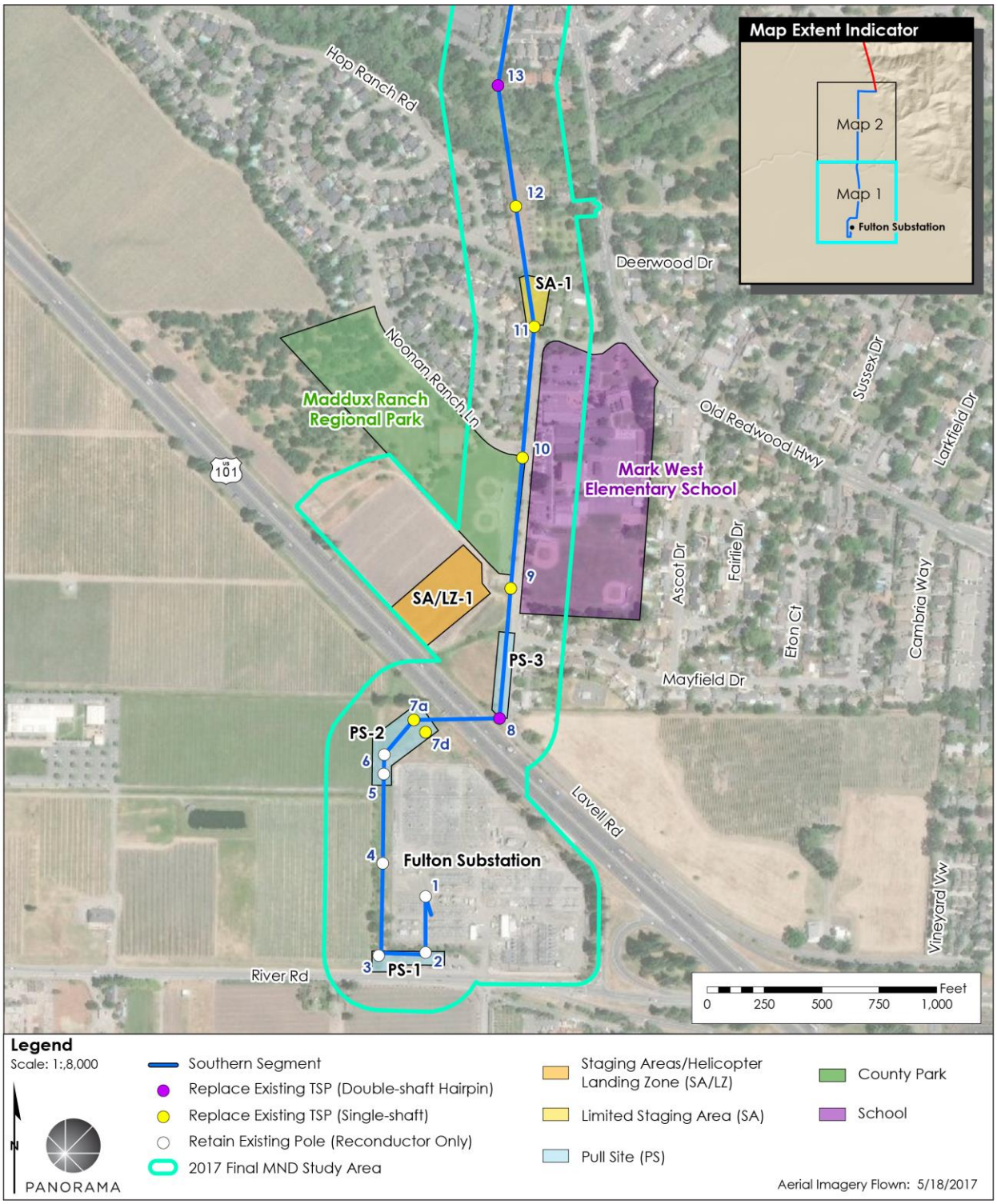
and the 230-kV conductor for the Geysers-Fulton #12 line would be arranged vertically on the southern- or eastern-most poles. Two of the three 60-kV conductor would be arranged vertically below the Geysers-Fulton #12 line and the third would be arranged below the Geysers-Fulton #17 line. The configuration changes would not result in new clearance issues. Insulators that connect the conductor to the poles would also be replaced. Existing ceramic insulators would be replaced with new green glass insulators, which are the same type of conductor described for the Northern Segment. Diagrams of typical TSPs are shown on Figure 2.2-3. An example of proposed pole replacement (Pole 21, a single-shaft TSP, and Pole 20, a hairpin structures) as well as conductor arrangements, are shown on Figure 2.2-4.

New poles would be installed approximately 15 to 35 feet from the existing pole locations and in line with the existing conductor. Single-shaft TSPs would be installed along straight portions of the alignment and two separated single-shaft poles would be installed where the alignment changes direction (the three hairpin structures) (refer to Figure 2.2-4). General pole locations in the Southern Segment are shown on Figure 2.2-1. Detailed maps showing the anticipated locations of proposed poles are provided in Appendix A.

The heights of existing TSPs that would be replaced in the Southern Segment range from approximately 126 to 136 feet. Cross-arms that support the 230-kV conductor are approximately 14 feet long. Cross-arms that support the 60-kV conductor on the existing poles are approximately 7 feet long. Replacement TSPs would be approximately 3 to 4 feet wide at the base and 1 to 2 feet wide at the top, and range in height from approximately 135 to 145 feet. The new poles would be up to approximately 20 feet taller. The length of cross-arms on the new poles would be approximately the same as the existing poles. New TSPs would have a dull, galvanized steel surface.

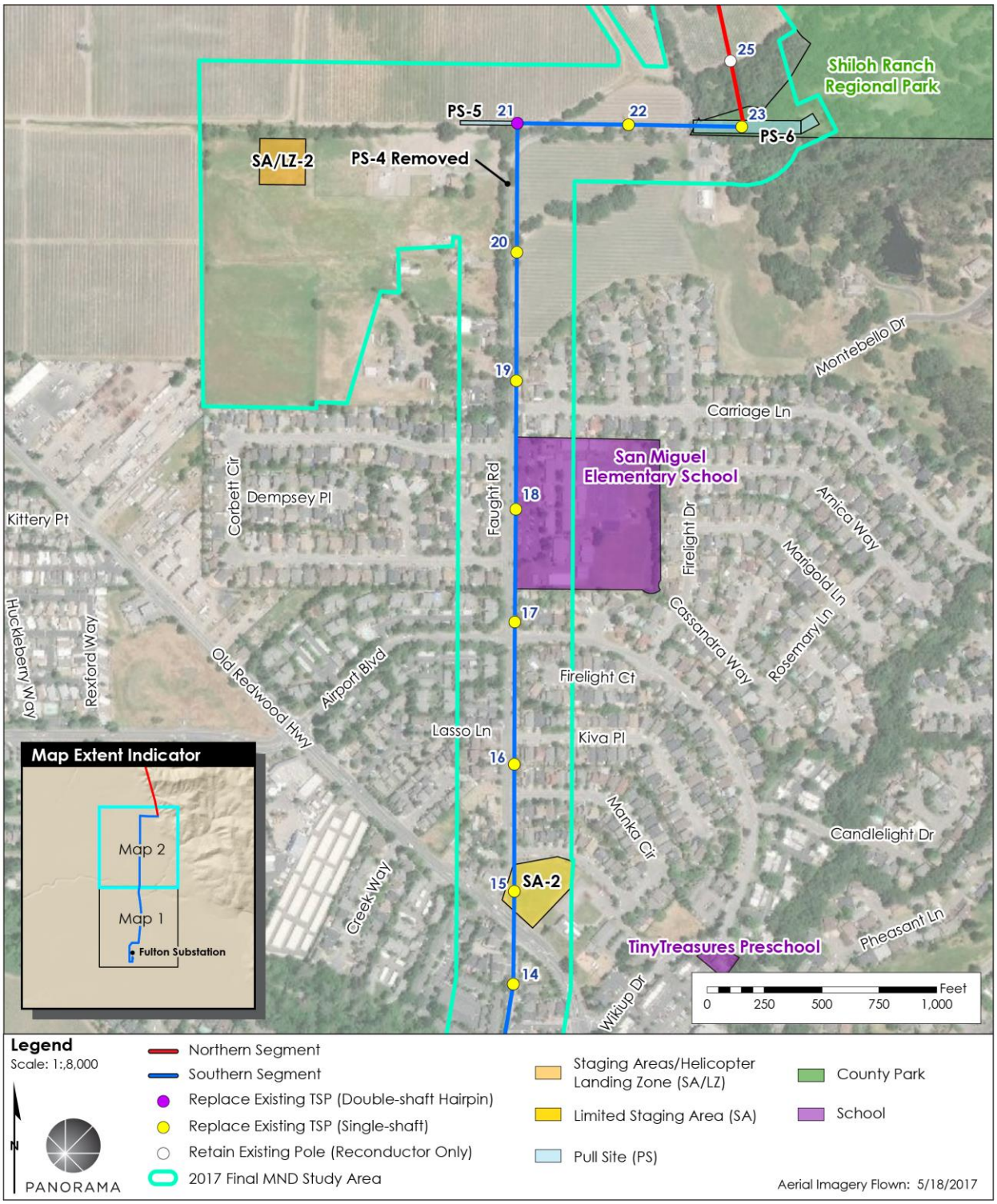
New TSPs would be installed on concrete pier foundations, similar to the existing TSPs, and would measure approximately 5 to 7 feet in diameter (40 square feet) and 20 to 30 feet in depth, with 1 to 2 feet extending aboveground. The foundations of existing TSPs would be removed to an approximately 3-foot depth and the resulting hole would be backfilled. Existing guy supports would generally be removed and new poles would be free standing; however, guy supports may be replaced or installed if necessary. Any guy supports would be similar to those currently located in the Southern Segment. The approved project included relocation of two wood poles for a 12-kV distribution line and lowering or removing two streetlights along Faught Road (between Manka Circle and El Mercado Parkways) to meet GO 95 clearance requirements. Relocation and replacement of these structures would no longer be necessary because the new TSPs would provide adequate clearance.

Figure 2.2-1 Proposed Modifications in the Southern Segment (1 of 2)



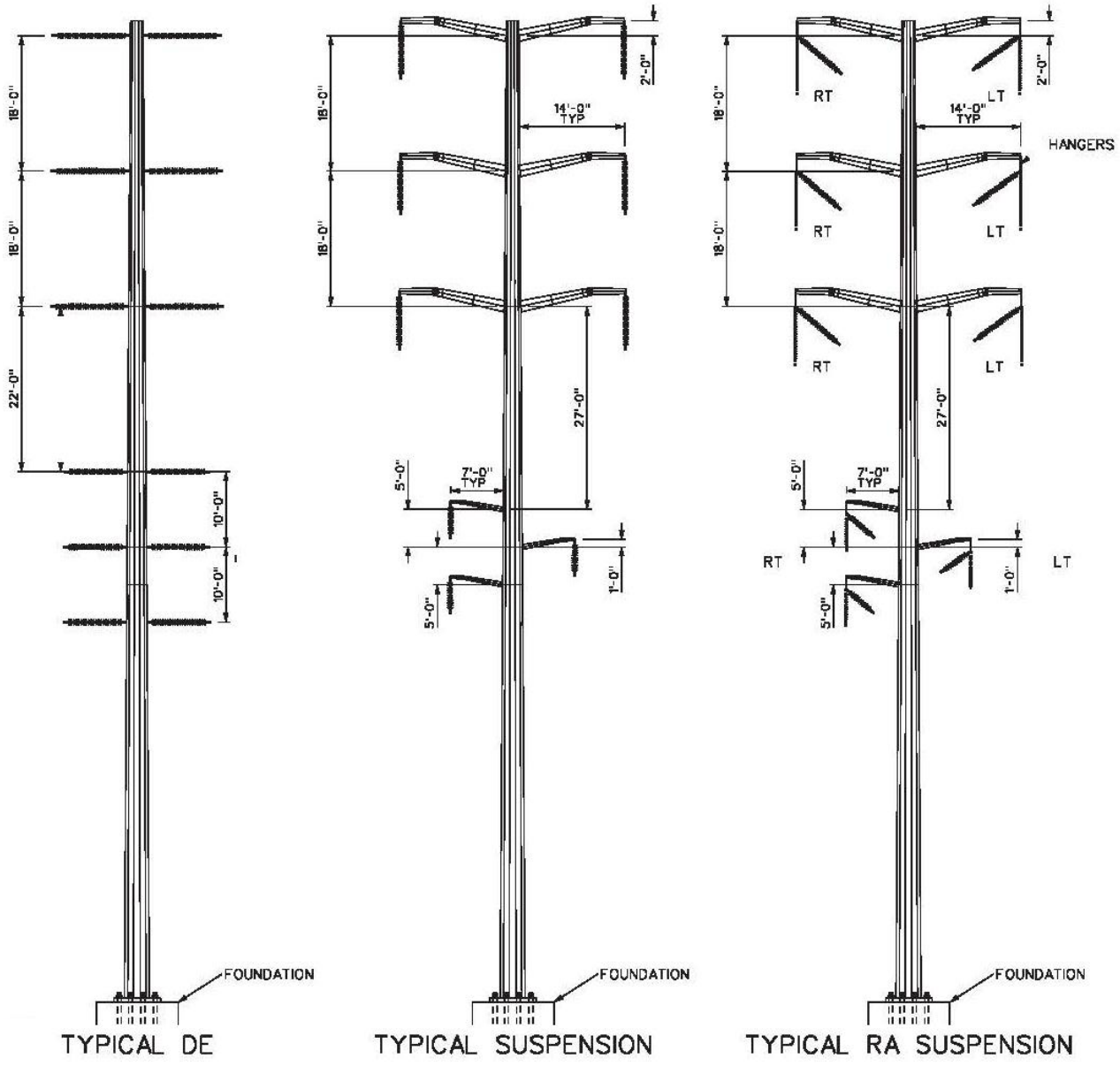
Sources: (DigitalGlobe, 2017; County of Sonoma GIS Central, City of Santa Rosa, Merrick & Company, 2001; PG&E, 2018b)

Figure 2.2-2 Proposed Modifications in the Southern Segment (2 of 2)



Sources: (DigitalGlobe, 2017; County of Sonoma GIS Central, City of Santa Rosa, Merrick & Company, 2001; PG&E, 2018b)

Figure 2.2-3 Typical Tubular Steel Pole Diagrams



Source: (TRC, 2018; Revised 2019)

Figure 2.2-4 Example of Proposed TSP Replacement at Poles 21 and 22

Existing Conditions

Existing Pole 22 in the foreground is one of 15 single shaft TSPs. Existing Pole 21 in the background is one of three hairpin structures comprised of two TSPs joined at the top.

Proposed Conditions (Visual Simulation)

Single shaft TSPs like Pole 22 would be replaced with similar single shaft TSPs. Hairpin structures like Pole 21 would be replaced with two separated TSPs.

Sources: (TRC, 2018; Revised 2019; Environmental Vision, 2018)

2.2.3 Substations

No additional substation modifications are proposed.

2.3 CONSTRUCTION

2.3.1 Overview

Construction activities for the proposed modifications would be similar to those described for the approved project in Section 2.6 of the 2017 Final MND. Replacing the existing TSPs instead of reusing them would increase the overall intensity and duration of construction activities in the Southern Segment. The types of construction activities, procedures, and equipment would be generally the same as those described for the approved project, including pole replacement, TSP installation, conductor replacement, and conductor transfer.

2.3.2 Work Areas and Access

Overview

The proposed modifications would be constructed using largely the same temporary work areas and access routes identified in the 2017 Final MND, with minor changes to account for new pole locations and reduced reconductoring activities. Temporary work areas and access routes are entirely within the project study area evaluated in the 2017 Final MND.

PG&E Easements and Access Rights

Easements and access rights for the approved project are described in Section 2.6.2 of the 2017 Final MND. PG&E has existing easements and access rights along the Southern Segment, but they may need to be updated or modified to reflect pole location adjustments. As stated in the 2017 Final MND, any easement updates or modifications that may be needed would be pursued by PG&E through landowner agreements. Any land rights issues would be resolved in subsequent negotiations following the CPUC's decision regarding PG&E's PFM.

Ground Access

Ground access for the approved project is described in Section 2.6.2 of the 2017 Final MND. Access to perform the proposed modifications would remain the same, with one minor adjustment where an existing unpaved road would be used to access Pole 22. A temporary gate would be installed in a vineyard fence at the corner of Faught Road to provide direct access to the pole, which is located within 10 feet of the road and adjacent to Pole 21 (refer to the detail maps provided in Appendix A). At this location, a temporary bridge would be installed over an existing culvert to provide direct access to Pole 21 from Faught Road. Following project construction, the fence would be repaired in coordination with the landowner.

Helicopter Access

Helicopter use and access for the approved project is described in Section 2.6.2 of the 2017 Final MND. Limited helicopter use was described in the Southern Segment, including the use of one light-lift helicopter for approximately 3 hours on 2 days to reach poles and mid-span locations that pose ground access challenges, such as at Poles 8, 9, 12, 13, 19, 20, and 21.

Helicopter access for the proposed modifications would only be needed at Poles 21, 22, and 23 to support pole replacement. One light-lift helicopter would be used to transport workers and materials between nearby landing zones (LZs) (i.e., LZ-2 or LZ-3) and the poles. The helicopter would be used for approximately 6 hours a day for 12 days[3]. For each day of use, the helicopter would make approximately 8 trips to transport workers and 42 trips to transport materials (approximately 50 trips per day). Each trip would take a few minutes. Helicopters would hover above poles and the LZ for approximately 1 to 2 minutes. As with the approved project,

[3] PG&E's original proposal to use a heavy-lift helicopter described in the Supplemental PEA was withdrawn (PG&E, 2018b).

helicopter operation for the proposed modifications would occur near residences, roads, and parks. All Federal Aviation Administration rules and restrictions governing helicopter use would be followed as required by law to ensure public safety.

Pole Work Areas

New poles would be installed within approximately 15 to 35 feet of existing poles. Pole work areas and existing pole locations in the Southern Segment are described in Section 2.6.2 of the 2017 Final MND. Pole replacement for the proposed modifications would utilize the same 0.4 acre work areas described at existing poles for the approved project, as well as approximately 0.4-acre work areas at new pole locations. Existing and proposed pole work areas would overlap. As described for the approved project, all vegetation and the entire ground surface within pole work areas could potentially be disturbed during construction. Vegetation and trees that cannot be avoided would be trimmed or removed to establish access and sufficient workspace.

Pull Sites

Pull sites (PSs) in the Southern Segment are described in Section 2.6.2 of the 2017 Final MND. The PSs identified in the 2017 Final MND would be used for the proposed modifications, except PS-4 would no longer be needed for reconductoring the 230-kV line because the existing 230-kV conductor would be transferred to the new poles rather than replaced. In addition to supporting reconductoring activities, PS-6 located in Shiloh Ranch Regional Park, would be modified into a crane pad to facilitate replacement of Pole 23. A grading plan for PS-6 is provided in Appendix A.

Mid-Span Work Areas

The proposed modifications would include the same mid-span work areas described in Section 2.6.2 of the 2017 Final MND to facilitate guard structure installation, spacer access, and splice reinforcement, where necessary. No changes to mid-span work areas are proposed.

Vegetation Disturbance

The proposed modifications would involve clearing vegetation from access routes and work areas in the Southern Segment, where necessary, as described in Section 2.6.2 of the 2017 Final MND. A wide range of potential vegetation disturbance was considered for the approved project (up to approximately 73.2 acres, depending on final workspace boundaries), as summarized in Table 2.6-6 of the 2017 Final MND. Work areas and access routes for the proposed modifications would be similar to the approved project with some minor changes and additions where new poles would be located. The proposed modifications would result in some additional vegetation clearance in the Southern Segment where pole work areas would be expanded to encompass the new pole locations, and to accommodate access for increased construction activities associated with pole replacement. Although the proposed modifications would increase vegetation clearance at some locations, estimates for the range of total project vegetation disturbance would remain the same.

Ground Disturbance

Ground disturbance for the approved project is described in Section 2.6.2 of the 2017 Final MND. A wide range of potential ground disturbance was considered for the approved project (up to approximately 117.4 acres, depending on final workspace boundaries), as summarized in Table 2.6-6 of the 2017 Final MND. Like vegetation disturbance, the proposed modifications would result in some additional ground disturbance in the Southern Segment where pole work areas would be expanded to encompass the new pole locations, and to accommodate access for increased construction activities associated with pole replacement. Although the proposed modifications would increase ground disturbance in some locations, estimates for the range of total project ground disturbance would remain the same.

Estimated cut-and-fill volumes for the approved project were up to 21,950 cubic yards of material, as listed in Table 2.6-6 of the 2017 Final MND. The proposed modifications would increase estimated cut-and-fill volumes for the project due to the development of PS-6 into a crane pad (refer to the grading plan in Appendix A) and the installation of 21 TSP foundations in the Southern Segment. Estimated cut-and-fill volumes for constructing the proposed modifications are listed in Table 2.3-1. If necessary, material removed during TSP foundation excavation may be used as fill material to stabilize work areas and access roads, such as at PS-6.

Table 2.3-1 Estimated Cut-and-Fill Volumes for the Proposed Modifications

Location	Cut (cubic yards)	Fill (cubic yards)	Net (cubic yards)
PS-6 (crane pad development)	400	400	0
Proposed TSP Foundations (21)	2,750	300	2,450
Total	**3,150**	**700**	**2,450**

Source: (PG&E, 2018b)

2.3.3 Site Development

Site development for the approved project is described in Section 2.6.3 of the 2017 Final MND. Procedures described for surveying, vegetation clearing, grading and blading, and stabilizing working surfaces would remain the same as the approved project for the proposed modifications. As described previously, additional grading would be required at PS-6 to develop the workspace into a crane pad in order to replace Pole 23 (refer to the grading plan in Appendix A).

Construction of the proposed modifications would require one additional watercourse crossing. A temporary bridge would be installed over an existing culvert along a seasonal watercourse to facilitate direct access to Pole 21 from Faught Road for large trucks and equipment. Establishment of this new access route would reduce the number of vehicles traveling through an active vineyard. All other watercourses in the Southern Segment would be completely avoided.

2.3.4 Pole Replacement

Overview

Pole replacement for the approved project is described in Section 2.6.4 of the 2017 Final MND. Additional pole replacement details and procedures for the proposed modifications are described below. Pole replacement for the proposed modifications would include installing new poles adjacent to existing poles, transferring conductor to the new poles, and removing the old poles.

Pole Installation

Initial surveys in the Southern Segment indicated underground utilities are located within 2.7 to 38.5 feet from proposed pole locations, including electrical lines, gas pipelines, storm drains (including storm drain manholes and inlets), telephone lines, water lines, and sanitary sewers (PG&E Applied Technology Services, 2019). Pole installation in the Southern Segment would begin with locating and marking underground utilities in the field, then excavating and setting the new TSP foundations. An Underground Service Alert (USA) survey and any necessary potholing would be conducted prior excavating pole foundations to mark underground utilities for avoidance. If unanticipated conflicts were identified between underground utilities and proposed pole locations, PG&E would make minor adjustments to the pole locations to avoid the utility or would coordinate with the utility owner to relocate the utility around the pole or poles.

The results of an arcing risk assessment on underground utilities in the Southern Segment indicated that additional grounding equipment will be required at Poles 9 and 10, which are located within the minimum separation distance of an existing PG&E gas distribution line (PG&E Applied Technology Services, 2019; Corrosion Service Company Limited, 2019). PG&E would implement the grounding scheme identified in the assessment report to address the potential arcing hazard, which would involve installing two or more copper rods and underground wire adjacent to Poles 9 and 10. If necessary, other grounding equipment may also be installed to address potential arcing or induced current hazards following standard electrical engineering and safety practices.

A highway digger or production digger would be used in tandem with a back truck to excavate the holes. The back truck would liquefy and vacuum up dirt to safely expose underground facilities in areas with co-located utilities. Excavated dirt would be transferred to dump trucks and hauled away to an appropriate facility or used as fill material when and where appropriate.

As with TSP installation described for the approved project, a line truck would be used to place foundation forms, anchor bolts, and rebar in the holes for concrete-pier foundations, and a concrete truck would be used to deliver and pour concrete for the foundation forms. Each TSP foundation would require approximately 46 cubic yards of concrete, or approximately 5 truckloads. The concrete foundations would be allowed to cure for approximately 6 weeks. Once the concrete has set, the form would be removed. A flatbed truck would be used to deliver TSP sections to the pole site on the day of installation. A crane would be used to set the new

TSP in sections on the foundation. Additional hardware, such as cross-arms and insulators, would be installed on the poles using a crane with a worker lift.

Pole Removal

Pole removal in the Southern Segment would begin after the 230-kV and 60-kV conductor is transferred to the new poles. A plasma cutter would be used to cut the old poles into sections. A crane would hold each section while it is being cut and then would transfer the section onto a flatbed truck for disposal. Discarded pole sections would be taken to a project staging area or PG&E facility where it would be picked up for recycling.

Lead-based paint has been identified on one existing TSP that would be removed. Standard procedures would be implemented during pole removal to protect workers and the public from lead exposure, such as but not limited to, matting or wetting the surrounding soil, installing signage, and utilizing best management practices (BMPs) to prevent the release of lead dust into the air.

Following pole removal, a backhoe, hoepick (jackhammer on the back of a backhoe), and/or hand-held jackhammer would be used to break up the top 3 feet of the old foundation and the remaining hole would be backfilled and compacted. Each foundation would take approximately 2 days to remove. Machinery would be actively excavating the foundation for approximately 6 hours during the workday. Machinery would be in use for up to 1 hour at a time. The excavated foundation material would be transferred to a dump truck and off-hauled for disposal.

2.3.5 Reconductoring

Overview

Reconductoring for the approved project is described in Section 2.6.5 of the 2017 Final MND. Additional conductor and transfer details for the proposed modifications are provided below. The proposed modifications would involve transferring the existing 230-kV conductor to the new poles instead of reconductoring the Geysers #12 line described for the approved project, with the exception of the US 101 crossing, where approximately 400 feet of both 230-kV circuits would be reconductored (refer to Section 2.2.1).

Power Clearance

As described for the approved project, a portion of the Fulton-Hopland Line and the Geysers-Fulton Line would be taken out of service during certain work activities, which would involve installing a temporary switch (strands of conductor) between the Geysers #12 and Geysers #17 lines at a location along the Geysers-Fulton Line approximately 15 miles north of the Southern Segment. After the temporary switch is installed, power clearances for the proposed modifications would generally follow these phases:

1. The Geysers #12 line would be de-energized. Approximately five angle poles would be set, and conductor for the Geysers #12 line would be partially transferred to the replacement poles.

2. The Geysers #12 line would be re-energized, and the Geysers #17 line would be de-energized. The remaining poles would be set, and conductor for the Geysers #17 line would be transferred to the replacement poles.
3. The Fulton-Hopland Line would be reconductored and installed on the new poles.
4. The Geysers #17 line would be re-energized, and the Geysers #12 line would be de-energized to complete transfer of the Geysers #12 conductor to the replacement poles.

Conductor Replacement

Removal of the 60-kV conductor and two 400-foot sections of the Geysers #12 and Geysers #17 lines over US 101 would proceed as described for the approved project, with overnight installation of guard structures and safety netting over the highway. The proposed modifications would involve installing some additional guard structures and netting to facilitate replacement of the Geysers #17 line.

Installation of the 60-kV conductor and two 400-foot sections of the 230kV conductor would proceed as described in the 2017 Final MND. New 230-kV conductor installed across US 101 would be spliced to the transferred conductor at Pole 8. The 60-kV conductor would be installed as underbuild on the new poles after the Geysers #12 and #17 lines are transferred to the replacement poles.

Conductor Transfer

Conductor for both circuits of the 230-kV Geysers-Fulton Line would be transferred from the existing poles to the new poles. First, the areas around and between the poles would be closed to public access and traffic, and cranes would be set up at two adjacent structures (i.e., Poles 8 and 9, Poles 10 and 11, etc). Workers would use a crane to access and remove midspan spacers on the Geysers #12 line. The conductor would be unclipped from existing poles and transferred by crane to rollers on the north and east cross-arms on the replacement poles. After transferring the conductor, new mid-span spacers would be installed and conductor sag between poles would be adjusted to pre-calculated levels by tightening or loosening the line tension. The conductor would then be clipped into the new poles. Workers would then reopen public access and traffic and move to the next two structures where the process would continue until conductor for the Geysers #12 line is transferred. Conductor transfer for the Geysers #17 line would follow and would be completed through a similar process, with new conductor installed on the opposite side of the replacement poles as the existing conductor.

2.3.6 Erosion, Sediment, and Pollution Control

Erosion, sediment, and pollution controls for the proposed modifications would be consistent with those described for the approved project in Section 2.6.7 of the 2017 Final MND.

As with the approved project, groundwater may be encountered during excavation for new poles. The proposed modifications would increase the potential for encountering groundwater due to the depth of new TSP foundations (up to approximately 30 feet) and pole locations on

the generally flat valley floor, some which are near creeks and drainages. When necessary, groundwater would be pumped from excavations into storage tanks and appropriately discharged in accordance with applicable laws and permits governing groundwater discharge, as well as project requirements specified in MM Hydrology-3 and the Stormwater Pollution and Prevention Plan (SWPPP). Water extracted from excavations may be used for construction processes, dust control, or irrigation, if and where appropriate.

2.3.7 Traffic Control

Partial lane closures and traffic control for the approved project are described in Section 2.6.8 of the 2017 Final MND. The proposed modifications would require additional partial lane closures to install new TSP foundations, as well as full road closures along sections of roads parallel to the Southern Segment for safety purposes. Partial lane closures would allow for continued traffic flow in both directions, but flow may be reduced in some areas to a single lane of alternating traffic. Full road closures would involve restricting traffic flow in both directions and redirecting traffic to detour routes.

Partial lane closures would be required at each pole location to excavate and set new pole foundations, and to restore the pole work areas following construction. Lane closures for foundation excavation and setting would occur for 1 to 2 days at a time, totaling approximately 1 week at each pole. Site restoration and cleanup would require partial lane closures for up to approximately 3 days at a time, totaling approximately 1 week at each pole location. Typically, two adjacent pole locations would be worked at the same time. Partial lane closures would be set up a block at a time and would occur continuously from approximately 7:00 am to 6:00 pm. With partial lane closures, traffic would be able to flow through in both directions. Partial lane closures could occur at multiple locations at the same time where different crews are working simultaneously.

Full road closures would occur between adjacent poles for up to approximately 3 days at a time (up to 24 hours per day) while cranes are used to set new poles on foundations, to transfer conductor, and to remove old poles. Full road closures are necessary to provide a safe workspace for cranes to operate, install and remove long TSPs, and work adjacent to one of the two energized 230-kV lines. Generally, full road closures would occur in one area at a time.

Residents would be notified in advance of road closures. Residents' access to their driveways would be maintained except for short periods when maneuvering cranes, or during overhead work directly above the driveways. In such cases, a PG&E customer service specialist would coordinate with affected residents to arrange specific times for the residents to safely enter or exit the closed work area. Pedestrians would be escorted through closed areas as needed. Dates of work would be coordinated with local schools that may be affected by lane and road closures, including Mark West Elementary School and Mark West Charter School on Lavell Road, and San Miguel Elementary School on Faught Road. Road closures for parks would be scheduled for low usage periods to the extent feasible. Access would always be provided for emergency vehicles.

During work hours, flaggers would be stationed, and traffic would be detoured around the closed area. Following construction work hours, signs would be posted to limit road access to local traffic only, and detour signs would remain posted. A flagger would help to manage local traffic. In some areas, the crane may be pushed ahead to open a lane in order to allow vehicle passage.

Prior to any closures on State highways or County roadways, PG&E would be required to obtain encroachment permits from California Department of Transportation (Caltrans) and Sonoma County. PG&E would implement traffic control plans for each closure area to safely direct traffic through or around active construction areas, as required by MM Traffic-1. Traffic control plans would be reviewed and incorporated into the encroachment permit process, as applicable.

2.3.8 Water Use

Water use during construction activities for the approved project was described in Section 2.6.9 of the 2017 Final MND. Up to 20,000 gallons of water would be used during construction for dust suppression, concrete washout, and other miscellaneous activities. Construction activities for the proposed modifications would use approximately the same level of water as estimated for the Southern Segment construction in the approved project. Additional concrete washout would occur during foundation installation, but the minor increases in water need would not change the previous estimate for the approved project because the estimates were conservatively high.

2.3.9 Waste Disposal

Solid waste generation and disposal for the approved project is described in Section 2.6.10 of the 2017 Final MND. It was estimated that the approved project would generate approximately 1,000 cubic yards of solid waste. Construction of the proposed modifications would generate an additional approximately 1,000 cubic yards of solid waste from disposal of the existing TSPs and hardware, and 100 cubic yards of solid waste from concrete that would be removed from existing foundations. Discarded TSPs and metal hardware would be transferred to Alco Iron and Metal for recycling. Other project wastes would be disposed of in local landfills or another appropriate facility.

2.3.10 Cleanup and Restoration

Cleanup and restoration would proceed as described in Section 2.6.11 of the 2017 Final MND. No changes are proposed.

2.3.11 Equipment and Workforce

Equipment and workforce information for the approved project is described in Section 2.6.12 of the 2017 Final MND. The proposed modifications would change the previous equipment and workforce estimates in the Southern Segment due to the increase in construction activity and duration associated with TSP replacement. A revised list of estimated crew members and construction equipment use by activity is provided in Table 2.3-2. The table includes total crew

members and equipment for the entire project including both the Northern and Southern Segments. Insertions to the table are underlined and deletions are struck out to highlight the differences.

Table 2.3-2 Estimated Crew Members and Equipment Use by Construction Activity (Revised to Address the Proposed Modifications)

General Category and Crew Members [a]	Construction Activity	Southern Segment	Northern Segment	Equipment Quantity/Name		Estimated Operation Days/ Week	Hours/ Day	Total Weeks
Site Development	Survey	●	●	1	Pickup truck	4	8	5
2-16 crew members	Vegetation Clearing	●	●	1-2	Pickup truck	6	10	5
				1-2	Bucket truck	6	10	5
				1-2	Chipper truck with chipper	6	10	5
				1	Rubber-tracked mower	2	4	6
	Grading and Blading, and Gravel and Geotextile Fabric Installation (i.e., site improvement and reestablishment)	●	●	1	D4 dozer	4	8	7
				1	Pickup truck	4	8	4
				4 ~~1~~	Semi-truck with trailer	5~~1~~	10~~4~~	4
				1	Water truck	4	6	4
				2	Excavator	4	8	7
				1	Compactor	4	8	7
	Drainage Crossing Establishment	●~~N/A~~	●	1	Crawler backhoe	4	4	4
				1	Pickup truck	4	4	4
				1	Crane	4	4	1
Pole Replacement (Removal/Installation) & Reconductoring	LDSP Hole Auguring	N/A	●	1	UTV with excavator	5	6	6
				1	Pickup truck	5	6	6
21 crew members				1	Line truck with auger attachment	5	6	2
	TSP Hole Auguring	●~~N/A~~	●	1	Crawler mounted auger	5	6	5
				1	Highway digger or production digger	5	6	8

General Category and Crew Members [a]	Construction Activity	Southern Segment	Northern Segment	Equipment Quantity/Name		Estimated Operation Days/ Week	Hours/ Day	Total Weeks
				1	Dump truck	5	8~~6~~	8~~5~~
				1	Water truck	5	8	8
				1	Back truck	5	8	8
	LDSP and TSP Delivery	N/A	●	1	Shiflet truck	4	6	2
	TSP Delivery	●	N/A	3	Flat-bed trailer and truck	5	8	4
				2	Forklift or grade-all	5	8	4
				2	100-ton Crane	5	8	4
	LDSP Installation	N/A	●	1	Crew-cab truck	7	6	4
				1	Utility task vehicle (UTV) with worker-lift attachment	5	4	6
				1	Line truck with trailer	7	6	2
				1	UTV mounted with hydraulic jack	4	6	12
				1	Backhoe	5	6	15
				1	Jackhammer	4	6	12
				1	Compressor	5	4	15
	TSP Installation (with Concrete Pier Foundation)	●~~N/A~~	●	4~~1~~	Crane	5	6	16~~6~~
				4~~1~~	Boom truck	5	7~~6~~	16~~6~~
				2~~1~~	2-ton rigging truck	5	2~~6~~	16~~6~~
				5~~1~~	Crew-cab truck	5~~7~~	2~~6~~	16~~6~~
				3~~1~~	Pickup truck	5~~7~~	2~~6~~	16~~6~~
				6~~1~~	Cement truck	5~~2~~	5~~6~~	8~~3~~

General Category and Crew Members [a]	Construction Activity	Southern Segment	Northern Segment	Equipment Quantity/Name		Estimated Operation Days/ Week	Hours/ Day	Total Weeks
				1	Water truck	5	8	8
	TSP Concrete Foundation Removal	N/A	●	1	Crew-cab truck	5	2	9
				1	Pickup truck	5	2	9
				1	Jackhammer	5	6	9
				1	Backhoe	5	6	9
				1	Backhoe with hydraulic jack attachment	5	6	9
				1	Compressor	5	6	9
	TSP Installation (with Micropile Foundation)	N/A	●	1	Crane	5	6	6
				1	Boom truck	5	6	6
				1	2 ton rigging truck	5	6	6
				1	Crew-cab truck	7	6	6
				1	Pickup truck	7	6	6
				1	Platform-mounted componentized micropile drill	7	6	6
				2	Compressors	7	6	6
				1	Jackhammer	7	6	6
				1	Grout plant and transfer pump	7	6	6
	Miscellaneous Transport	●	●	1	Boom truck	7	4	10
				1	F550 truck	5	2	10
		●	N/A	1	Bucket truck	1	6	2
				2	Pickup trucks	1	6	2

General Category and Crew Members [a]	Construction Activity	Southern Segment	Northern Segment	Equipment Quantity/Name		Estimated Operation Days/ Week	Hours/ Day	Total Weeks
	Guard Structure Installation at US 101 Crossing			1	Crew cab	1	6	2
	Reconductoring (Poles and Mid-Span Locations)	●	●	~~43~~	100-ton cranes (or alternatively a boom truck, bucket truck, or line truck with a worker attachment)	7	~~10~~7	~~16~~13
				~~43~~	Pickup trucks	7	~~10~~7	~~16~~15
	Reconductoring (Pull-and-Tension Sites) & Line Transferring	●	●	1	Line truck with wire reel attachment or trailer	7	7	~~18~~3
				~~43~~	Pickup truck	7	7	~~18~~15
				1	Puller attached to line truck	7	7	~~18~~13
				1	Tensioner attached to line truck	7	7	~~18~~13
	Helicopter Transport and Reconductoring Support	N/A~~●~~	●	1	Crew-cab truck	7	4	4
				2	Helicopter (small)	7	10	17
				1	Helicopter (large)	7	10	9
		●	N/A	1	Helicopter (small)	6	6	2
Cleanup and Restoration (within the easement and includes removing temporary drainage crossings) 6 crew members		●	●	1	Motor grader	5	4	8
				1	D6 dozer	5	4	3
				1	Semi-truck with trailer	5	2	8
				1	Pickup	5	6	8
				1	Crane	1	6	1
Fitch Mountain Substation Modifications (includes restoration and cleanup)		N/A	N/A	1	Bobcat	4	10	12
				1	Excavator	4	10	12
				1	Forklift	4	10	12

General Category and Crew Members [a]	Construction Activity	Southern Segment	Northern Segment	Equipment Quantity/Name		Estimated Operation Days/ Week	Hours/ Day	Total Weeks
6-8 crew members				1	Crane	4	10	12
				1	Boom truck	4	10	12
				1	Man lift	4	10	12
				1	Vertical drill rig	4	10	1
Fitch Mountain Substation Paving (within existing fence line) 6-8 crew members		N/A	N/A	3	Crew-cab trucks	5	10	3
				1	Skip loader	5	10	3
				1	Skip steer	5	10	3

Notes:

Insertions to the table are underlined, and deletions are struck out.

As with the approved project, the number of crew members needed would be greater if concurrent sub activities were occurring at multiple locations along the project alignment. It is estimated that between 15 and 50 workers would be present at the project site at any given time during construction.

Source: (TRC, 2018; Revised 2019)

2.3.12 Schedule and Timing

The construction schedule for the approved project is described in Section 2.6.13 of the 2017 Final MND. Construction of the proposed modifications would increase activity in the Southern Segment from approximately 4 months to approximately 8 months. The total construction period for the project would increase from 12 to 24 months. The Northern Segment took approximately 8 months longer to construct than anticipated, including periods of construction inactivity. A revised construction schedule for the Southern Segment and total project duration is provided in Table 2.3-3. PG&E proposes to begin construction in the Southern Segment in October 2019; however, construction may begin sooner depending on the timing of the CPUC's decision on the PFM.

Table 2.3-3 Construction Schedule for the Proposed Modifications

Construction Activity [a]	Period Start [b]	Period End	Estimated Duration
Site Development	October 2019 ~~February 2019~~	January 2020 ~~February 2019~~	4 months ~~4 weeks~~
Excavate and Set TSP Foundations	October 2019	January 2020	4 months
Set TSPs, Reconductor 60-kV, and Transfer Geysers #12	December 2019	April 2020	5 months
Transfer Geysers #17, Remove Old TSPs	March 2020	May 2020	3 months
~~Conductor Removal and Installation~~	~~March 2019~~	~~April 2019~~	~~2 months~~
Cleanup and Restoration	May 2020	June 2020 ~~May 2020~~	4 weeks
Southern Segment Schedule	***October 2019 ~~February 2019~~***	***June 2020 ~~May 2019~~***	***8 months ~~4 months~~***
Total Project Construction [c]	**June 2018**	**June 2020 ~~May 2019~~**	**24 months ~~12 months~~**

Notes:

[a] New activities added to the schedule are underlined and removed activities are struck out.

[b] Depending on the timing of the CPUC's decision on the PFM, PG&E may start construction sooner than October 2019.

[c] Total project construction period includes work on the Northern Segment conducted between June/July 2018 through May 2019 and the anticipated construction period for work in the Southern Segment.

Source: (TRC, 2018; Revised 2019)

The estimated number of workdays at project areas for the approved project are provided in Table 2.6-9 of the 2017 Final MND. Construction of the proposed modifications would increase the number of workdays at all work areas in the Southern Segment due to pole replacement.

The increased number of workdays at each location would occur in phases and would be distributed over the additional 4 months of construction. Table 2.3-4 lists changes in the estimated workdays at work areas in the Southern Segment.

Table 2.3-4 Estimated Workdays by Construction Activity for the Proposed Modifications

Stage/Period [a]	Staging Areas	Pole Work Areas	Pull Sites [b]	Mid-Span Work Areas	Guard Structures
Site Development	14 ~~1-5~~	0 ~~1-5~~	21 ~~1-5~~	0 ~~1-5~~	7
Dig and Set TSP Foundations	28	7	28	0	0
Set TSPs, Reconductor 60-kV, and Transfer Geysers #12 ~~Conductor Removal and Installation~~	56 ~~90~~	7 ~~3-6~~	56 ~~11-33~~	7 ~~1-2~~	0
Transfer Geysers #17, Remove Old TSPs	56	7	56	7	0
Cleanup and Restoration	14 ~~60~~	4 ~~1-2~~	21 ~~1-2~~	0 ~~1-2~~	7
Southern Segment Total	**168** ~~**120**~~	**25** ~~**5-13**~~	**182** ~~**13-40**~~	**14** ~~**2-4**~~	**14**

Notes:

[a] New activities added to the schedule are underlined and removed activities are struck out. The number of workdays at each location would be spread out over the approximately 8-month construction period.

[b] The increased use of pull sites would involve intermittent staging and storage of equipment when necessary. Concentrated construction activities associated with reconductoring at pull sites would be less than the 11-33 days described for the approved project because the 230-kV lines would be transferred instead of reconductored.

Source: (PG&E, 2018b)

Typical work hours would remain the same as those described for the approved project. Generally, work activities would take place between 7:00 am and 7:00 pm, Monday through Sunday, or in accordance with local noise ordinances, where applicable. Extended work hours between 7:00 pm and 7:00 am may be required on rare occasions, such as to complete a construction procedure that cannot be interrupted due to safety considerations. Guard structures at the US 101 crossing would be installed and removed during night hours between 10:00 pm and 7:00 am for safety purposes and to limit impacts on highway traffic.

2.4 OPERATION AND MAINTENANCE

Operation and maintenance of the approved project is described in Section 2.7 of the 2017 Final MND. No changes are proposed to operation and maintenance.

2.5 PERMITS AND APPROVALS

Permits and approvals that may be required for the approved project are described in Section 2.8 of the 2017 Final MND. No additional permits or approvals are anticipated as a result of construction or operation of the proposed modifications.

2.6 ELECTRIC AND MAGNETIC FIELDS

A discussion on electric and magnetic fields (EMF) is provided in Section 2.10 of the 2017 Final MND for informational purposes. EMF can be a source of public concern; however, CEQA does not address EMF and does not require that EMF be addressed during environmental review of proposed projects. No defined or adopted CEQA standards for defining health risks from EMF have been established. To address pubic concerns regarding EMF, the CPUC, in Decisions 93-11-013 and 06-01-042, requires regulated utilities to evaluate EMFs from new and upgraded power lines and substation projects, and to implement "no cost" and "low cost" measures to reduce EMFs. The cost threshold and benchmark for implementing EMF reduction measures is 4 percent of the total budgeted project cost that should reduce EMF levels by at least 15 percent.

PG&E's PTC application included a Field Management Plan for the proposed project (Exhibit D of their PTC Application). Based on the original proposal to reuse TSPs in the Southern Segment, it was determined that there were no "low-cost" or "no-cost" field reduction measures available pursuant to CPUC Decisions 93-11-013 and 06-01-042.

The proposed modifications would change the assumptions used in the Field Management Plan; therefore, PG&E revised the Field Management Plan to incorporate the proposed pole replacement costs in the Southern Segment (Exhibit E of their PFM Application). In the plan, PG&E proposes to raise the height of the 21 structures in the Southern Segment[4], where schools and residential land uses are located, by 5 feet taller than otherwise required for meeting GO 95 clearance requirements. This would increase the distance between the transmission conductor and ground surface, ultimately reducing EMF levels. The estimated cost of this reduction measure is approximately $265,000. The previous Field Management Plan indicated that replacing these same poles with taller poles would not be feasible because, at the time, pole replacement was considered unnecessary. Now that PG&E proposes to replace the poles, the additional cost is limited to the marginally taller pole specifications, which is within the 4 percent cost threshold. Therefore, PG&E would implement the EMF reduction measure as part of the proposed modifications.

[4] The revised Field Management Plan describes potential height increases for a total of 39 poles, which includes 21 poles in the Southern Segment and 18 poles located in the Northern Segment.

3 ENVIRONMENTAL ANALYSIS

3.1 OVERVIEW

The 2017 Final MND analysis used the Appendix G checklist questions of the CEQA Guidelines that were in effect at the time the document was prepared. Since the 2017 Final MND was published, the Governor's Office of Planning and Research revised the CEQA Guidelines and many of the Appendix G checklist questions. Pursuant to CEQA Guidelines Section 15007, the environmental analysis in this Supplemental MND follows the current CEQA Guidelines that became effective on December 28, 2018. This analysis includes new sections on Energy and Wildfires, and different methodology for evaluating transportation impacts.

This supplemental environmental analysis is focused on how the impacts of the proposed modifications would or would not be different from those described for the approved project in the 2017 Final MND. As described in CEQA Guidelines Section 15163, a Supplemental MND need contain only the information necessary to make the previous document adequate for the project as revised; therefore, much of the analysis previously presented in the 2017 Final MND is incorporated by reference, and the level of detail provided for each resource topic varies based on the degree of change and additional analysis that was necessary.

3.2 AESTHETICS

3.2.1 Environmental Setting

The environmental setting discussion in Section 3.1.2 of the 2017 Final MND described the existing visual character and quality, light and glare, and views of and from the approved project site. Existing visual conditions in the Southern Segment were discussed broadly in the 2017 Final MND because the previously proposed conductor replacement would involve little visual change. This section provides additional details on the existing visual conditions in the Southern Segment that were not included in the 2017 Final MND.

The 2017 Final MND included one viewpoint in the Southern Segment, Key Observation Point (KOP) 1, which was located at Mark West Elementary School in Landscape Character Unit B, Larkfield Wikiup, and near Landscape Character Unit A, US 101. Five other viewpoints, KOPs 2 through 6, were located at public views in the Northern Segment where pole replacement was proposed. All six viewpoints were analyzed and simulated for visual change. Only one viewpoint was included in the Southern Segment because the approved project activities were limited to conductor replacement, which would have resulted in virtually no visual change.

Viewpoints A1 through A10 have been added to the Southern Segment to supplement and expand the environmental setting presented in the 2017 Final MND. The additional viewpoints are listed in Table 3.2-1 and are shown on Figure B-1, provided in Appendix B. The Southern Segment can be divided into two Landscape Character Subunits (LCSU), North and South, which are similar to the units described in the 2017 Final MND (see Figure B-1 provided in Appendix B).

Table 3.2-1 Summary of Additional Viewpoints in the Southern Segment

Viewpoint	Location of Viewpoint	View Direction	Landscape Character Subunit
A1*	Northbound US 101	Northwest	South LCSU (Urbanized)
A2	Southbound US 101	Southwest	
A3*	Maddux Ranch Regional Park	South	
A4*	Mark West Elementary School	South	
A5	Noonan Ranch Circle	North	
A6	Old Redwood Highway near Creek Way	Southeast	
A7	Airport Boulevard near Faught Road	East	
A8	Faught Road at San Miguel Elementary School	South	
A9	Faught Road near Shiloh Ranch Regional Park	East	North LCSU (Non-urbanized)
A10*	Faught Road at Shiloh Ranch Regional Park Trail Access	West	
A11	Shiloh Ranch Regional Park South Ridge Trail	East	
A12	Shiloh Ranch Regional Park South Ridge Trail	West	

Notes:
Viewpoints marked with an asterisk (*) were selected for simulation and impact evaluation.
Viewpoint A4 is the same location as KOP 1 in the 2017 Final MND. The visual simulation uses the same base photo but depicts proposed conditions after TSP replacement, under the proposed modifications.

Viewpoints A1 through A8 are in the South LCSU, which is an urbanized area that includes US 101; residential development in Larkfield-Wikiup; and Maddux Ranch Regional Park, an urban park with ball fields and play areas. Dominant visual characteristics of the South LCSU include the US 101 corridor, Fulton Substation, existing transmission and distribution poles and conductor, schools, and suburban development (i.e., roads and associated facilities, residential structures, urban parks), as well as residential landscaping, large trees, and riparian corridors. Viewers in public areas include regional motorists on US 101, local motorists on non-highway roadways, pedestrians, cyclists, and park users. The number of viewers and viewer exposure is moderate to high. Based on these characteristics, the South LCSU has low to moderate existing visual quality; low to moderate viewer sensitivity; and, low to high viewer exposure.

Viewpoints A9 and A10 are in the North LCSU, which is a non-urbanized area that is more rural in nature due to the presence of agricultural land, vineyards, woodland, and recreational trails in Shiloh Ranch Regional Park. Dominant visual characteristics of the North LCSU include

few residential structures, existing transmission and distribution poles and conductor, vineyards, dense oak woodland, and park trails. Viewers in public areas include local motorists on roadways, pedestrians, cyclists, and park users. The number of viewers and viewer exposure is moderate to high. Based on these characteristics, the North LCSU has moderate to high existing visual quality; moderate to high viewer sensitivity; and moderate viewer exposure.

As described in the 2017 Final MND, the County of Sonoma has designated three Scenic Corridors (e.g., US 101, River Road, and Faught Road) and one Scenic Landscape Unit (Hills East of Windsor) in the Southern Segment (County of Sonoma, 2008). These features are shown on Figure 3.1-3 of the 2017 Final MND. The designation of Scenic Corridors and Scenic Landscape Units are intended to preserve the existing visual characteristics of valued landscapes in the County. Planning and development policies are included in the Open Space & Resource Conservation Element of the Sonoma County General Plan to meet these goals (County of Sonoma, 2008). General plan polices are not directly applicable to the project because the CPUC, a state agency and lead CEQA agency, has sole jurisdiction to approve or deny the project. Designated features indicate high scenic values and viewer sensitivity.

3.2.2 Impact Discussion

Impacts of the approved project on aesthetics were addressed in Section 3.1.3 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for aesthetics are listed in Table 3.2-2 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the checklist questions, including revisions to question c). Determinations for the current impact questions are discussed below.

Table 3.2-2 Summary of Proposed Modification Impacts for Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway or designated scenic roadway?	☐	☐	☒	☐
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?	☐	☒	☐	☐

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a) Except as provided in Public Resources Code Section 21099, would the project have a substantial adverse effect on a scenic vista?

No Impact – Consistent with the 2017 Final MND

No designated or eligible scenic vistas are located in the Southern Segments, and the area would not be visible from any designated or eligible federal, state, county, or city scenic vistas. No impact would occur.

b) Except as provided in Public Resources Code Section 21099, would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway or designated scenic roadway?

Less than Significant Impact – Consistent with the 2017 Final MND

No scenic trees, rock outcroppings, or historic buildings would be affected by the project, including from the proposed modifications in the Southern Segment. As described in Section 3.5 of the 2017 Final MND, there are no eligible historic resources in the project area; therefore, no historic resources would be visually impacted. The Southern Segment would not be visible from any designated or eligible state scenic highway.

As described in the 2017 Final MND, the proposed construction activities would be visible from three County-designated Scenic Corridors (e.g., US 101, River Road, and Faught Road) and one Scenic Landscape Unit (Hills East of Windsor) located in the Southern Segment. The visibility of construction activities would be short in duration and would not damage scenic resources. The proposed modifications would involve the same types of construction activities analyzed in the 2017 Final MND, but the level and duration of construction in the Southern Segment would increase due to TSP replacement and foundation excavation. Extending the construction schedule by approximately 4 months and replacing 21 additional poles would increase temporary visual effects from construction activities, but the impact would remain less than significant.

Existing TSPs in the Southern Segment are visible from the County-designated Scenic Corridors and Scenic Landscape Unit. The proposed modifications would involve replacing existing poles on a 1:1 basis within approximately 15 to 35 feet. New poles would be marginally taller than the existing poles (up to 20 feet taller) and the surface color would change from beige to light gray; otherwise the poles would be visually similar, as demonstrated through the visual simulations described under checklist question c). The replacement of existing TSPs in the Southern Segment would not damage scenic resources. The visual differences between the existing poles and new poles would be minor. The impact would be less than significant.

c) Except as provided in Public Resources Code Section 21099, would the project in non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

Checklist question c) of the CEQA Guidelines has been revised since the 2017 Final MND was prepared. The question focuses on the potential to degrade existing visual character, quality of public views, or conflict with regulations governing scenic quality. There are no regulations governing scenic quality that are applicable to the project; therefore, the impact discussion is focused on the project's potential to degrade existing visual character and the quality of public views. As described in the environmental setting, the Southern Segment is divided into an urbanized landscape unit and non-urbanized landscape unit. Numerous public views, as well as visual landscape qualities could be impacted by the proposed pole replacements.

Temporary impacts on visual character and quality from reconductoring activities in the Southern Segment were analyzed in the 2017 Final MND. The proposed modifications would result in similar temporary impacts from the visibility of construction equipment, ground disturbance, and vegetation disturbance. Impacts from the proposed modifications could be moderately greater than the approved project because the level and duration of construction activities in the Southern Segment would increase due to the additional pole replacements and foundation excavations. Ground and vegetation disturbance could increase where new work areas for new poles would extend outside of existing pole work areas; however, the potential for such disturbance was already addressed in the 2017 Final MND. As with the approved project, MM Biology-7 would be implemented to ensure vegetation would be restored in temporary construction work areas, which would limit impacts to existing landscape conditions. The impact would be less than significant with mitigation, and consistent with the 2017 Final MND.

Permanent impacts on visual character and quality from minor facility changes in the Southern Segment were analyzed in the 2017 Final MND. Pole replacement with the proposed modifications would have a higher potential for visual change than previously considered. As described previously, new poles would be up to 20 feet taller and positioned within approximately 15 to 35 feet of the existing locations. The length of existing and proposed replacement crossarms would be the same 14 feet for crossarms supporting 230-kV conductor and 7 feet for crossarms supporting 60-kV conductor. Existing ceramic insulators would be replaced with new green glass insulators, which are the same type described for the Northern Segment. Existing poles are a brownish tan color. New poles would be a light gray.

Four of the 12 additional viewpoints listed in Table 3.2-1 (A1, A3, A4, and A10) were selected for further analysis and visual simulation to determine representative visual effects from the proposed modifications. The same visual impact rating methodology described in the 2017 Final MND was used to rate the visual characteristics of the four viewpoints. Visual simulations and rating sheets are provided in Appendix B. The results of the visual impact rating indicate little

to no visual change that could impact existing landscape conditions. The new poles would have a similar appearance to the existing poles, with minor differences in location, height, and color that would not degrade existing visual character or the quality of public views. As shown in the visual simulations and rating sheets, the gray color of the new structures would result in similar visual contrast as the brownish tan color of the existing structures. The impact would be less than significant.

d) Except as provided in Public Resources Code Section 21099, would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Less than Significant – Consistent with the 2017 Final MND

Potential impacts from nighttime lighting to support construction and operational activities was addressed in the 2017 Final MND. Construction and operation of the proposed modifications would be consistent with the approved project. Impacts from the use of temporary nighttime lighting would be less than significant.

As described in the 2017 Final MND, new poles and conductor have the potential to create new sources of glare. Potential glare from conductor was analyzed in the 2017 Final MND for both the Southern Segment and Northern Segment. The proposed modifications would involve making minor changes to the conductor types in the Southern Segment and transferring the 230-kV lines instead of replacing one of the 230-kV circuits. As with the approved project, new conductor would be non-specular and would not create a new source of substantial glare. Like the light-duty steel poles in the Northern Segment, new TSPs in the Southern Segment would have a dulled finish (similar to the existing poles, but gray instead of brownish tan in color) and would not reflect substantial levels of light. The impact would be less than significant.

3.3 AGRICULTURE AND FORESTRY RESOURCES

3.3.1 Environmental Setting

The environmental setting discussion in Section 3.2.1 of the 2017 Final MND addresses agricultural and forestry resources in the project area. As described in the 2017 Final MND, the Southern Segment is located primarily within a residential neighborhood with some areas in the north located in rural residential and agricultural areas (refer to Figure 3.2-1 of the 2017 Final MND). Agricultural resources and zoning designations at poles in the Southern Segment that would be replaced are as follows:

- Poles 7a and 7b – Farmland of Local Importance
- Poles 8 and 9 – County agricultural zoning (e.g., Land Intensive Agriculture District)
- Pole 12 – Active agricultural operation (i.e., orchard or grove)
- Pole 20 – Farmland of Statewide Importance
- Pole 21 – Farmland of Local Importance; Williamson Act Lands; County agricultural zoning (e.g., Land Intensive Agriculture District); active agricultural operation (i.e., vineyard)

- Pole 22 – Prime Farmland; Williamson Act Lands; County agricultural zoning (e.g., Land Intensive Agriculture District); active agricultural operation (i.e., vineyard)
- Pole 23 – Farmland of Local Importance; County agricultural zoning (e.g., Agriculture and Residential District); active agricultural operation (i.e., vineyard)

As described in the 2017 Final MND, native riparian woodland and mixed oak woodland in the Southern Segment (GANDA, 2012; TRC, 2015b; TRC, 2016a; TRC, 2016b) may meet the definition of forest land under Public Resources Code (PRC) § 12220(g). While these areas are not commercially harvested for timber, they may provide suitable timber resources. The locations of native riparian woodland and mixed oak woodland in the Southern Segment are located along Mark West Creek and in Shiloh Ranch Regional Park (refer to Figure D-2 of the 2017 Final MND).

3.3.2 Impact Discussion

Impacts of the approved project on agricultural and forestry resources were addressed in Section 3.2.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for agricultural and forestry resources are listed in Table 3.3-1 as well as a summary of determinations for the proposed modifications.

Table 3.3-1 Summary of Proposed Modification Impacts for Agriculture and Forestry Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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 Resources Agency, to nonagricultural 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 Public Resources Code section 12220(g)), timberland (as defined in Public Resource Code section 4526), or timberland zoned Timberland Production (as defined in Government Code section 51104 (g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☒	☐	☐

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?	☐	☒	☐	☐

a) Would the project convert Farmland, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

Impacts on Farmland in the Southern Segment were addressed in the 2017 Final MND, including those associated with temporary disturbance and pole replacement. The proposed modifications would involve replacing six TSPs within Farmland (Poles 7a, 7b, 20, 21, 22, and 23).

Temporary disturbance during the construction phase would increase slightly with the proposed modifications where existing poles are located in Farmland, due to additional workspace at new pole locations; however, poles would be replaced within approximately 15 to 35 feet of their existing locations and the majority of the work areas around the new poles would overlap with previously defined work areas identified in the 2017 Final MND. As with the approved project, any crops within work areas and access routes may be removed, if necessary, to facilitate pole replacement and access. Construction activities would not directly convert Farmland, but crop damage or inadvertent damage to irrigation systems could result in significant indirect impacts on Farmland. Implementation of MM Agriculture-1 identified in the 2017 Final MND would require PG&E to protect agricultural infrastructure (i.e., irrigation lines, wells, pumps, ditches, and drains) during construction activities, avoid crop removal where feasible, and compensate landowners for crops that cannot be avoided. The impact from construction would be less than significant with mitigation.

New poles that would replace existing poles in the Southern Segment would be positioned within approximately 15 to 35 feet of the existing pole locations. New TSP foundations would occupy a similar area as existing TSPs (approximately 20 to 25 square feet per pole). Replacing poles within Farmland could convert minor amounts of Farmland where new poles are positioned; however, the areas occupied by existing poles would become available generally within the same Farmland mapping unit, which would offset any Farmland conversion. The impact from pole replacement would be less than significant.

b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

Less than Significant – Consistent with the 2017 Final MND

Impacts on existing zoning for agricultural use and land subject to a Williamson Act contracts were addressed in the 2017 Final MND, including impacts from temporary disturbance and

pole replacement. The proposed modifications would involve replacing five TSPs within land zoned by Sonoma County for agricultural uses (Poles 8, 9, 21, 22, and 23) and replacing two TSPs within land subject to a Williamson Act contract (Poles 21 and 22).

As explained under checklist question a), temporary disturbance during the construction phase at these pole locations would increase slightly due to the additional pole replacement activities during construction and minor increase in work areas where new poles would be located. TSPs in the Southern Segment would be replaced on a 1:1 basis. New poles would be moved approximately 15 to 35 feet from the existing locations, but would have the same impacts on agricultural resources, including Williamson Act contracts, as under existing conditions. The impact would be less than significant.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production?

No Impact – Consistent with the 2017 Final MND

The project alignment, including the Southern Segment, would not traverse timberland or timberland zoned Timberland Production and would not conflict with existing zoning of lands designated for those uses. No impact would occur on timberland or timberland zoned Timberland Production.

As described in the 2017 Final MND, portions of the Southern Segment traverse land with vegetation communities that may meet the definition of forest land under PRC § 12220(g) (e.g., native riparian woodland and mixed oak woodland), as explained under checklist question d). Sonoma County Code of Ordinances Section 26-88-010(a) states that transmission and distribution lines are acceptable in all zoning districts; therefore, the proposed project would not conflict with existing zoning for forest lands. No impact would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

As described in the 2017 Final MND, portions of the Southern Segment contain native riparian woodland and mixed oak woodland at Poles 13 and 23 (GANDA, 2012; TRC, 2015b; TRC, 2016a; TRC, 2016b). The habitat meets the definition of forest land under PRC § 12220(g). As with the approved project, construction, operation, and maintenance activities would require trimming and removal of trees where necessary to facilitate access and vegetation clearances from poles and conductor. Reconfiguring PS-6 to provide space for crane pads at Pole 23 would require removal of trees within a mapped native riparian woodland. However, the total number of trees removed would remain approximately the same as described in the 2017 Final MND (up to approximately 100 trees for the entire project). The determination in the 2017 Final MND concluded the loss of native tress within forest land would be a significant impact, although the impact in the Southern Segment would be far less than the Northern Segment due to its residential land uses and the limited presence of potentially qualifying forest land. Consistent with the 2017 Final MND, applicant proposed measure (APM) BIO-10 would be implemented to minimize removal of oak trees and would require either replacement of qualifying oak trees (large and small valley oaks that exceed certain size and trunk criteria) that could not be

avoided or paying an in-lieu fee to Sonoma County per Sonoma County Zoning Ordinance Article 67. MM Biology-7 would be implemented, which requires PG&E to restore or replace riparian woodland and mixed oak woodland that cannot be avoided through implementation of a Revegetation, Restoration, and Monitoring Plan. Implementation of MM Biology-9 would require avoidance of riparian woodland and mixed oak woodland where feasible. The impact on forest lands would be less than significant with mitigation.

e) Would the project involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

As discussed under checklist question a), the proposed modifications could impact Farmland by damaging irrigation lines, removing crops in active agricultural areas, and by replacing poles within Farmland. As with the approved project, the proposed modifications could result in the conversion of Farmland to non-agricultural use if damaged irrigation lines and crops were not replaced, or poles were positioned in a location that prevented existing agricultural operations to continue. The impact from conversion of Farmland to non-agricultural use could be significant. Implementation of MM Agriculture-1 identified in the 2017 Final MND would require PG&E to protect agricultural infrastructure (i.e., irrigation lines, wells, pumps, ditches, and drains) during construction activities, avoid crop removal where feasible, and compensate landowners for replacing crops that cannot be avoided. MM Agriculture-1 would also require that new poles are positioned to avoid conflict with existing agricultural operations. The impact from conversion of agricultural land to non-agricultural use would be less than significant with mitigation.

The potential conversion of forest land to non-forest use is described in checklist question d). The proposed modifications would not otherwise convert forest land to non-forest use.

3.4 AIR QUALITY

3.4.1 Environmental Setting

The environmental setting discussion in Section 3.3.1 of the 2017 Final MND describes existing air quality conditions in the project area. As described in the 2017 Final MND, approximately 66 percent of the project alignment is located within the San Francisco Bay Area Air Basin (SFBAAB), which includes the entire Southern Segment and more than half of the Northern Segment (refer to Figure 3.3-1 of the 2017 Final MND). The Bay Area Air Quality Management District (BAAQMD) is the state regulatory body responsible for air quality-related activities in SFBAAB. The US Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) designate areas based on the attainment status for air quality standards (National Ambient Air Quality Standards [NAAQS] and California Ambient Air Quality Standards [CAAQS]). Attainment areas meet or exceed ambient air quality standards and nonattainment areas do not. The SFBAAB faces attainment issues over ozone and particulate matter, which is typical in highly urbanized areas. The status of the SFBAAB has not changed since the

2017 Final MND. Many sensitive receptors, including residences, schools, childcare centers, and an eldercare facility, are located within 1,000 feet of the Southern Segment, as listed in Table 3.3-3 of the 2017 Final MND.

3.4.2 Impact Discussion

Impacts of the approved project on air quality were addressed in Section 3.3.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for air quality are listed in Table 3.4-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to questions c) and d) and removal of question b). Determinations for the current impact questions are discussed below.

The same methodology used for the approved project for estimating construction emissions was used for the proposed amendments. Minor modifications were made to the method and emission factor used for estimating emissions from helicopter activities (refer to Appendix C for further details). Consistent with the 2017 Final MND, the total estimated project emissions with the proposed modifications were divided by the percentage of the entire project alignment in each air basin (66 percent in the SFBAAB and 34 percent in the North Coast Air Basin). Modeling assumptions and outputs are provided in Appendix C.

Table 3.4-1 Summary of Proposed Modification Impacts for Air Quality

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant – Consistent with the 2017 Final MND

The 2017 Final MND analyzed air quality pollutants associated with the approved project, and whether the approved project would conflict with or obstruct applicable air quality plans, which include the 2017 Clean Air Plan (CAP) and 2001 Ozone Attainment Plan. The analysis in

the 2017 Final MND stated the approved project would not conflict with or obstruct the 2017 CAP unless (1) proposed control measures are inconsistent with the control measures identified in the 2017 CAP, and/or (2) proposed construction activities would generate criteria pollutant, toxic air contaminants, or greenhouse gas emissions that exceed numerical thresholds defined by BAAQMD to attain the goals and objectives of the 2017 CAP (refer to Section 3.8: Greenhouse Gas Emissions for analysis).

Construction of the proposed modifications would involve the same types of activities described in the 2017 Final MND and the control measures defined in the 2017 CAP have not changed; therefore, the proposed modifications would not conflict with or obstruct implementation of the control measures defined in the 2017 CAP.

Construction of the proposed modifications would involve the use of equipment that would be similar to the equipment used for pole replacement and TSP foundation installation under the approved project. Construction activities would occur at roughly the same pole locations and temporary work areas identified in the 2017 Final MND. As shown in Table 2.3-2, the construction equipment amount, type, and duration of use changed as well as use of helicopters due to the additional work involved with TSP replacement in the Southern Segment under the proposed modifications. Haul truck trips for pole replacement activities would also increase due to the increase in soil proposed for removal. The anticipated active construction period in the Southern Segment would increase from 4 to 8 months, and the total anticipated construction period for the project would increase from approximately 12 to 24 months.

Estimated construction emissions in the SFBAAB were revised to account for the changes in equipment use and schedule. As with the approved project, PG&E would implement APMs AIR-1 and AIR-2 as part of the proposed modifications, which involve implementing dust and exhaust control measures per BAAQMD Guidelines. Table 3.4-2 lists the revised construction emissions estimates in the SFBAAB before and after implementation of APMs AIR-1 and AIR-2. Total reactive organic gas (ROG) and carbon monoxide (CO) emissions would decrease, but nitrogen oxides (NO_x) and exhaust particulate matter emissions would increase, compared to the emissions calculated in the 2017 Final MND. Emissions of NO_x in the SFBAAB would exceed significance thresholds prior to implementation of APMs AIR-1 and AIR-2. As shown in Table 3.4-2, construction emissions would be reduced to below applicable significance thresholds after implementation of APMs AIR-1 and AIR-2. The impact would be less than significant, consistent with the 2017 Final MND.

Table 3.4-2 Estimated Construction Emissions within the SFBAAB for the Project with Proposed Modifications

Criteria Air Pollutant	BAAQMD Significance Thresholds for Construction-related Average Daily Emissions (pounds/day)	Average Daily Construction Emission Estimates (pounds/day)	
		Before APMs AIR-1 and AIR-2	After APMs AIR-1 and AIR-2
ROG	54	13.8	13.7

Criteria Air Pollutant	BAAQMD Significance Thresholds for Construction-related Average Daily Emissions (pounds/day)	Average Daily Construction Emission Estimates (pounds/day)	
		Before APMs AIR-1 and AIR-2	After APMs AIR-1 and AIR-2
NO_X	54	54.9	52.7
PM_{10} exhaust	82	1.57	1.51
$PM_{2.5}$ exhaust	54	1.55	1.49
CO	None	63.7	62.0
PM_{10} /$PM_{2.5}$ fugitive dust	BMPs	13.40	3.10

ROG Reactive Organic Gases
NOx Nitrogen Oxides
PM_{10} Coarse Particulate Matter
$PM_{2.5}$ Fine Particulate Matter
CO Carbon Monoxide

Sources: (BAAQMD, 2017; RCH Group, 2019)

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard?

Less than Significant – Consistent with the 2017 Final MND

As described in the 2017 Final MND, the SFBAAB is designated as a nonattainment area for ozone and fine particulate matter ($PM_{2.5}$) under both NAAQS and CAAQS. The SFBAAB is designated as nonattainment for coarse particulate matter (PM_{10}) under CAAQS, but not NAAQS, and has attained both state and federal ambient air quality standards for CO. It was determined the project could have a cumulatively considerable impact on air quality in the SFBAAB, if it either (1) resulted in emissions above the significance thresholds, (2) the project would violate any action in an attainment plan, or (3) exceed thresholds of significance for ozone precursor pollutants (ROG and NO_X) and particulate matter (PM_{10} and $PM_{2.5}$) identified in the 2001 Ozone Attainment Plan (BAAQMD, 2001).

Estimated emissions generated during construction of the modified project would not exceed the significance thresholds for ROG or NO_x, with implementation of APMs AIR-1 and AIR-2, as analyzed under checklist question a). The proposed modifications activities would not contribute substantially to a cumulatively considerable impact on ozone, which is not in attainment in the SFBAAB.

The BAAQMD has not adopted numerical thresholds for emissions of particulate matter (both $PM_{2.5}$ and PM_{10}) during construction activities. The proposed modifications would involve a minor increase in surface grading and earth disturbance due to increase work areas and excavation involved with TSP replacement, which would result in a marginal increase in fugitive dust generated by the project. A minor increase in fugitive dust would not change the impact determination in the 2017 Final MND. Both the approved project and proposed

modifications could result in a cumulatively considerable contribution to particulate matter (both $PM_{2.5}$ and PM_{10}) from generation of fugitive dust, which would be a significant impact. As with the approved project, PG&E would implement APMs AIR-1 and AIR-2 to reduce fugitive dust and exhaust emissions during construction by requiring procedures such as watering of exposed soil, proper equipment maintenance, and limiting idling of construction vehicles and equipment. As shown in Table 3.4-2 , implementation of APMs AIR-1 and AIR-2 would reduce particulate matter (fugitive dust and exhaust) emissions by more than 70 percent, and thereby comply with the BAAQMD recommended source reduction measures for fugitive dust. Construction of the project with the proposed modifications would not result in a cumulatively considerable net increase of any criteria pollutant in nonattainment with implementation of APMs. The impact would be less than significant, consistent with the 2017 Final MND.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?
Less than Significant – Consistent with the 2017 Final MND

Sensitive receptors within 1,000 feet of the Southern Segment are described in Section 3.3.1 of the 2017 Final MND, which include residences, active recreational facilities, schools, childcare centers, and an eldercare facility. Generally, sensitive receptors are 20 to 40 feet or greater from poles and construction workspaces, except where poles are located directly adjacent to or within the property boundaries of Mark West Elementary School, Mark West Charter School, and San Miguel Elementary School.

The recent California Supreme Court case *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 ("*Friant Ranch*") held, in part, that the Friant Ranch Specific Plan EIR was deficient in the informational discussion of air quality impacts as they connect to adverse human health effects. The Supreme Court concluded that an EIR's discussion must "make [ ] a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." The proposed modifications' activities would not exceed any criteria air pollutant threshold with implementation of APMs, and would not contribute to concentrations of air pollutants in nonattainment in the SFBAAB, as analyzed under checklist question b). The criteria air pollutants generated during construction of the proposed modifications would not impact the health of nearby sensitive receptors.

As described in the 2017 Final MND, a significant impact could occur if sensitive receptors were exposed to concentrated CO levels from high traffic volume defined as more than 44,000 vehicles per hour at intersections (BAAQMD, 2017). The existing traffic volume along roads in the Southern Segment that would be affected by construction activities is relatively low. The total number of vehicle trips in the Southern Segment would increase slightly with the proposed modifications, but the estimated maximum number of daily vehicle trips would be the same as analyzed in the 2017 Draft MND (refer to Section 3.17.2: Transportation for details on vehicle trip estimates). TSP replacement would require periodic lane and road closures, resulting in traffic detours. Neither construction traffic nor the diversion of existing traffic would exceed the traffic volume threshold defined by BAAQMD, due to the low traffic volume in the project area. The impact on sensitive receptors from CO concentrations would be less than significant, consistent with the 2017 Final MND.

As described in the 2017 Final MND, a significant impact could also occur if sensitive receptors were exposed to concentrations of toxic air contaminants identified by the California Environmental Protection Agency listed in Title 17 CCR § 93000. As described under checklist question a), the proposed modifications would increase construction activities and equipment use in the Southern Segment from the additional TSP replacement, and the anticipated construction period would be extended by 4 months. The proposed modifications would involve the use of equipment that would be similar to the approved project for pole replacement and TSP foundation installation (refer to Table 2.3-2). Construction activities would occur at the same pole locations and temporary work areas identified in the 2017 Final MND.

Operation of diesel-powered equipment and helicopters during construction would generate toxic air contaminants. Table 2.3-4 shows the estimated number of workdays for the proposed modifications, including the previous estimates for the approved project. Like the approved project, work activities at pull sites and pole work areas would involve higher levels of continuous equipment use than other work locations, such as staging areas, mid-span work areas, and guard structures. Construction activities at staging areas would occur more frequently, but the daily activities would generally be limited to a few hours. Construction activities at pole locations and pull sites would generally be dispersed and conducted in phases similar to the approved project, but new phases would be involved with TSP installation and removal. In addition to stringing activities, pull sites would now be used for pole laydown and staging activities. With the proposed modifications, construction activities at pull sites would increase, but the number of days when continuous, intense construction activities would occur would remain the same. Construction at individual pole work areas would also increase. Like the approved project, work would occur for up to approximately 12 hours per day, but equipment would be operated periodically, as opposed to continuously, for the entire day. The proposed modifications would increase the duration that sensitive receptors would be exposed to construction activities compared to the approved project, but the intensity of activities would only nominally change, and construction would not generate substantial concentrations of pollutants. The impact would be less than significant, consistent with the 2017 Final MND.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact – Consistent with the 2017 Final MND

Like construction of the approved project, construction of the proposed modifications could temporarily create undesired odors from diesel exhaust during active use of equipment. The duration of construction and equipment use would increase from approximately 4 to 8 months with the proposed modifications as would the potential for odors from diesel exhaust; however, such odors would remain temporary during active equipment operation in a single area. Any odors would not persist long after project activities were halted and would not affect a large area. No impact would occur, consistent with the 2017 Final MND.

3.5 BIOLOGICAL RESOURCES

3.5.1 Environmental Setting

Overview

The environmental setting discussion in Section 3.4.3 of the 2017 Final MND describes existing biological resources and habitat conditions in the project study area. The proposed modifications would occur in the same areas of the Southern Segment described in 2017 Final MND. The 2017 Final MND identifies vegetation communities and land cover types, waters and wetlands, suitable habitat, critical habitat, and wildlife corridors in the entire project study area. Biological resources specific to the Southern Segment are summarized below.

Vegetation Communities and Land Cover Types

Table 3.5-1 summarizes vegetation communities and land cover types in the Southern Segment and identifies those determined in the 2017 Final MND to be potentially suitable habitat for special-status species with low, moderate, or high potential to occur in the project study area. Approximately 16 percent of the project study area in the Southern Segment contains natural vegetation communities (i.e., mixed woodland, forest, and non-grassland), approximately 35 percent contains agriculture development, and approximately 49 percent is developed. Special-status species could occur in natural vegetation communities. Special-status species that may occur in the Southern Segment and potentially suitable habitat are discussed below. Vegetation communities and land cover types in the Southern Segment are shown on Figure D-1 in Appendix D of the 2017 Final MND).

Table 3.5-1 Summary of Vegetation Communities and Land Cover Types in the Southern Segment

Description	Total in Southern Segment Study Area (acres)	Percentage of Southern Segment Study Area	Determined Potentially Suitable Habitat for Special-Status Species (2017 Final MND)	Anticipated Temporary Impact (acres) [a]
Coast Live Oak Woodland	6.2	4%	Yes	0.6
Fremont Cottonwood Riparian Forest [b]	3.8	2%		0.2
Non-native grassland	17.2	10%		5.1
Agriculture	57.7	35%	No	4.3
Developed	81.5	49%		5.4
Total	**166.3**	**100%**	**n/a**	**15.6**

Description	Total in Southern Segment Study Area (acres)	Percentage of Southern Segment Study Area	Determined Potentially Suitable Habitat for Special-Status Species (2017 Final MND)	Anticipated Temporary Impact (acres) [a]

Notes:

[a] Temporary impacts could occur in work areas in the Southern Segment, including staging areas, landing zones, pull sites, pole sites, and mid-span areas. The proposed work areas are approximately the same size as those identified in the 2017 Final MND. LZ-3 in the Northern Segment would also be used for construction of the proposed modifications, which is located approximately 1 mile north of the Southern Segment and immediately north of Shiloh Ridge Road. The area of LZ-3 is not included in this summary because it was addressed separately for construction in the Northern Segment.

[b] The 2017 Final MND referred to these areas as Central Coast live oak riparian forest. The specific classification of riparian forest was refined during surveys conducted in March 2018 as part of the Revegetation and Restoration Monitoring Plan (Stantec, 2018a).

Sources: (GANDA, 2012; TRC, 2015b; TRC, 2016b; TRC, 2016c; TRC, 2017c; Pacific Biology, 2017; Stantec, 2018a)

Water and Wetlands

Table 3.5-2 summarizes jurisdictional waters in the Southern Segment, which may provide potentially suitable habitat for some special-status plants and wildlife. There are no potentially jurisdictional wetlands in the Southern Segment. Waters in the Southern Segment are shown in the detail maps provided in Appendix A, as well as Figure F-1 in Appendix F of the 2017 Final MND.

Table 3.5-2 Summary of Jurisdictional Waters in the Southern Segment

Type	ID	Project Areas within 50 feet	Anticipated Impact
Seasonal Watercourse (SEW)	SEW 1	Pole 23 and PS-6	None; SEW would be flagged and avoided
	SEW 9/9A	Pole 21 (including access route), PS-5, and LZ-2	None; SEW would be flagged and avoided; a temporary bridge would be installed over an existing culvert to access Pole 21
	SEW 41	Pole 20	None; SEW outside of work area
	SEW 42	None	--
	SEW 43	PS-3	None; SEW outside of work area
Riparian Woodland (RIWO) (surrounds Mark West Creek)	RIWO 13	Pole 13a/13b	*Potential impact; up to approx. 0.02 acre of vegetation disturbance
Drainage Ditch (D)	D1	Poles 2 through 5, PS-1, PS-2	None; drainage would be flagged and avoided or crossed without impacting
	D2	Pole 5 and PS-2	None; drainage would be flagged and avoided or crossed without impacting
	D3	Pole 5 and PS-2	None; drainage outside of work area

Type	ID	Project Areas within 50 feet	Anticipated Impact
	D4	Pole 20	None; drainage outside of work area

Sources: (GANDA, 2016; TRC, 2015a; TRC, 2015b; TRC, 2016a; TRC, 2016b; TRC, 2016c; GANDA, 2017; TRC, 2017b; TRC, 2017a; GANDA, 2012) and (Stantec, 2018b)

Habitat Assessment

Table 3.5-3 summarizes special-status species (including some rare species) identified in Table 3.4-4 (plants) and Table 3.4-5 (wildlife) of the 2017 Final MND with "low, moderate, and high potential to occur" in the Southern Segment study area based on the types of natural vegetation communities that are present (e.g., coast live oak woodland, Fremont cottonwood riparian forest, and non-native grassland) (refer to Table 3.5-1). The Southern Segment ranges from roughly 150 feet above sea level at Fulton Substation to 225 feet above sea level at Pole 23. Vegetated areas in the Southern Segment study area that may provide potentially suitable habitat are surrounded by developed and disturbed areas (i.e., residential and agricultural development, roads, and highways) and are highly fragmented. Table 3.5-3 includes a conservative list of species based on the habitat assessment presented in the 2017 Final MND. Additional information about the habitat assessment is provided in Section 3.4.3 of the 2017 Final MND.

Table 3.5-3 Special-Status Species with Potential to Occur in the Southern Segment Study Area

Common Name *Scientific Name*	Fed./State/ Other Status [a]	Habitat/Blooming Period	Fed. Species Covered by PG&E's HCP [b]
Plants			
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	--/--/1B.1	Vernal pools, meadows and seeps, and similar mesic areas in cismontane woodland, valley and foothill grassland, and lower montane coniferous forest. 16 to 5,709 feet. (April to July)	N/A
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	--/--/1B.2	Valley and foothill grassland, chaparral, and cismontane woodland. Sometimes on serpentine. 295 to 5,102 feet. (March to June)	N/A
Burke's goldfields *Lasthenia burkei*	FE/SE/1B.1	Vernal pools, meadows and seeps. 49 to 1,968 feet. (April to June)	Covered
Dwarf downingia *Downingia pusilla*	--/--/2.2	Vernal pools and similar mesic sites in valley and foothill grassland. 3 to 1,460 feet. (March to May)	N/A
Fragrant fritillary *Fritillaria liliacea*	--/--/1B.2	Coastal scrub, valley and foothill grassland, and coastal prairie. Often found on serpentine. 10 to 1,345 feet. (February to April)	N/A

Common Name *Scientific Name*	Fed./State/ Other Status [a]	Habitat/Blooming Period	Fed. Species Covered by PG&E's HCP [b]
Legenere *Legenere limosa*	--/--/1B.1	Vernal pools. 3 to 2,887 feet. (April to June).	N/A
Marsh microseris *Microseris paludosa*	--/--/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland. 16 to 984 feet. (April to July)	N/A
Seaside tarplant/pale yellow hayfield tarplant *Hemizonia congesta* ssp. *congesta*	--/--/1B.2	Valley and foothill grassland, sometimes on roadsides. 66 to 1,827 feet. (April to November)	N/A
Sebastopol meadowfoam *Limnanthes vinculans*	FE/SE/1B.1	Vernal pools and similar mesic areas in meadows and seeps, and valley and foothill grassland. 49 to 1,001 feet. (April to May)	Covered
Sonoma sunshine *Blennosperma bakeri*	FE/SE/1B.1	Vernal pools, and other mesic areas in valley and foothill grassland. 33 to 361 feet. (March to May)	Covered
Wildlife			
California freshwater shrimp *Syncaris pacifica*	FE/SE/--	Shallow pools away from main streamflow. Must have perennial flows. Winters under exposed underwater roots; may be found in summer under leafy branches touching water.	Covered
California Coast chinook salmon *Oncorhynchus tshawytscha*	FT/--/--	Anadromous; migrates through San Francisco Bay and spawns in coastal rivers and creeks. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water, and sufficient dissolved oxygen.	Not Covered
Central California Coast coho salmon *Oncorhynchus kisutch*	FE/SE/--	Anadromous; migrates through San Francisco Bay and spawns in coastal rivers and creeks. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water, and sufficient dissolved oxygen.	Not Covered
Central California Coast steelhead *Oncorhynchus mykiss irideus*	FT/--/--	Anadromous, migrates through San Francisco Bay, spawns in coastal rivers and creeks. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water, and sufficient dissolved oxygen	Not Covered
Hardhead *Mylopharodon conocephalus*	--/CSC/--	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity.	N/A

Common Name *Scientific Name*	Fed./State/ Other Status [a]	Habitat/Blooming Period	Fed. Species Covered by PG&E's HCP [b]
Navarro roach *Lavinia symmetricus navarroensis*	--/CSC/--	Prefers pool habitats, with low water velocity. Found in warm intermittent streams as well as cold aerated streams. Confined to the Navarro River and its tributaries.	N/A
Russian River tule perch *Hysterocarpus traski pomo*	--/CSC--	Low elevation streams of the Russian River system. Requires clear, flowing water with abundant cover. They also require deep (> 1 meter) pool habitat.	N/A
California red-legged frog Rana draytonii	FT/CSC/--	Breeding sites include aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds, lagoons, and artificial impoundments, such as stock ponds. Upland habitats include downed woody vegetation, leaf litter, and small mammal burrows that provide protection from predators and prevent desiccation.	Covered
California tiger salamander (CTS) Ambystoma californiense	FT/ST/--	Vernal pools, stock ponds and/or other seasonal water sources; requires underground refuge sites in accessible upland areas.	Covered
Foothill yellow-legged frog Rana boylii	-- /CSC/--	Partly-shaded shallow streams and riffles with a rock substrate in a variety of habitats. Sandy and rocky or gravelly banks at 6,000 ft. and below in elevation.	N/A
Western pond turtle *Actinemys marmorata*	--/CSC/--	Perennial ponds, deep slow-moving streams, marshes and lakes are habitat for this species at 6,000 ft. and below in elevation. However, eggs are laid in loose soil on land in oak woodlands, mixed coniferous forests, broadleaf forests and grasslands, usually within 400 ft. of ponds, lakes, slow streams and marshes with vegetated borders, rocks, or logs. Logs, rocks, cattail mats, and exposed banks are required for basking.	N/A
Cooper's hawk *Accipiter cooperi*	--/WL/--	Mature forests, open woodland, riparian forest. Nests in coast live oak and other forest habitats.	N/A
Northern harrier *Circus cyaneus*	--/CSC/--	Nests on ground in swales and low-lying grasslands	N/A
Oak titmouse *Baeolophus inornatus*	BCC/--/--	Nests in tree cavities in oak-woodlands.	Not Covered
White-tailed kite *Elanus leucurus*	--/CFP/--	Generally nests in trees near fields, open groves, grasslands, or marshes.	N/A
American badger *Taxidea taxus*	--/CSC/--	Suitable habitat is characterized by herbaceous, shrub, and open stages of most habitats with dry, friable soils.	N/A

Common Name *Scientific Name*	Fed./State/ Other Status [a]	Habitat/Blooming Period	Fed. Species Covered by PG&E's HCP [b]
Fringed myotis *Myotis thysanodes*	--/--/ WBWG H	Roosts in mines, caves, trees and buildings.	N/A
Hoary bat *Lasiurus cinereus*	--/--/ WBWG M	Forested habitat	N/A
Long-eared myotis *Myotis evotis*	--/--/ WBWG M	Variety of woodland and forest habitats, but prefers conifers. Roosts in crevices, buildings, snags, and under bark.	N/A
Pallid bat *Antrozous pallidus*	--/CSC/ WBWG H	Variety of habitats; prefer open dry lands with rocky areas for roosting. Roosts in anthropogenic structures (buildings and bridges), cliff crevices of rock faces, and hollow trees.	N/A
Townsend's big-eared bat *Corynorhinus townsendii*	--/CSC/ WBWG H	Variety of woodland and forest habitats, but prefers conifers. Roosts primarily in caves, mines, tunnels, and sometimes in buildings, bridges, or other human-made structures.	N/A
Western red bat *Lasiurus blossevillii*	--/CSC/ WBWG H	Edges of open to moderately dense deciduous foothill woodlands along streams. Roosts in moderately dense foliage.	N/A
Yuma myotis *Myotis yumanensis*	--/--/ WBWG ML	Woodland and open forest with freshwater sources over which to feed.	N/A

Notes:

[a] Status Key:

Federal status designations:
- FE = federally endangered
- FT = federally threatened
- BCC = bird of conservation concern

State status designations:
- SE = State endangered
- ST = State threatened
- CSC = California species of concern
- CFP = California fully protected
- WL = Watch List species

"Other" for plants refers to California Rare Plant Rank (CRPR) status designations:
- 1A = assumed extinct in California
- 1B = rare, threatened, or endangered in California and elsewhere
- 2 = rare, threatened, or endangered in California, but more common elsewhere

CRPR threat ranks:
- .1 = seriously threatened
- .2 = fairly threatened
- .3 = not very threatened

"Other" for wildlife refers to Western Bat Working Group (WBWG) status designations:
- WBWG H = high priority
- WBWG M = medium priority
- WBWG ML = medium/low priority

[b] PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan (HCP) (refer to the impact discussion under question f).

Sources: (GANDA, 2012; TRC, 2016b; TRC, 2016c; GANDA, 2015a; GANDA, 2015b; Swaim Biological, Inc., 2016; USFWS, 2011; TRC, 2017c; CNPS, 2017) and (PG&E, 2017)

Critical Habitat and Wildlife Corridors

Mark West Creek, located between Poles 12 and 13 (refer to detail maps in Appendix A), is the only landscape feature in the Southern Segment that may serve as a critical wildlife corridor for aquatic wildlife species, as well as mammals, amphibians, and reptiles that could move within connected habitat. Other seasonal watercourses identified in Table 3.5-4 may also serve as wildlife corridors. Mark West Creek is designated as critical habitat for steelhead salmon by the US Fish and Wildlife Service (USFWS). The expansive agricultural region southwest of US 101 includes USFWS-designated critical habitat for California tiger salamander (CTS), including the Fulton Substation property.

3.5.2 Impact Discussion

Impacts of the approved project on biological resources were addressed in Section 3.4.4 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for biological resources are listed in Table 3.5-4 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to question c). Determinations for the current impact questions are discussed below.

Table 3.5-4 Summary of Proposed Modification Impacts for Biological Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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 the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
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?	☐	☒	☐	☐

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
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?	☐	☒	☐	☐

a) Would the project 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 the U.S. Fish and Wildlife Service?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

Potential direct and indirect impacts on special-status, sensitive, and rare species (generally referred to as special-status species) were analyzed for the approved project in Section 3.4.4 (a) of the 2017 Final MND. The analysis focused on species with low, moderate, and high potential to occur in the project study area, as summarized in Tables 3.4-4 (plants) and Table 3.4-5 (wildlife) in the 2017 Final MND. The 2017 Final MND addressed potential direct impacts from construction (i.e., vehicle and equipment access, grading, vegetation removal, and excavation for pole replacement); potential indirect impacts from construction (i.e., habitat loss, reduction, fragmentation, contamination, or disruption); and potential permanent impacts from operation and maintenance (i.e., permanent disturbance from new poles, design risks to birds, and ongoing activities to operate, inspect, and maintain the project facilities). The overall impacts on special-status species from the approved project were determined to be less than significant with mitigation.

The 2017 Final MND included the following APMs and/or MMs to address potentially significant direct impacts on special-status plants, amphibians, reptiles, birds, and mammals:

- **Special-Status Plants.** APM BIO-1a (worker training), MM Biology-1 (biological monitoring by qualified botanists), and MM Biology-2 (pre-construction surveys for special-status plants)
- **California-red Legged Frog (CRLF) and Foothill Yellow-legged Frog (FYLF)**. APM BIO-1a (environmental awareness training), APM BIO-1g (parking restrictions), APM BIO-1h (access and work area restrictions), APM BIO-1k (cover excavations), MM Biology-1 (minimum qualifications for biologists),

MM Biology-3 (survey and map CRLF habitat within 500 feet), MM Biology-4 (survey and map FYLF habitat within 10 feet), and MM Hydrology-4 (Seasonal Watercourse Avoidance and Crossing Plan)

- **California Tiger Salamander (CTS)**. APM BIO-1a (environmental awareness training), APM BIO-1g (parking restrictions), APM BIO-1h (access and work area restrictions), APM BIO-1k (cover excavations), and APM BIO-7 (conduct pre-construction surveys for CTS and CTS exclusion fencing in critical habitat)
- **Western Pond Turtle**. APM BIO-1a (environmental awareness training), APM BIO-1g (parking restrictions, APM BIO-1h (access and work area restrictions), APM BIO-1j (pet and firearm restrictions), APM BIO-1k (cover excavations), and APM BIO-9 (pre-construction surveys, daily sweeps for western pond turtle, and relocating turtles if found in construction areas), and MM Hydrology-4 (Seasonal Watercourse Avoidance and Crossing Plan)
- **Special-Status and Protected Migratory Birds.** APM BIO-1a (worker environmental awareness training), APM BIO-1g (parking restrictions), APM BIO-1h (access and work area restrictions), APM BIO-1j (pet and firearm restrictions), MM Biology-1 (minimum qualifications for biologists), and MM Biology-5 (nesting surveys, avoidance buffers, and monitoring; and construct the project following the recommendations published by the Avian Power Line Interaction Committee, *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*).
- **American Badger.** APM BIO-1a (environmental awareness training), APM BIO-1g (parking restrictions), APM BIO-1h (access and work area restrictions), APM BIO-1j (pet and firearm restrictions), and APM BIO-8 (pre-construction surveys for American badger and implementation of work restriction buffers around active dens)
- **Special-Status Bats.** APM BIO-1a (environmental awareness training), APM BIO-1g (parking restrictions), APM BIO-1h (access and work area restrictions), MM Biology-6 (pre-construction assessment for suitable bat roosting habitat within approximately 50 feet)

Indirect impacts on habitat and breeding behavior were addressed through implementation of APM AIR-1 (control of fugitive dust); APM BIO-1f (waste and liter management) and the Stormwater Pollution and Prevention Plan (SWPPP) pursuant to the State of California Construction General Permit; MM Biology-7 (Revegetation, Restoration, and Monitoring Plan); MM Biology-8 (minimize potential for introducing and spreading invasive weeds); and, MM Hazards-1 (procedures for vehicle and equipment maintenance, refueling, hazardous material handling and storage, and emergency spill response).

The proposed modifications would occur within the same study area identified in the 2017 Final MND and would result in similar direct and indirect impacts on special-status species that could occur in the Southern Segment (refer to Table 3.5-3). The proposed modifications would involve more extensive pole replacement that was not analyzed in the 2017 Final MND for the

Southern Segment. An additional 21 TSPs (including three hairpin structures with two shafts) would be replaced at a 1:1 ratio within approximately 15 to 35 feet of the existing poles on foundations of similar size (5 to 7 feet in diameter or up to 40 square feet). New poles would be installed from approximately the same work areas identified for the approved project with minor adjustments to include the new pole locations. Old poles would be removed following installation and remaining holes would be backfilled.

Temporary disturbance of natural vegetation communities in the Southern Segment, which may provide potentially suitable habitat for special-status species (e.g., coast live oak woodland, Fremont cottonwood riparian forest, and non-native grassland), would be approximately the same as for the approved project and would not exceed the conservative estimates identified Table 3.4-7 of the 2017 Final MND analysis (up to 9.8 acres).

No permanent disturbance was previously addressed in the Southern Segment because only limited pole replacement and relocation was proposed (replacement of Pole 6 and relocation of existing distribution poles). Pole replacement with the proposed modifications could result in some level of permanent impacts on natural vegetation communities, including at Poles 7a, 7d, 11, 15 within non-native grassland; Pole 13a/13b in riparian woodland; and, Pole 23 in oak woodland. Depending and the location of new poles, each could permanently impact up to 40 square feet from the new foundations. At most, up to 280 square feet (0.006 acre) of natural vegetation communities could be permanently disturbed without any offsetting for reclamation of existing pole areas, which would not be substantial.

The proposed modifications would not introduce any new or substantially greater impacts on special-status species than those described for the approved project. The same APMs and MMs described for the approved project would be implemented for the proposed modifications to ensure potential impacts on special-status species would be less than significant. Surveys, mapping, and monitoring described in the APMs and MMs would be implemented as applicable where the limited natural vegetation communities are located in the Southern Segment or otherwise required by USFWS and the California Department of Fish and Wildlife (CDFW).

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?
Less than Significant with Mitigation – Consistent with the 2017 Final MND
Sensitive natural plant communities in the approved project study area include riparian habitat and Oregon oak woodland. Only riparian woodland is located near project areas in the Southern Segment, as summarized in Table 3.5-1, where Mark West Creek is located near Poles 12 and 13. Potential direct and indirect impacts on riparian woodland were analyzed for the approved project and determined to be less than significant with mitigation.

The proposed modifications would result in up to approximately 0.2 acre of temporary disturbance in riparian woodland at the Pole 13a/13b work area, which is the same disturbance as was calculated for the approved project. Potential temporary impacts on riparian woodland

would be less than significant with implementation of APM BIO-10 (replace qualifying oak trees or contribute to an in-lieu fee program for oak tree removal), MM Biology-1 (minimum qualifications for biologists), MM Biology-7 (Revegetation, Restoration, and Monitoring Plan), and MM Biology-9 (avoid sensitive natural plant communities to the greatest extent feasible, and mitigate for unavoidable impacts on sensitive vegetation communities at a 1:1 ratio). Construction of the proposed modifications would not result in permanent impacts in riparian woodland because the new poles would be positioned outside of the mapped boundary of the vegetation community (refer to the detail maps provided in Appendix A).

Like the approved project, construction of the proposed modifications could result in indirect impacts on sensitive natural plant communities during construction, including from spreading or introducing sudden oak death syndrome (SODS), spreading or introducing invasive weeds, or causing erosion or sedimentation of waterways. Impacts from SODS would be less than significant with implementation of MM Biology-10 (clean tools and equipment that may be infected with the SODS pathogen). Impacts from invasive weeds would be less than significant with implementation of MM Biology-8 (minimize potential for introducing and spreading invasive weeds). Impacts from erosion and sedimentation would be less than significant with implementation of the SWPPP pursuant to the State of California Construction General Permit.

c) Would the project 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 – Consistent with the 2017 Final MND

Potential direct and indirect impacts on jurisdictional wetlands in the project study area were addressed in the 2017 Final MND. Jurisdictional waters listed in Table 3.5-2 are located in the Southern Segment adjacent to construction work areas and access routes; none are defined as wetlands. It is anticipated that all jurisdictional waters would be avoided or crossed in a manner that would not directly impact the water feature. If access or crossing methods changed, jurisdictional waters including wetlands could be directly impacted, as was the case with the approved project. Indirect impacts on wetlands could occur from spreading or introducing invasive weeds, causing erosion or sedimentation, or contamination with hazardous materials. Impact to wetlands would be less than significant with implementation of MM Hydrology-4 (Seasonal Watercourse Avoidance and Crossing Plan), MM Biology-8 (minimize potential for introducing and spreading invasive weeds), MM Biology-11 (wetland protection procedures and 2:1 compensatory mitigation), MM Hazards-1 (procedures for vehicle and equipment maintenance, refueling, hazardous material handling and storage, and emergency spill response), and the SWPPP.

d) Would the project 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 – Consistent with the 2017 Final MND

Mark West Creek, and potentially other seasonal watercourses identified in Table 3.5-4, serve as wildlife corridors for aquatic wildlife species. Oak woodland and forest habitats provide

migratory corridors for upland species, and migratory dispersal corridors for aquatic species such as CRLF and western pond turtle. Potential impacts of the approved project on wildlife corridors and wildlife nursery sites were evaluated in the 2017 Final MND. The proposed modifications would result in approximately the same potential impacts during construction from ground and vegetation disturbance near Mark West Creek and within woodland and forest vegetation. As with the approved project, impacts would be less than significant with implementation of APM BIO-9 APM BIO-9 (pre-construction surveys, daily sweeps for western pond turtle, and relocating turtles if found in construction areas), MM Biology-3 MM Biology-3 (survey and map CRLF habitat within 500 feet), MM Biology-5 (nesting surveys, avoidance buffers, and monitoring), and MM Hydrology-5 (culvert design standards, if installed).

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
Less than Significant – Consistent with the 2017 Final MND

Oak woodland is protected under California PRC § 21083.4, which requires counties to determine whether a project may result in the conversion of oak woodlands that would have a significant effect on the environment. The Sonoma County Zoning Ordinance, Article 67, establishes retention and conservation requirements for valley oaks and valley oak woodlands. Potential oak tree impacts were analyzed for the approved project, including removal of up to approximately 50 oak trees (e.g., valley oak, coast live oak, or black oak) that may meet the criteria for protected oak trees defined by Sonoma County. The proposed modifications would result in similar impacts on woodland and forest vegetation in the Southern Segment (up to approximately 0.8 acres). Tree removal would occur where necessary to establish access and install poles. The specific number of trees that may be removed is not known, but would not exceed the estimates provided in the 2017 Final MND for the entire project (up to 100 trees of any type and size, approximately half of which may be oak trees). Impacts would be less than significant with implementation of APM BIO-10 which requires PG&E to ensure any impacts on qualifying large and small valley oaks or any other protected trees are replaced at a 1:1 ratio, or alternatively, PG&E pays an in-lieu fee to the County valley oak planting program.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?
Less than Significant with Mitigation – Consistent with the 2017 Final MND

Santa Rosa Plains Conservation Strategy

Portions of the Southern Segment are located within the Santa Rosa Plains Conservation Strategy (SRPCS) area, a USFWS-implemented habitat conservation plan for CTS, and several special status plants including Burke's goldfield, Sonoma sunshine, Sebastopol meadowfoam, and the many-flowered navarretia (refer to Figure 3.4-2 of the 2017 Final MND). Construction of the proposed modifications would be located within all three of the parcel classification types where work areas and access routes would be located within the SRPCS plan area. The quality of potentially suitable habitat in the Southern Segment for CTS and listed plants is low because it is highly fragmented by developed areas and agricultural land uses. No seasonal wetlands are located within the Southern Segment study area that provide habitat for the listed plant species.

The proposed modifications would result in similar temporary impacts within the SRPCS classified parcels as the approved project. The proposed modifications could also result in some permanent impacts where new poles would be installed within the SRPCS parcels, such as at Poles 7a, 7d, 9, 10, 11, 12, 13a/13b, 14, 21a/21b, and 22. As described under checklist question a), if reclamation of existing pole locations does not offset the impacts at these new pole locations, the proposed modifications could result in up to 480 square feet (0.01 acre) of permanent impacts within SRPCS classified parcels.

The SRPCS establishes that impacts on areas classified as "potential for presence of CTS and listed plants" be mitigated by providing a monetary contribution (in-lieu fee payment) to a species fund overseen by USFWS and/or CDFW at ratios identified in Table 3.4-9 of the 2017 Final MND (USFWS, 2007). The 2007 Programmatic Biological Opinion, however, identifies that mitigation may not apply to hardscapes and that "for each project, the Service and CDFW will determine if hardscapes provide benefits to the species and if any mitigation is required." PG&E would be required to consult with USFWS prior to impacting SRPCS classified parcels and would implement any compensatory mitigation that may be required. Construction of the proposed modifications would not conflict with the compensatory mitigation requirements of the SRPCS.

The SRPCS also includes minimization measures to lessen impacts on CTS during work in SPRCS classified parcels. As with the approved project, the proposed modifications would be constructed in a manner consistent with the SRPCS minimization measures through implementation of APM AIR-1 (control fugitive dust), APM BIO-1a (worker training), APM BIO-1f (waste and liter management), APM BIO-1g (parking restrictions), APM BIO-1h (access and work area restrictions), APM BIO-1j (pet and firearm restrictions), APM BIO-7 (conduct pre-construction surveys for CTS and CTS exclusion fencing in critical habitat), MM Biology-1 (biological monitoring by qualified botanists), MM Biology-7 (Revegetation, Restoration, and Monitoring Plan), MM Hazards-1 (procedures for vehicle and equipment maintenance, refueling, hazardous material handling and storage, and emergency spill response), and the SWPPP.

PG&E Bay Area Operations and Maintenance Habitat Conservation Plan

Since the 2017 Final MND was prepared, the USFWS issued PG&E an Endangered Species Act Section 10(a)(1)(B) incidental take permit for PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan (HCP). The HCP includes strategies to avoid, minimize, and offset potential direct, indirect, and cumulative effects of PG&E's operations, maintenance, and minor new construction activities on 32 species federally listed as threatened or endangered within an approximately 402,440-acre area, including Sonoma County (USFWS, 2017).

The project would not conflict with the HCP, as it was designed to permit covered PG&E activities that may impact federally listed species. The project, including the proposed modifications, appears to meet the definition of "minor new construction activities" covered by the HCP. Coverage would be determined by the USFWS HCP Administrator. PG&E would either use the HCP to obtain Section 10 coverage for impacts on federally listed species or obtain

separate incidental take permits from USFWS. Federally listed species covered by PG&E's HCP with potential to occur in the Southern Segment are identified in Table 3.5-3. PG&E may also be required to obtain incidental take permits from CDFW per Section 2081 of Fish and Game Code to ensure legal coverage for any impacts on state listed species. Construction of the proposed modifications would be consistent with the HCP.

3.6 CULTURAL AND TRIBAL CULTURAL RESOURCES

3.6.1 Environmental Setting

Cultural Resources

The environmental setting discussion in Section 3.5.2 of the 2017 Final MND describes existing cultural and tribal cultural resources conditions in the project area. As described in the 2017 Final MND, a records search for cultural resources was conducted for an area within 0.25-mile of the Southern Segment. Cultural resources identified in the records search for the Southern Segment included lithic scatter, a ranch complex, and the PG&E transmission line from Fulton Substation to St. Helena (Tremaine & Associates, Inc., 2015). In 2012, Tremaine & Associates, Inc. conducted a pedestrian survey of existing pole locations, including a 150-foot-wide radius surrounding the poles, and other temporary work areas along the Southern Segment (e.g., staging areas and pull sites). The pedestrian survey areas are shown on maps provided in Appendix E of the 2017 Final MND. Two cultural resources were identified during the pedestrian survey in the Southern Segment, including one site containing a sparse scattering of historic debris (FF-1) and signs of a prehistoric component, and another site containing a rock alignment (FF-2), which most likely functioned as a rock wall demarcating a property line (Tremaine & Associates, Inc., 2015). In 2015, a subsequent survey was completed for the archaeological site containing historic and prehistoric debris (FF-1) and presence-absence testing was conducted to determine if obscured or buried resources were present. Presence-absence testing indicated that artifacts were secondarily deposited lithic scatter, possibly associated with an unconfirmed site outside of the project site. Both sites were evaluated for their eligibility for listing in the California Register of Historical Resources (CRHR) and neither were considered eligible because they lacked integrity, data potential, and research value (Tremaine & Associates, Inc., 2015). No other known cultural resources are located within the Southern Segment.

Tribal Cultural Resources

The 2017 Final MND provides the details of coordination efforts and correspondence with the Native American Heritage Commission (NAHC) and local Native American tribes. PG&E and the CPUC contacted and/or coordinated with nine separate tribes identified in Table 3.5-2 of the 2017 Final MND. All tribes who requested prior notice from the CPUC were provided with formal notification under Assembly Bill (AB) 52 after deeming PG&E's initial project application complete on April 29, 2016, as required by PRC § 21080.3.1(d). No known tribal cultural resources or sites of Native American concern were identified in the Southern Segment.

Additional outreach was not conducted for the Supplemental MND because the proposed modifications would occur within the same study area analyzed in the 2017 Final MND.

3.6.2 Impact Discussion

Impacts of the approved project on cultural and tribal cultural resources were addressed in Section 3.5.3 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for cultural and tribal cultural resources are listed in Table 3.6-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to question a) and removal of question c) for cultural resources. Determinations for the current impact questions are discussed below.

Table 3.6-1 Summary of Proposed Modification Impacts for Cultural and Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
d) 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, or in a local register of historical resources as defined in Public Resources Code section 5020.1(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 Resource Code Section 5024.1,	☐	☒	☐	☐

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
the lead agency shall consider the significance of the resource to a California Native American Tribe.				

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

The pedestrian surveys in the Southern Segment identified two potential historic resources (FF-1 and FF-2), but the sites were determined to be ineligible for listing in the CRHR. Because no known eligible resources are present along the Southern Segment, construction of the proposed modification would not impact known historical resources. However, as with the approved project, excavation of the proposed pole replacement holes and grading of reconfigured PS-6 could impact previously undiscovered CRHR-eligible resources.

Potentially significant impacts on previously undiscovered historic resources would be less than significant with implementation of MM Cultural-1, MM Cultural-2, MM Cultural-3, and MM Cultural-4 from the 2017 Final MND. MM Cultural-1 requires monitoring of excavations greater than 3 feet in diameter and grading greater than 6 inches in depth in previously undisturbed areas. MM Cultural-2 requires workers to receive cultural resources training. MM Cultural-3 requires PG&E to conduct cultural resource surveys prior to construction within any areas not previously surveyed (where project features require minor relocation prior to construction). MM Cultural-4 specifies data recovery methods for previously undiscovered CRHR-eligible resources.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

No unique archaeological resources, as defined by CEQA Guidelines Section 15064.5, were found during cultural resource surveys for the proposed project. Because no known resources are present along the Southern Segment, construction of the proposed modifications would not impact known archaeological resources. However, as with the approved project, excavation of the proposed replacement pole holes and grading of reconfigured PS-6 could impact previously undiscovered archaeological resources. Consistent with the approved project, potentially significant impacts on previously undiscovered historic resources would be less than significant with implementation of MM Cultural-1 (cultural monitoring in qualifying undisturbed areas), MM Cultural-2 (worker training on cultural resources), MM Cultural-3 (cultural resource survey requirements if project areas change), and MM Cultural-4 (data recovery methods for previously undiscovered CRHR-eligible resources) from the 2017 Final MND, consistent with the approved project.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant – Consistent with the 2017 Final MND

As described in the 2017 Final MND, no recorded Native American or other human remains have been identified within or adjacent to the project study area, including the Southern Segment. Unrecorded human remains could be discovered and inadvertently disturbed during construction of the proposed modifications. As with the approved project, PG&E would be required to adhere to Health and Safety Code § 7050.5 and PRC §§ 5097.94, 5097.98, and 5097.99, which include procedures to halt work if human remains are discovered, notify the County Coroner to examine the remains, and to determine the appropriate treatment for potential prehistoric Native American remains through consultation with the Most Likely Descendent identified by the NAHC and the property owner. Impacts on previously undiscovered human remains would be less than significant.

d) 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, or in a local register of historical resources as defined in PRC § 5020.1(k)?, or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence and with consideration of the significance of the resource to a California Native American tribe, to be significant pursuant to criteria set forth in subdivision (c) of PRC § 5024.1?

Less than Significant with Mitigation – Consistent with 2017 Final MND

As discussed in the 2017 Final MND, none of the tribes contacted by PG&E or the CPUC identified any tribal cultural resources within the project study area, which includes the Southern Segment where the proposed modifications would occur, and no evidence of any physical cultural resource was found during the pedestrian survey effort. Previously undiscovered tribal cultural resources could be encountered during construction of the proposed modifications. If a resource is encountered during ground-disturbing activities that show signs of prehistoric Native American culture, it could be a significant tribal cultural resource. Damage to a significant tribal cultural resource, as defined in PRC § 5024.1, would be a significant impact. As with the approved project, MM Cultural-1, MM Cultural-2, MM Cultural-3, and MM Cultural-4 from the 2017 Final MND would be implemented to address potentially significant impacts on tribal cultural resources that may be encountered during construction of the proposed modifications. MM Cultural-1 requires PG&E to designate a Native American specialist responsible for evaluating whether any new cultural resources found during construction are significant tribal cultural resources, as defined in PRC § 21074(a), and to implement coordination procedures with the CPUC and local tribes identified by the NAHC. MM Cultural-2 requires all construction personnel be trained to recognize possible tribal cultural resources prior to beginning work on the project. MM Cultural-3 requires PG&E to conduct cultural resource surveys prior to construction (within any areas not previously

surveyed). MM Cultural-4 defines methods for any data recovery that may be performed on discovered resources. Impacts on tribal cultural resources would be less than significant with mitigation.

3.7 ENERGY

3.7.1 Overview

The revised CEQA Guidelines Appendix G Checklist requires that CEQA documents address energy impacts. This section provides environmental setting information and an impact assessment on energy-related topics for the proposed modifications based on the revised CEQA Guidelines Appendix G Checklist questions included in Table 3.7-1.

3.7.2 Regulatory Background

The following subsections contain an overview of regulations related to energy consumption and policies.

Federal

Energy Policy Act of 2005

The Energy Policy Act created energy-related tax incentives from 2005 to 2016 to promote energy efficiency and conservation, and policies regarding renewable energy, oil and gas production and transmission, coal production, and electric generation and transmission.

American Recovery Reinvestment Act of 2009

As part of a larger stimulus package, the Recovery Act authorized federal funding to the US Department of Energy to forward specific energy priorities, including modernizing the nation's electric transmission grid.

State

Renewable Portfolio Standard Program

Established in 2002, California's Renewable Portfolio Standard aims to ensure that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or county. In September 2018, SB 100 was signed into law, which directed the CPUC, California Energy Commission (CEC), and State Air Resources Board to plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. The law notes that new and modified electric transmission facilities may be necessary to facilitate the state achieving its renewables portfolio standard targets.

Renewable Energy Transmission Initiative

The Renewable Energy Transmission Initiative (RETI) 2.0 is a statewide, non-regulatory planning effort convened by the California Natural Resources Agency, with participation from the CEC, CPUC, California Independent System Operator, and the US Bureau of Land Management California Office. The RETI 2.0 initiative was created to

explore the renewable generation potential available to California utilities to help meet state-wide greenhouse gas (GHG) reduction and renewable energy goals, and to identify the potential transmission implications of accessing and integrating these resources.

Local

Overview
Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. This section provides a summary of local energy-related policies for informational purposes and to support the CEQA review.

Sonoma County Energy and Sustainability Division
The County of Sonoma has a GHG reduction goal of 25 percent below 1990 levels by 2020. To help achieve this goal, the County has established several programs to promote solar installations in Sonoma County, including outreach, streamlined permitting, and financing. The Energy and Sustainability Division of the Department of General Services at the County of Sonoma oversees the Sonoma County Energy Independence Program, which offers financing options for permanent energy efficiency, renewable energy, and water conservation projects through the property tax system (Sonoma County, 2019).

3.7.3 Environmental Setting

PG&E provides electrical power and natural gas service to Sonoma County, which encompasses communities in the project vicinity, including Healdsburg, Windsor, Fulton, and Larkfield-Wikiup. In the immediate vicinity of the Southern Segment, PG&E provides electricity and natural gas to the unincorporated community of Larkfield-Wikiup.

The largest electric power generator in the county is The Geysers, which has a net geothermal power generating capacity of approximately 725 megawatts (Calpine, 2019). Additional individual, small scale energy generation sources in the county include solar photovoltaic, hydroelectric, and methane gas (Sonoma County, 2006). A local community choice agency, Sonoma Clean Power, provides electric power generation (delivered via PG&E's transmission and distribution system) for 87 percent of eligible residents in Sonoma County. Sonoma Clean Power's generation portfolios range from 45 percent renewable power from diverse sources to 100 percent renewable geothermal power from The Geysers (Sonoma Clean Power, 2018).

3.7.4 Impact Discussion

A new section on energy has been added to the CEQA Guidelines. Impact checklist questions from Appendix G of the CEQA Guidelines for energy are listed in Table 3.7-1 as well as a summary of determinations for the proposed modifications. Determinations for the current impact questions are discussed below.

Table 3.7-1 Summary of Proposed Modification Impacts for Energy

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

a) Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during construction or operation?

Less than Significant

Construction of the proposed modifications would require consumption of fuel to operate construction vehicles, equipment, and helicopters during an approximately 8-month construction period. PG&E would construct the proposed modifications with an efficient schedule and sequence, which would minimize unnecessary or inefficient vehicle trips and consumption of energy. Implementation of APM AIR-2 would further reduce energy consumption, which minimizes unnecessary idling time for construction equipment and vehicles. Impacts from construction would be less than significant and not considered wasteful or unnecessary.

The project involves replacing and upgrading existing transmission infrastructure to improve the electrical reliability of the regional transmission system. Neither the approved project nor proposed modifications would change the location or intensity of energy consumption. Following construction, the project transmission lines would function in the same way as they did prior to the project, but with improved reliability. Energy consumption during operation and maintenance activities would remain approximately the same as for the existing lines. No impact would occur from operation and maintenance.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact

Energy consumption during construction of the proposed modifications would not conflict with any state or local plans for renewable energy or energy efficiency. As stated under checklist question a), the project involves replacing and upgrading existing transmission infrastructure to improve the reliability of the regional transmission system by addressing potential overload conditions of the Fulton-Hopland Line. Fulton Substation is the point of interconnection for much of the geothermal power generated at The Geysers, and the substation also serves as a regional electric switching station. The project would improve transmission reliability of renewable power generation from The Geysers. Reliable and consistent baseload renewable

power, such as that generated by The Geysers, is important for balancing the intermittent nature of other renewable energy resources, such as wind and solar. Therefore, the project would support both Sonoma County's solar goal and California's transition to 100 percent renewable energy as required by SB 100. No impact would occur.

3.8 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

3.8.1 Environmental Setting

The environmental setting discussion in Section 3.6.1 of the 2017 Final MND describes existing geologic and soil conditions in the project area. The Southern Segment is located within the Coast Ranges Geomorphic Province; a seismically active area with recent volcanic activity. The northernmost portion of the Southern Segment is within the Hayward-Rodgers Creek Earthquake Fault Zone, but is not crossed by the fault, eliminating the potential for fault rupture. Moderate to major earthquakes generated by this fault can be expected to cause strong ground shaking in the Southern Segment. The primary geologic unit under the project area is alluvium. Soils found in the Southern Segment are those found in basins, flood plains, and alluvial fans.

A small portion of the Southern Segment is underlain by soil with high shrink-swell potential, as identified in the 2017 Final MND. Near surface soils encountered at representative locations in the Southern Segment were assessed to have a low to moderate expansion potential, but high shrink-swell and expansion potential could be encountered at other locations along the Southern Segment (Kleinfelder, 2018; Revised 2019).

The Southern Segment is relatively free of landslide susceptibility (County of Sonoma, 2011). The soils in the Southern Segment were identified as having medium susceptibility to liquefaction in the 2017 Final MND. PG&E contracted with an engineering firm to perform a geotechnical survey in July 2018 to determine liquefaction risk. Liquefaction potential was assessed to be low in representative locations in the Southern Segment, based on laboratory testing (Kleinfelder, 2018; Revised 2019).

The environmental setting discussion in Section 3.12.1 of the 2017 Final MND describes the paleontological conditions in the project area. The geologic units underlying the Southern Segment have a low paleontological sensitivity, indicating the sediments are too young to contain fossils.

3.8.2 Impact Discussion

Impacts of the approved project on geology and soils were addressed in Section 3.6.2 of the 2017 Final MND. Paleontological resource impacts were addressed in Section 3.12.2 of the Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for geology, soils, and paleontological resources are listed in Table 3.8-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions. Revisions were made to questions a)

and d), and question f) was moved to this section from where it was previously addressed with cultural resources. Determinations for the current impact questions are discussed below.

Table 3.8-1 Summary of Proposed Modification Impacts for Geology, Soils, and Paleontological Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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. ii) Strong seismic ground-shaking? iii) Seismic-related ground failure, including liquefaction? iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☒	☐	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	☐	☒	☐	☐

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault; strong seismic ground-shaking; seismic-related ground failure including liquefaction; or landslides?

Less than Significant – Consistent with the 2017 Final MND

Potential hazards associated with seismic ground-shaking and seismic-related ground failure in the Southern Segment were addressed in the 2017 Final MND. Construction of the proposed modifications would involve additional pole replacements in the Southern Segment, compared to that analyzed in the 2017 Final MND. Similar types of equipment and construction techniques would be implemented, as previously analyzed. Construction of the proposed modifications would not substantially increase the risks of seismic hazard exposure over typical seismic hazard risks throughout the region. Earthquake safety training pursuant to Occupational Safety and Health Administration regulations would minimize potential for impacts on workers. Due to the temporary nature of construction, the low probability of a seismic event occurring during construction, and safety training for construction crews, the potential for construction crews and structures to be exposed to seismically-induced ground failure would remain minimal and less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant – Consistent with the 2017 Final MND

Erosion of soils during construction and operation was analyzed in the 2017 Final MND. The proposed modifications would involve disturbance of an approximately additional 8.4 acres, and an additional 3,850 cubic yards of cut-and-fill. Ground disturbance and excavation in the Southern Segment for construction of the proposed modifications would occur in mostly flat areas with soils that have slight to moderate wind and/or water erosion potential. Stockpiled soils and areas of bare soil due to excavation could be subject to erosion and loss of topsoil. Some soil stabilization techniques would be installed at work areas and access roads, but would not be sufficient for all scenarios, and the impact would be potentially significant. Implementation of APM GS-1 would require replacement of soft or loose soils that have the potential to erode easily, installation of material over access roads, and other measures to reduce soil erosion. Implementation of APM GS-1 would reduce the construction impact to less than significant, consistent with the 2017 Final MND.

The proposed modifications would not introduce any new operational activity that could result in erosion or loss of topsoil. The impact from operation of the proposed modifications would be less than significant, consistent with the 2017 Final MND.

c) Would the project 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?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

Impacts associated with unstable soil or geologic units were addressed in the 2017 Final MND. Subsequent to the 2017 Final MND, a geotechnical investigation was performed to assess the potential for liquefaction and lateral spreading in the Southern Segment. Ground disturbance in the Southern Segment to construction the proposed modifications would be limited to minor

surface grading to establish construction access and excavating pole holes for 21 replacement TSPs. Pole excavation would occur in highly disturbed areas with a high likelihood of existing fill soil, limiting the potential for liquefaction. No poles would be located within alluvium stream channels. The potential for lateral spreading at any work areas is very low given the relatively low potential for liquefaction in areas where ground-disturbing activities would occur. Construction activities would not increase the risk of liquefaction and lateral spreading in the area. The impact from liquefaction and lateral spread would be less than significant, consistent with the 2017 Final MND.

Installation of new poles in the Southern Segment could occur in areas with moderate to high shrink-swell potential. Soil collapse or other instability of the poles as a result of shrink-swell soils could occur, resulting in a potentially significant impact. Implementation of APM GS-2 would address slope instability during construction; however, it does not ensure that a geotechnical engineer make the evaluations. Therefore, construction could still result in a significant impact. APM GS-2 was superseded by MM Geology-1 in the 2017 Final MND. Implementation of MM Geology-1 required PG&E to perform a geotechnical investigation to identify unstable slopes and recommend methods to avoid or stabilize the areas. Since the 2017 Final MND, a geotechnical investigation was performed. The investigation included recommendations to address soil shrinkage impacts on pole foundations. The mitigation did not apply to the Southern Segment in the 2017 Final MND since very limited pole replacement was proposed. To mitigate the potentially significant impacts from soil hazards from construction of the proposed modifications, MM Geology-1 would also apply to the Southern Segment. The overall significance finding for this checklist question remains unchanged since the 2017 Final MND. Application of MM Geology-1 for construction of the Southern Segment would reduce the impact from shrink-swell soil instability to less than significant.

Operation of the proposed modifications would be similar in scope to existing activities. The impact from operational activities would be less than significant, consistent with the 2017 Final MND.

d) Would the project 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?

No Impact – Consistent with the 2017 Final MND

The risk to life or property from expansive soils was analyzed in the 2017 Final MND. As was the case with the approved project, some pole replacements may occur in areas underlain by moderate or high shrink-swell potential. The proposed modifications would involve replacing poles at a 1:1 ratio with similar poles on concrete pier foundations, and within approximately 15 to 35 feet of the existing locations. The new poles would be subject to similar soil conditions as the existing poles and would not result in a substantially greater direct or indirect risk to life or property. No impacts would occur, consistent with the 2017 Final MND.

e) Would the project 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?

No Impact – Consistent with the 2017 Final MND

No septic tanks or alternative wastewater disposal systems (e.g., leach fields) would be constructed as part of the proposed modifications. No impact would occur from use of septic tanks or wastewater disposal, consistent with the 2017 Final MND.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

Due to the low paleontological sensitivity along the entire Southern Segment, it is unlikely that paleontological resources would be encountered during construction of the proposed modifications. PG&E would still implement several APMs, including APMs PAL-1, PAL-2, and PAL-4. Implementation of APM PAL-1 would require PG&E to halt construction and evaluate any discovered paleontological resources. Implementation of APM PAL-2 would require all construction personnel to receive training on how to identify fossil remains, the types of geologic units that fossil remains may be found within, and the procedures to follow should a paleontological resource be discovered. PG&E would also notify appropriate personnel and develop a recovery strategy for any newly discovered paleontological resources per APM PAL-4. Construction of the proposed modifications would result in a less than significant impact on paleontological resources, consistent with the finding of the 2017 Final MND.

3.9 MINERAL RESOURCES

3.9.1 Environmental Setting

The environmental setting discussion in Section 3.6.1 of the 2017 Final MND describes existing mineral resources and mineral classifications in the project area. The California Surface Mining and Reclamation Act of 1975 requires the State Geologist to classify land into mineral resource zones (MRZs) according to the known or inferred mineral potential of the land. The Southern Segment is located within an area that has been classified primarily as MRZ-3, which is defined as "areas containing mineral occurrences of undetermined mineral resource significance."

3.9.2 Impact Discussion

Impacts of the approved project on mineral resources were addressed in Section 3.6.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for mineral resources are listed in Table 3.8-1 as well as a summary of determinations for the proposed modifications. Determinations for the current impact questions are discussed below.

Table 3.9-1 Summary of Proposed Modification Impacts for Mineral Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a) Would the project 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?

No Impact – Consistent with the 2017 Final MND

Access routes and some staging areas would require temporary easements to construct the proposed modifications, but none of these areas are currently available for mineral extraction. Construction and operation of the proposed modifications would not 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. No impact would occur, consistent with the 2017 Final MND.

b) Would the project 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?

No Impact – Consistent with the 2017 Final MND

Access routes and some staging areas would require temporary easements to construct the proposed modifications, but none of these areas are currently available for mineral extraction. Construction and operation of the proposed modifications would not 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. No impact would occur, consistent with the 2017 Final MND.

3.10 GREENHOUSE GAS EMISSIONS

3.10.1 Environmental Setting

The environmental setting discussion in Section 3.7.1 of the 2017 Final MND describes existing air quality conditions in the project area. Gases that trap heat in the atmosphere (i.e., GHGs) regulate the earth's temperature. The GHG effect is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO_2) and water vapor. BAAQMD is the regional agency tasked with managing air quality in the SFBAAB.

3.10.2 Impact Discussion

Impacts of the approved project on GHG emissions were addressed in Section 3.7.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for GHG emissions are listed in Table 3.10-1 as well as a summary of determinations for the proposed modifications. Determinations for the current impact questions are discussed below.

The same methodology used for estimating construction emissions for the approved project was used for the proposed modifications. Minor modifications were made to the method and emission factor used for estimating emissions from helicopter activities (refer to Appendix C for further details). Modeling assumptions and outputs are provided in Appendix C.

Table 3.10-1 Summary of Proposed Modification Impacts for Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant – Consistent with the 2017 Final MND

The 2017 Final MND analyzed GHG emissions generated by the approved project and whether a significant impact on the environment would occur. GHG emissions would be generated for an additional 4 months to construct the proposed modifications. The total estimated amortized GHG emissions from construction of the proposed modifications are provided in Table 3.10-2. The amortization of construction emissions is consistent with industry standard practice.

Table 3.10-2 Estimated Greenhouse Gas Emission for the Project with Proposed Modifications

Source	Metric Ton (MT) CO_2 Equivalent Emissions (CO_2e)
Construction Equipment and Vehicles	2,006
Construction Helicopter Activities	1,566
Total Construction Emissions	**3,572**
Amortized Construction Emissions (30 years)	*119*
Annual Circuit Breaker SF_6 Leakage (with APM GHG-2)	18
Total Annual Emissions [a]	**137**

Source	Metric Ton (MT) CO_2 Equivalent Emissions (CO_2e)
BAAQMD Annual Significance Threshold	1,100
Exceeds Threshold?	No

Note:

[a] Derived from the sum of the amortized construction emissions and the annual circuit breaker SF_6 leakage emissions.

Sources: (BAAQMD, 2017; RCH Group, 2019)

The proposed modifications would result in a minor increase in the GHG emission estimates that were made for the approved project due to the additional construction activities involved with pole replacement. Compared to the estimates for the approved project, the total construction emissions for the project would increase by 115 metric ton (MT) carbon dioxide equivalent (CO_2e) and amortized construction equipment emissions would increase by 4 MT CO_2e. The total annual emissions for the project with the proposed modifications would be 137 MT CO_2e and remain well below the BAAQMD significance threshold. Impacts from GHG emissions would be less than significant, consistent with the 2017 Final MND.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant – Consistent with the 2017 Final MND

The 2017 Final MND analyzed GHG emissions associated with the approved project and whether the approved project would conflict with plans designed to reduce GHG emissions, which include the 2017 CAP, the Climate Change Scoping Plan, CARB's Mobile Source Strategy, and the Sonoma County General Plan. The proposed modifications would involve the same types of activities and use of the same types of equipment as was analyzed for the approved project. As described for the approved project, the vehicles used during construction of the proposed modifications are required to comply with the applicable GHG reduction programs for mobile sources. PG&E or the construction contractor are required to provide verification of compliance to CARB or USEPA under state and federal law. The proposed modifications would not conflict with regulations adopted to achieve the goals of the Scoping Plan. GHG emissions generated by the proposed modifications activities would not exceed the BAAQMD significance threshold for GHG emissions, as shown in Table 3.10-2. The impact would be less than significant, consistent with the 2017 Final MND.

3.11 HAZARDS AND HAZARDOUS MATERIALS

3.11.1 Environmental Setting

The environmental setting discussion in Section 3.8.1 of the 2017 Final MND describes existing conditions related to hazards and hazardous materials in the project area. As discussed in the 2017 Final MND, only one open hazardous materials cleanup site is located within 1 mile of the Southern Segment. The Fast & Easy Mart is an open Leaking Underground Storage Tank case

located approximately 0.3 mile from the Southern Segment. The existing poles in the Southern Segment are made of steel. One existing pole in the Southern Segment (Pole 8) is coated with lead-based paint. A PG&E gas distribution pipeline that provides natural gas to the Larkfield-Wikiup neighborhood is located adjacent to a portion of the Southern Segment. No designated emergency evacuation routes are in the area of the Southern Segment, nor is the area included in any emergency evacuation plans.

As discussed in the 2017 Final MND, the closest airport to the proposed modifications is the Charles M. Schultz – Sonoma County Airport, located 2.3 miles to the southwest of the closest modified project component.

Updated environmental setting information on existing wildfire threat for the proposed modifications is provided in Section 3.19: Wildfire.

3.11.2 Impact Discussion

Impacts of the approved project related to hazards and hazardous materials were addressed in Section 3.8.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for hazards and hazardous materials are listed in Table 3.11-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to questions e) and g), and removal of question f). Determinations for the current impact questions are discussed below.

Table 3.11-1 Summary of Proposed Modification Impacts for Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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?	☐	☒	☐	☐
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?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☒	☐	☐
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, create a significant hazard to the public or the environment?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the Project corridor?	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☒	☐	☐

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

The 2017 Final MND analyzed whether the approved project would create a significant hazard to the public or environment from hazardous materials. As described in Section 2.3.9, the approved project would generate a total of approximately 1,000 cubic yards of solid waste. Construction of the proposed modifications would generate approximately 1,100 cubic yards of solid waste in addition to the 1,000 cubic yards from the approved project. The additional solid waste would consist of concrete rubble from removal of existing tubular steel pole foundations, insulators, hollow tubular steel poles, and miscellaneous waste. Improper disposal of solid waste could pose a significant hazard to the public or the environment. PG&E would collect and recycle or dispose of all solid waste generated from project activities as required by applicable laws. Impacts from the transport, use, or disposal of solid waste would be less than significant.

One of the poles proposed for replacement, Pole 8 located directly east of US 101, is coated with a lead-based paint. Title 17 CCR §§ 35001 to 36100 (Accreditation, Certification and Work Practices for Lead-Based Paint and Lead Hazards, SB 460, and the California Division of Occupational Safety and Health (Lead in Construction Standard) define state laws and regulations for managing potential lead contamination, including those for demolishing, transporting, and disposing structures that contain lead-based paint like Pole 8. PG&E or the construction contractor would be required by law to prevent a potential lead hazard to workers and people in the surrounding area through implementation of dust and soil containment procedures and worker training, which are common practices in the state. Structures with lead paint would be removed, transported, and disposed of in accordance with applicable laws and regulations. Impacts from structures containing lead-based paint would be less than significant.

Construction equipment for the proposed modifications would use or contain the same types of hazardous materials as those for the approved project (i.e., gasoline, diesel, antifreeze, and lubricants) that could be spilled or released. As with the approved project, improperly disposed of, spilled, or leaking hazardous materials could create a significant hazard to the public or the environment and would be a potentially significant impact. Impacts from hazardous materials would be less than significant with implementation of MM Hazards-1 (specifies training requirements for working with hazardous materials; proper procedures for storing, handling, and transporting hazardous materials; and, spill prevention and response) and MM Hydrology-1 (includes BMPs for working with hazardous materials in the SWPPP). Impacts from the transport, use, or disposal of hazardous materials would be less than significant.

The approved project would replace existing conductors and poles. Operation and maintenance activities of the proposed modifications would be similar to those conducted for the existing equipment and would not involve new impacts from the transport, use, or disposal of hazardous materials. No impact would occur.

b) Would the project 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?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

An analysis of accidental hazardous material spills and potential for damage or rupture of buried utilities was conducted in the 2017 Final MND. Excavations for the proposed replacement pole foundations would occur in an urbanized area where subsurface gas pipelines are located. PG&E would notify other utilities along the proposed alignment through the USA service prior to beginning the excavation of pole holes. PG&E would use a back truck for excavation of soils in areas located near gas or other utility lines as part of industry standard practices. The back truck liquefies and vacuums dirt to safely expose underground facilities without the risk of damaging or rupturing them. The impact on the public from damage to or rupture of buried utilities would be less than significant.

PG&E conducted a survey for underground utilities in the Southern Segment and evaluated potential arcing and induced current hazards associated with relocating the poles closer to the utilities (PG&E Applied Technology Services, 2019; Corrosion Service Company Limited, 2019). Several underground utilities were identified in the Southern Segment with separation distances ranging from 2.7 to 38.5 feet from proposed pole locations, including electrical lines, gas pipelines, storm drains (including storm drain manholes and inlets), telephone lines, water lines, and sanitary sewers (PG&E Applied Technology Services, 2019; Corrosion Service Company Limited, 2019). The results of the assessment concluded no additional measures are necessary to address induced AC voltage. The results also identified additional grounding would be required at Poles 9 and 10 to address a potential arcing hazard because the poles are within the minimum separation distance of an existing PG&E gas pipeline (PG&E Applied Technology Services, 2019; Corrosion Service Company Limited, 2019). PG&E would implement the grounding scheme identified in the assessment report to address the potential

arcing hazard, which would involve installing two or more copper rods and an underground wire adjacent to Poles 9 and 10. The potential hazard would be less than significant with implementation of the design measures identified in the arcing assessment report.

The approved project would replace existing conductors and poles. Operation and maintenance activities of the proposed modifications would be similar to those conducted for the existing equipment. As with the approved project, the use of herbicides would be consistent with existing practices. No impact would occur.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

Hazardous Emissions

Three schools are located within 0.25 mile of the Southern Segment: Mark West Elementary School and Mark West Charter School on Lavell Road, and San Miguel Elementary School on Faught Road. Hazardous emissions and handling of hazardous materials within 0.25 mile of the schools were analyzed in the 2017 Final MND. As with the approved project, construction equipment used for the proposed modifications would emit toxic air contaminants (TACs), particularly diesel exhaust. Diesel exhaust at high concentrations would be considered hazardous. CCR § 2480 limits idling at or within 100 feet of a school to 30 seconds or less to limit potential diesel exhaust near schools. Impact of the approved project from hazardous emissions were determined to be less than significant.

Construction of the proposed modifications would occur in the same areas along the Southern Segment and at approximately the same distances from the schools. The construction period in the Southern Segment would increase from approximately 4 to 8 months, and the estimated number of workdays at each work area would roughly double (refer to Table 2.3-4). Concentrated construction activities at pole locations, mid-span work areas, and guard structures would occur in phases, each lasting up to approximately 3 days at a time and totaling approximately 2 to 3 weeks. Concentrated construction activities at pull sites would be reduced compared to the 11 to 33 days estimated for the approved project because only the 60-kV line would be reconductored. Intermittent use of the pull sites would increase for potential staging and equipment storage. Use of the staging areas/LZs would also increase with the overall construction period, but the level of construction activity would remain intermittent as described for the approved project. Like the approved project, work would occur for up to approximately 12 hours per day, but equipment would be operated periodically, as opposed to continuously, for the entire day. As discussed under checklist question c) in Section 3.4: Air Quality, the proposed modifications would not result in substantial pollutant concentrations. Diesel exhaust during construction near schools would not reach hazardous levels. The impact would be less than significant, consistent with the 2017 Final MND.

Hazardous Materials and Waste Handling

As with the approved project, the proposed modifications would involve the temporary storage of hazardous materials at staging areas/LZs (e.g., LZ-1, LZ-2, and LZ-3) that would be used by equipment, vehicles, and helicopters during construction (i.e. gasoline, diesel, antifreeze, and lubricants). As with the approved project, the only significant risk would occur from the daily transport and storage of helicopter fuel to the active LZ. Helicopters would be used for up to approximately 12 days during construction in the Southern Segment. Although unlikely, a significant impact could occur if large quantities of helicopter fuel were accidentally released into the environment near schools. Potential impacts from a hazardous materials release would be less than significant with implementation of MM Hazards-1 (specifies training requirements for working with hazardous materials; proper procedures for storing, handling, and transporting hazardous materials; and, spill prevention and response) and MM Hydrology-1 (included BMPs for working with hazardous materials in the SWPPP).

As described under question a), Pole 8, which is located approximately 500 feet from San Miguel Elementary School, is coated with lead-based paint,. As described previously, PG&E or the construction contractor would be required by law to prevent a potential lead hazard to workers and people in the surrounding area through implementation of dust and soil containment procedures and worker training, which are common practices in the state. Structures with lead paint would be removed, transported, and disposed of in accordance with applicable laws and regulations. Impacts from structures containing lead-based paint would be less than significant.

d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, create a significant hazard to the public or the environment?

Less than Significant – Consistent with the 2017 Final MND

Construction of the proposed modifications would involve removal of existing poles and excavation to install new poles in the Southern Segment. The proposed modifications would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The nearest open hazardous materials site is the Fast & East Mart open Leaking Underground Storage Tank case located approximately 0.29 mile from the Southern Segment. Ground water may be extracted from foundation excavations during pole replacement in the Southern Segment. Shallow groundwater flow at the open case site is towards the northwest, away from the project alignment. Based upon the State Water Resource Control Board GeoTracker Database, there are no known contamination sites within 1,500 feet of the proposed TSP foundation excavation locations (PG&E, 2019c). Contaminated groundwater is not anticipated to be encountered. If groundwater exhibited an unusual color, sheen or smell that could suggest possible contamination, PG&E would containerize and collect representative groundwater samples for characterization. Groundwater that exceeds discharge limits would be transported offsite by PG&E's authorized waste hauler for disposal at an approved disposal facility in accordance with water quality control regulations. The potential for encountering contaminated groundwater would not create a significant hazard to the public or the environment. Impacts would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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 corridor?

Less than Significant – Consistent with the 2017 Final MND

The 2017 Final MND analyzed air traffic safety hazards from helicopter use and from installation of taller poles. Helicopter use during construction of the proposed modifications would increase by 12 days compared to the approved project. Helicopters would use the same airports and landing zones for helicopter staging as the approved project. Helicopter use would not cause a safety hazard for people residing or working in the proposed project vicinity because PG&E would adhere to all aviation rules and regulations and would coordinate helicopter operations with the Charles M. Schultz – Sonoma County Airport. The impact during construction would be less than significant.

The proposed replacement poles would be up to 20 feet taller than the existing poles. The replacement poles would exceed the Notice Criteria specified in Federal Aviation Administration (FAA) Regulations and Title 14 Code of Federal Regulations (CFR) 77.9. PG&E filed Notices of Proposed Construction or Alteration for all proposed replacement poles with the FAA on May 11, 2018, and received confirmation from the FAA that the replacement poles would not result in air navigation hazards. The impact from operation of the proposed modifications on local residents and workers would be less than significant.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

No emergency response or evacuation plans have been adopted for the roads in the Southern Segment. The proposed modifications would not affect implementation of an adopted emergency response plan or emergency evacuation plan. Additional lane and road closures would occur during construction of the proposed modifications, in addition to the closures analyzed in the 2017 Final MND (refer to Section 2.3.7 and 3.17: Transportation). Lane and road closures could interrupt traffic flows and potentially affect evacuation or emergency response in the area, resulting in a significant impact. Implementation of MM Traffic-1 would ensure emergency access is maintained during lane and road closures. Implementation of MM Traffic-4 would require PG&E to coordinate with emergency service providers prior to any lane or road closures to minimize unanticipated congestion and potential effects on response times. The impact would be less than significant with mitigation.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

The risk from fire hazards to people and structures was analyzed in the 2017 Final MND. The northern 220 feet of the Southern Segment in Shiloh Ranch Regional Park is designated by California Department of Forestry and Fire Protection (CAL FIRE) as a moderate Fire Hazard Severity Zone (FHSZ). The same northern 220 feet of the Southern Segment in Shiloh Range Regional Park is also in a CPUC-designated High Fire-Threat District (HFTD). Approximately

220 feet is located in Tier 2 (elevated risk), including Pole 23 and the western half of PS-6; the eastern half of PS-6 is in Tier 3 (extreme risk) (CPUC, 2018).

A spark from vehicles and equipment during construction, construction personnel smoking and improperly disposing of cigarettes, falling conductor or breaking of a transmission line during installation, and parking vehicles on dry vegetation could ignite a wildfire. The impact on people and structures due to the increased risk of wildfire ignition is potentially significant. PG&E would implement APMs HM-3 and HM-4, which require implementation of fire prevention practices, such as only smoking in designated areas and keeping appropriate fire-fighting equipment on site to quickly extinguish a fire if one were ignited. The impact would remain significant due to the potential for ignition from construction activities that cause sparks, falling conductor or breaking of a transmission line during installation, improper grounding during construction, and parking vehicles on dry vegetation. Implementation of MM Hazards-2 would require PG&E to implement fire prevention procedures including personal training and maintaining fire prevention equipment on site. The impact from fire hazards on people and structures during construction of the proposed modifications would be less than significant with implementation of mitigation, consistent with the 2017 Final MND.

The replacement of the existing conductor and poles would further reduce fire risks associated with age and wear, and potential breakage of the transmission line. The new steel poles would provide greater durability compared to the existing steel poles being replaced. The new line and poles would be constructed in accordance with current safety technology, state law, and CPUC GO 95. CPUC GO 95 specifies the design and maintenance of the project for the strength requirements and safety factors (i.e., the ratio of material strength to loads such as weight, temperature, and wind). Poles and lines are also designed to withstand accidental scenarios such as vehicle collisions, high winds, and lightning strikes per CPUC GO 95. Incorporation of the design requirements would minimize pole falls or other hazards caused by accidental conditions that could ignite wildfires. Impacts associated with wildfire from operation and maintenance of the components of the project modifications would be less than significant.

Refer to Section 3.19, Wildfire for further discussion of wildfire hazards.

3.12 HYDROLOGY AND WATER QUALITY

3.12.1 Environmental Setting

The environmental setting discussion in Section 3.9.1 of the 2017 Final MND describes existing conditions in the project study area for hydrology and water quality. The Southern Segment is located in the Mark West Creek Watershed. Mark West Creek is the only named water feature in the Southern Segment, and is located between Poles 12 and 13. Jurisdictional waters in the Southern Segment study area are listed in Table 3.5-2. No wetlands occur in the Southern Segment. Waters in the Southern Segment are shown in the detail maps provided in Appendix A, as well as Figure F-1 in Appendix F of the 2017 Final MND.

3.12.2 Impact Discussion

Impacts of the approved project on hydrology and water quality were addressed in Section 3.9.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for hydrology and water quality are listed in Table 3.12-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to questions a), b), and c); removal of questions d), e), f) h), i), and j); and addition of two reorganized questions now d) and e). Determinations for the current impact questions are discussed below.

Table 3.12-1 Summary of Proposed Modification Impacts for Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
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 additional of impervious surfaces, in a manner that would: i) result in substantial erosion or siltation on or off site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows?	☐	☒	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☒	☐	☐

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?
Less than Significant with Mitigation – Consistent with the 2017 Final MND

Potential impacts on water quality standards and waste discharge requirements were analyzed for the approved project during both construction and operation and maintenance. As with the approved project, construction of the proposed modifications would involve grading and clearing vegetation at pole sites, along access routes, and in temporary work areas. Ground disturbance and vegetation removal would increase the risk of erosion and sedimentation to nearby waters. Waterbodies in the project study area and downstream are currently listed as impaired for siltation/sedimentation, including Mark West Creek, which is located between Poles 12 and 13. Erosion caused by construction activities could exacerbate existing water quality violations, which would be considered a potentially significant impact. Construction of the proposed modifications would involve a greater level of excavation, ground disturbance, and vegetation disturbance than the approved project due to the additional pole replacement activities. Poles 12 and 13 would be replaced near the bank of Mark West Creek; new pole locations would be positioned farther away from the creek than the existing locations. The proposed modifications would increase the risks of erosion and sedimentation in the Southern Segment; however, the risks would be similar to those addressed for the approved project. Potential impacts on water quality standards would be less than significant with implementation of the SWPPP, MM Hydrolgy-1 (defines performance standards for the SWPPP), and MM Hydrology-2 (BMP monitoring and maintenance procedures during and following construction) from the 2017 Final MND.

The potential for encountering groundwater and dewatering excavations was described in Section 3.9.2 of the 2017 Final MND. Excavation dewatering is considered a waste discharge because groundwater may contain high levels of sediment and other contaminants. Discharging groundwater or placing fill materials into waters of the state requires applicable permits from the Regional Water Quality Control Board. As described in Section 3.18.2 (c), TSP replacement for the proposed modifications would have a greater potential for encountering groundwater than in the Northern Segment, due to the size and depth of the new TSP foundations (5 to 7 feet in diameter and 20 to 30 feet deep) that would be located along the valley floor and near creeks and drainages, such as Mark West Creek. PG&E estimates the total volume of groundwater that may be extracted during construction of the proposed modifications would be between 10,000 and 100,000 gallons; however, this estimate could fluctuate significantly with seasonal rainfall variations, and groundwater withdrawal at the time of year the work is performed (PG&E, 2019b). Consistent with MM Hydrology-3 from the 2017 Final MND, PG&E would implement its land discharge permit with the State Water Resources Control Board Water Quality Order No. 2003-0003-DWQ, *Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality.* Based upon the State Water Resource Control Board GeoTracker Database, there are no known contamination sites within 1,500 feet of the proposed TSP foundation excavation locations (PG&E, 2019c). Contaminated groundwater is not anticipated to be encountered. If groundwater exhibited an unusual color, sheen or smell that could suggest possible contamination, PG&E would containerize and collect representative groundwater

samples for characterization. Groundwater that exceeds discharge limits would be transported offsite by PG&E's authorized waste hauler for disposal at an approved disposal facility. Impacts on waste discharge requirements would be less than significant with implementation of MM Hydrolgy-3 (implement discharge procedures and permit requirements) and PG&E's land discharge permit requirements.

Potential impacts on jurisdictional waters at access route crossings were addressed for the approved project in the 2017 Final MND, including those identified in the Southern Segment that are listed in Table 3.5-2 and shown on the detail maps in Appendix A. PG&E is required to obtain state and/or federal permits prior to grading or placing fill material within jurisdictional waters. No additional impacts on jurisdictional waters are anticipated beyond those addressed in the 2017 Final MND. PG&E anticipates one new water crossing where a temporary bridge would be installed over seasonal watercourse SEW 9A to provide direct access to Pole 21. The bridge would be installed to span the feature to avoid impacts. If impacting a jurisdictional water became necessary to complete construction, PG&E would be required to obtain the necessary state and/or federal permits prior to impacting the feature. Implementation of MM Hydrology-4 from the 2017 Final MND would ensure PG&E obtains the appropriate permits for any fill or discharge into jurisdictional waters. Impacts would remain less than significant with mitigation.

Operation and maintenance would be the same as described for the approved project. Potential impacts during operation and maintenance on water quality or from waste discharge would remain less than significant, as described in the 2017 Final MND.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than Significant – Consistent with the 2017 Final MND

Neither the approved project nor the proposed modifications involve extracting substantial amounts of groundwater that would decrease or interfere with groundwater recharge. Up to approximately 100,000 gallons of shallow groundwater may be extracted from excavated pole holes in the Southern Segment, as described under checklist question a). Extracted groundwater would be discharged back to the land in the project area and into the regional drainage system and to groundwater supplies, unless it shows signs of contamination, in accordance with PG&E's land discharge permit. Potential impacts on groundwater supplies from excavation dewatering would be less than significant.

As described in Section 2.3.8, the approved project could use up to 20,000 gallons (0.06 acre-feet) of water during construction for dust suppression, concrete washout, and other miscellaneous activities. Construction water would be obtained from local suppliers using groundwater resources. The proposed modifications would not change the estimated total water use for the project. Water use for construction activities would remain minimal. Impacts would be less than significant.

The proposed modifications would involve replacing 21 existing TSPs with similar sized TSPs in the Southern Segment. Large impervious surfaces that would affect ground water recharge would not be created. Impacts during operation and maintenance would remain less than significant.

c) Would the project 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 additional of impervious surfaces, in a manner that would: i) result in substantial erosion or siltation on or off site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

Neither the approved project nor proposed modifications would substantially alter the existing drainage patterns. As described for the approved project and under question a), construction of the proposed modifications could result in minor impacts where access routes cross jurisdictional waters in the Southern Segment; however, such impacts are not anticipated. Where poles are replaced near water features, such as Poles 12 and 13 near Mark West Creek and Pole 21 near SEW 1, the locations of new poles would be farther from the features than the existing poles. The proposed modifications would not require any diversions or modifications to the course of any creek, stream, or river. Potential culvert repair or replacement was addressed for the approved project. While not anticipated, culvert repair or replacement may be necessary to construct the proposed modifications. Potentially significant impacts from inadequate culvert modifications would be less than significant with implementation of MM Hydrolgy-5 (follow Sonoma County Flood Control Design Criteria) from the 2017 Final MND.

As discussed under question a), the proposed modifications would involve grading, ground disturbance, and vegetation clearing that could result in erosion and sedimentation and indirectly impact the drainage system. As with the approved project, potential indirect impacts on the drainage system would be less than significant with implementation of the SWPPP, MM Hydrolgy-1 (defines performance standards for the SWPPP), MM Hydrology-2 (BMP monitoring and maintenance procedures during and following construction), and MM Geology-1 (implement recommendations in the geotechnical investigation report regarding unstable areas) from the 2017 Final MND.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact – Consistent with the 2017 Final MND

Areas along Mark West Creek in the Southern Segment area located within the 100-year flood floodplain (FEMA, 2014). The existing and proposed locations of Poles 12 and 13a/13b are approximately 100 feet or greater from the floodplain on either side of Mark West Creek. The project is not within a tsunami or seiche zone. Replacing existing poles near a floodplain would

not increase the risk of releasing pollutants during in the event of inundation. No impact would occur.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?
Less than Significant with Mitigation – Consistent with the 2017 Final MND
The proposed modifications would not conflict with or obstruct implementation of a water quality control plan. As described under question a), construction of the proposed modifications could result in impacts on water quality standards by causing erosion and sedimentation. Potential impacts on water quality standards would be less than significant with implementation of the SWPPP, MM Hydrolgy-1 (defines performance standards for the SWPPP), and MM Hydrology-2 (BMP monitoring and maintenance procedures during and following construction) from the 2017 Final MND.

The proposed modifications would not conflict with or obstruct implementation of a sustainable groundwater management plan. As described under question b), construction of the proposed modifications would not involve using or extracting large amounts of water that may deplete groundwater supply or affect implementation of a sustainable ground water plan. The impact would be less than significant.

3.13 LAND USE AND PLANNING

3.13.1 Environmental Setting
The environmental setting discussion in Section 3.10.1 of the 2017 Final MND describes the existing land use and zoning designations crossed by the project alignment. As described in the 2017 Final MND, the Southern Segment is located entirely within unincorporated Sonoma County. The proposed modifications would occur on the Southern Segment. The land use and planning designations are identified in the 2017 Final MND for the approved project (i.e., residential, parks, commercial, agricultural, and agricultural conservation easements). Specific County land use, zoning, and conservation easements in the Southern Segment are identified on Figure 3.10-1 and Figure 3.10-3 of the 2017 Final MND. PG&E has existing easements and access rights along the Southern Segment for the Geysers-Fulton and Fulton-Hopland lines.

3.13.2 Impact Discussion
Impacts of the approved project on land use and planning were addressed in Section 3.10.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for land use and planning are listed in Table 3.13-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to question b) and removal of question c). Determinations for the current impact questions are discussed below.

Table 3.13-1 Summary of Proposed Modification Impacts for Land Use and Planning

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a) Would the project physically divide an established community?
No Impact – Consistent with the 2017 Final MND
Impacts of the approved project on land use and planning in the Southern Segment were addressed in the 2017 Final MND, including those associated with temporary construction easements, encroachment permits, and potential updates to existing easements. As described in Section 2.3.2, PG&E has existing easements and access rights along the Southern Segment, but may need to update or modify the easements to reflect new pole locations. As with the approved project, any easement updates or modifications that may be needed would be pursued by PG&E through landowner agreements. Minor adjustments to existing easements would not physically divide an established community. No impact would occur.

b) Would the project 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?
No Impact – Consistent with the 2017 Final MND
As described in the 2017 Final MND, the CPUC has sole and exclusive jurisdiction over the siting and design of the approved project pursuant to CPUC GO-131-D; therefore, no local land use plans, policies, or regulations would apply to the project. As described under checklist question a) above, the proposed modifications would occur within existing PG&E easements and the proposed poles and conductor would replace existing poles and conductor. Minor adjustments to the pole location and, if necessary, existing easements, would not conflict with existing land use plans, policies, or regulations. Temporary construction easements would be returned to pre-project land uses after construction. No impact would occur.

3.14 NOISE

3.14.1 Environmental Setting

The environmental setting discussion in Section 3.11.3 of the 2017 Final MND describes existing conditions in the project study area for noise. The proposed modifications would occur along the Southern Segment, described in 2017 Final MND, and at approximately the same distances from potential noise-sensitive receptors (e.g., residences, schools, places of worship, and Shiloh Ranch Regional Park).

3.14.2 Impact Discussion

Impacts of the approved project related to noise were addressed in Section 3.11.4 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for noise are listed in Table 3.14-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to questions a), b), and e), and removal of questions c), d), and f). Determinations for the current impact questions are discussed below.

Table 3.14-1 Summary of Proposed Modification Impacts for Noise

Would the project result in:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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?	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
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 2 miles of a public airport or public use airport, would the project expose people residing or working in the project corridor to excessive noise levels?	☐	☐	☒	☐

a) Would the project result in 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?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

Overview

Pursuant to GO 131-D, the CPUC is not required to consider standards established in local general plans or noise ordinances when analyzing whether noise impacts of a project would be significant; however, such standards and ordinances are frequently used as a basis for evaluating noise impacts because the CPUC does not have their own significance thresholds for noise. The Southern Segment is located entirely within unincorporated Sonoma County. The County's Noise Element of the 2020 General Plan includes policies and standards for noise associated with land use activities for existing and future land uses. To date, the County has not adopted a noise ordinance or noise standards that would apply to the project, such as noise limits for construction activities. As described in the 2017 Final MND, no noise standards directly apply to the project, and therefore, neither the approved project nor the proposed modifications would present a conflict.

The analysis in the 2017 Final MND addressed substantial permanent or temporary increases in ambient noise levels in the vicinity separately from consideration to specific noise standards, which followed the CEQA checklist questions c) and d) that were in affect at the time. Although the current 2019 CEQA Guidelines have incorporated these two previous questions into question a) and there are no specific standards that apply to the proposed modifications, the previous thresholds used in the 2017 Final MND to identify substantial permanent and temporary noise increases are reasonable limits for determining if sensitive receptors would be subject to potentially significant noise impacts. The same significance thresholds and methodology described under impact questions c) and d) of the 2017 Final MND are used to determine if construction of the proposed modifications would result in new or substantially greater noise impacts.

Construction

As described under noise question d) of the 2017 Final MND, the approved project would result in a substantial temporary noise increase during construction activities based on the proximity and duration of equipment use near sensitive receptors. The proposed modifications would involve construction activities and equipment use in the Southern Segment that would be similar to those described for the approved project; however, some additional equipment would be used to facilitate TSP replacement. The proposed modifications would involve the use of new equipment identified in Table 3.14-2, the loudest of which (highway digger) would generate noise levels of approximately 80 (A-weighted decibels) dBA (1-hour L_{eq}) at 50 feet. Highway diggers would be positioned at pole work areas as close as approximately 25 feet from sensitive receptors when excavating foundation holes. At 25 feet, noise levels would be approximately 86 dBA (1-hour L_{eq}[5]), which would be less than the maximum noise levels generated by other equipment at pole locations in the Southern Segment that was addressed in the 2017 Final MND. Consistent with the approved project, the maximum noise levels from ground-based activities would be approximately 87 dBA at the closest receptors, and the maximum noise levels from helicopter activities would be approximately 90 dBA (refer to Table 3.11-6 of the 2017 Final MND).

Table 3.14-2 L_{max}[6] and 1-hour L_{eq} at 50 feet from New Equipment for the Proposed Modifications

Equipment	L_{max} at 50 feet (dBA)	1-hour L_{eq} at 50 feet (dBA)	Daily Usage Factor (percentage)
Back truck [a]	74	71	40
Backhoe with hydraulic jack attachment [b]	82	76	25
Compactor	83	77	20

[5] equivalent noise level

[6] maximum noise level

Equipment	L_{max} at 50 feet (dBA)	1-hour L_{eq} at 50 feet (dBA)	Daily Usage Factor (percentage)
Flat-bed trailer and truck [a]	74	71	40
Forklift or grade-all	83	80	40
Highway digger or production digger [c]	84	77	20

[a] Based on flat-bed truck

[b] Based on hydraulic jack attachment

[c] Based on auger drill rig

Source: U.S. DOT. 2008. "Federal Highway Administration's Roadway Construction Noise Model. Software Version 1.1." December 8.

Source: (PG&E, 2018b)

Construction of the proposed modifications would occur in the same areas along the Southern Segment and at approximately the same distances from sensitive receptors. The total construction period in the Southern Segment would increase from approximately 4 to 8 months, and the estimated number of workdays at each work area would roughly double (refer to Table 2.3-4). As with the approved project, construction activities at individual work areas would occur periodically and in phases and would not be concentrated for long periods. Concentrated construction activities at pole locations, mid-span work areas, and guard structures would occur for multiple short periods, each lasting up to approximately 3 days at a time and totaling approximately 2 to 3 weeks. Concentrated construction activities at pull sites would be reduced compared to the 11 to 33 days estimated for the approved project because only the 60-kV line would be reconductored. Intermittent use of the pull sites would increase for potential staging and equipment storage. Use of the staging areas/LZs would also increase with the overall increase in construction period, but the level of construction activity would remain intermittent as described for the approved project.

As with the approved project, construction activities would generally occur during daytime hours between 7:00 am and 7:00 pm, Monday through Sunday; however, extended work hours between 7:00 pm and 7:00 am would be required during installation and removal of guard structures and netting over US 101. Extended work hours may also be necessary on rare and infrequent occasions (i.e., five times or less) for unanticipated construction activities that may be necessary to safely construct the project. Nighttime work for the US 101 crossing would occur like for the approved project, but additional netting would be installed under both the Geysers #17 and Geysers #12 230-kV circuits. Where appropriate and unlikely to cause noise disturbances, certain prework activities may begin before 7:00 am, such as worker gathering and setting up traffic controls.

Construction of the proposed modifications would expose sensitive receptors in the Southern Segment to temporary noise increases during adjacent construction activities, similar to those described for the approved project. Maximum noise levels at the closest sensitive receptors would remain approximately the same (up to approximately 87 dBA for ground-based activities and 90 dBA for helicopter activities), but the total number of workdays at each work area would

roughly double depending on the work area (refer to Table 2.3-4). For example, the total number of workdays at pole locations where noise levels would be greatest would increase from approximately 13 to 25 days. As with the approved project, temporary noise increases from construction of the proposed modifications is considered substantial and a potentially significant impact on sensitive receptors in the area. The duration of noise exposure would increase; however, the increase would not be a substantial change because construction noise would remain temporary and short-term and noise levels would remain approximately the same. The longer construction period and increased duration of noise exposure would not change the effectiveness of mitigation from the 2017 Final MND because it was designed to minimize temporary noise effects during construction by providing advanced notice to sensitive receptors, minimizing noise levels, avoiding noise-sensitive periods, coordinating certain helicopter activities, and addressing any noise complaints. The mitigation does not set limits on the duration of temporary noise exposure. Impacts would remain less than significant with implementation of MM Noise-1 (provide notification, minimize disruption as possible, and respond to noise complaints), MM Noise-2 (coordinate with schools if helicopter activities are necessary within 500 feet), and MM Noise-3 (minimize noise disruption from helicopters).

Operation and Maintenance

As described under noise question c) of the 2017 Final MND, the approved project would not result in a substantial permanent noise increase of 5-dBA or greater. The proposed modifications would increase the construction period in the Southern Segment from approximately 4 to 8 months. Construction activities would remain temporary and would not be concentrated near sensitive receptors for long periods. The proposed modifications would involve transferring all but 400 feet of the existing 230-kV conductor to new, slightly taller (up to 20 feet) poles in the Southern Segment instead of reconductoring one of the circuits on existing poles. Noise levels from corona discharge would remain approximately the same. Any increases that may occur from attaching the conductor to new poles would be negligible and below the 5-dBA threshold. Potential permanent noise impacts would remain less than significant.

Neither the approved project nor the proposed modifications would result in a substantial temporary noise increase associated with operation and maintenance activities. Potential noise from operation and maintenance of the new facilities would be the same as the existing facilities. No impact would occur.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant – Consistent with the 2017 Final MND

Potential impacts from groundborne vibration or noise levels were evaluated for the approved project, including those produced by large bulldozers (i.e., D4/D6 Dozer) and a vertical drill rig used for excavating foundation holes for new structures as close as approximately 20 feet from residences. The proposed modifications would involve additional grading and foundation excavation in the Southern Segment that would also occur as close as approximately 20 feet from existing structures. New receptors and structures may be exposed to low levels of

groundborne vibration or noise levels, but the duration of exposure would be temporary and short-term and would not exceed the 0.3 peak particle velocity (inches/second) threshold identified in the 2017 Final MND. Impacts would be less than significant.

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 2 miles of a public airport or public use airport, would the project expose people residing or working in the project corridor to excessive noise levels?

Less than Significant – Consistent with the 2017 Final MND

As described for the approved project, no public airports or public use airports are located within 2 miles of the project area. No private airstrips are located within the vicinity of the proposed modifications. A helipad is located approximately 0.4 mile southeast of Fulton Substation at Sutter Santa Rosa Regional Hospital. Potential impacts from exposing workers to minor air traffic out of Sutter Santa Rosa Regional Hospital would be less than significant.

3.15 POPULATION AND HOUSING

3.15.1 Environmental Setting

The environmental setting discussion in Section 3.13.1 of the 2017 Final MND describes the existing and projected population and housing in the project area. The Southern Segment is located entirely within unincorporated Sonoma County.

3.15.2 Impact Discussion

Impacts of the approved project on population and housing were addressed in Section 3.13.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for population and housing are listed in Table 3.15-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to questions a) and b) and removal of question c). Determinations for the current impact questions are discussed below.

Table 3.15-1 Summary of Proposed Modification Impacts for Population and Housing

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

a) Would the project induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

No Impact – Consistent with the 2017 Final MND

Potential direct population growth from the influx of workers during construction was evaluated in the 2017 Final MND. It was determined that the estimated number of daily workers (between 15 and 50 workers per day) would not result in unplanned population growth in the area. As described in Section 2.3.12, the proposed modifications would increase the construction period in the Southern Segment from approximately 4 to 8 months. As with the approved project, it is estimated that between 15 and 50 workers would be present at the project site at any given time during construction of the proposed modifications and workers would primarily be employed from the local labor pool. Following construction, operation and maintenance activities of the proposed modifications would be the same as those described for the approved project in the 2017 Final MND, and consistent with existing operation and maintenance of the existing facilities. The proposed modifications would not induce substantial population growth. No impact would occur.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Less than Significant – Consistent with 2017 Final MND

Similar to the approved project, construction of the proposed modifications would occur within PG&E's existing easements or through minor modification to those easements. Housing would not be impacted by existing or modified easements. No impacts to existing housing, buildings, or gathering places would occur.

As with the approved project, construction of the proposed modifications would use helicopters in the Southern Segment to support construction activities. Helicopter activities for the approved project were considered within 70 to 100 feet of approximately 10 residences for two short periods. Helicopter work at these distances would require FAA authorization, which would be contingent on the residences being evacuated during the helicopter work. The proposed modifications could be constructed without using helicopters within 100 feet of residences, avoiding the need for FAA authorization.

As described in Section 2.3.2, one light-lift helicopter would be used to transport workers and materials between nearby LZs and Poles 21, 22, and 23. Two residences are located within 500 feet of these poles, including one residence located approximately 120 feet southwest of Pole 23 and another residence located approximately 320 feet southwest of Pole 21. PG&E does not anticipate a need to evacuate residences during helicopter work for construction of the proposed modifications; however, PG&E may still request residences to evacuate during helicopter work should the need arise. The voluntary evacuation of a few residences for short helicopter work periods would not necessitate the construction of replacement housing. The impact from helicopter operations on displacement of people would be less than significant.

3.16 RECREATION

3.16.1 Environmental Setting

The environmental setting discussion in Section 3.14.2 of the 2017 Final MND provides a summary of recreational areas and facilities along the project alignment, including Maddux Ranch Regional Park and Shiloh Ranch Regional Park where project poles and work areas are located in the Southern Segment.

3.16.2 Impact Discussion

Impacts of the approved project on recreation were addressed in Section 3.14.3 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for recreation are listed in Table 3.16-1 as well as a summary of determinations for the proposed modifications. Determinations for the current impact questions are discussed below.

Table 3.16-1 Summary of Proposed Modification Impacts for Recreation

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☒	☐	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

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?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

As with the approved project, the proposed modifications would not directly or indirectly induce growth in the area (refer to Section 3.15: Population and Housing) and, therefore, would not increase use of neighborhood or regional recreational facilities that could result in deterioration of those facilities. No impacts from increased use of recreational facilities would occur.

Direct and indirect impacts of the approved project on parks in the Southern Segment were analyzed in the 2017 Final MND. As described for the approved project, the proposed modifications would involve construction activities such as pole replacements, construction staging, and reconductoring/conductor transfer within Sonoma County regional parks, including Maddux Ranch Regional Park and Shiloh Ranch Regional Park. Construction of the proposed modifications would result in similar temporary impacts in the parks as construction

of the approved project. Impacts would occur from ground and vegetation disturbance in work areas and access roads. As described in Section 2.3.2, additional grading and vegetation clearing would be required at PS-6 to establish a crane pad for replacing Pole 23. Vegetation clearing and tree removal activities at PS-6 would be similar to those described for the approved project, but the specific workspace boundary and cut-and-fill activities would be modified. PG&E coordinated with the Sonoma County Regional Parks Department regarding the proposed grading plan for PS-6 (PG&E, 2018c). A copy of the grading plan is provided in Appendix A. Construction activities within the parks could result in the physical deterioration of trails and park areas if the affected areas were not adequately restored after construction. As with the approved project, potential impacts from physical deterioration of parks would be less than significant with implementation of MM Biology-7 (Revegetation, Restoration, and Monitoring Plan), and MM Recreation-1 (repair and restore affected trails) from the 2017 Final MND. PG&E would restore temporary work areas in coordination with the Sonoma County Regional Parks Department.

As with the approved project, construction of the proposed modifications could temporarily impact access to Maddux Ranch Regional Park and Shiloh Ranch Regional Park, such as along Lavell Road (near Poles 9 and 10, and PS-3) and Faught Road (near Pole 23 and PS-6). The additional construction activities involved with TSP replacement would roughly double the amount of time construction could impact access to the parks. The total construction period would increase from approximately 4 to 8 months, and the total number of workdays at each pole site would increase from up to approximately 13 days to 25 days. As with the approved project, impacts on park access would be less than significant with implementation of MM Traffic-1 (install guard structures to maintain public access to trails and other public thoroughfares, where possible), MM Traffic-2 (manage safe public access through an Overhead Construction Safety Plan), and MM Recreation-2 (post signs at park and trail entrances and any appropriate trail detours identified by the Sonoma County Regional Parks Department) from the 2017 Final MND.

The proposed modifications would involve replacing Poles 9 and 10 in Maddux Ranch Regional Park and Pole 21 in Shiloh Ridge Regional Park (refer to the detail maps in Appendix A). The approved project included replacing LDS poles in Shiloh Ridge Regional Park; pole replacement was not addressed in Maddux Ranch Regional Park. TSP replacement in the parks would reposition the existing poles within approximately 15 to 35 feet of the existing pole locations and generally in the same line as the existing poles. Following TSP replacement and conductor transfer, the existing poles would be removed as well as the old foundations to a depth of approximately 3 feet. The resulting hole would be backfilled, and the areas restored. The new pole locations would not conflict with existing park uses, including the ball fields at Maddux Ranch Regional Park or Ridge Trail that enters Shiloh Ranch Regional Park from Faught Road. Permanent impacts from new poles would be less than significant.

3.17 TRANSPORTATION

3.17.1 Environmental Setting

The environmental setting applicable to transportation is described in Section 3.15.2 of the 2017 Final MND. Existing transportation conditions in the Southern Segment have not changed substantially since the 2017 Final MND was prepared; therefore, the information on circulation, bikeways, public transit, existing air traffic, and emergency services remains accurate. The proposed modifications would occur in the Southern Segment and would use the same roads and highways to access project areas as identified in the 2017 Final MND.

3.17.2 Impact Discussion

Impacts of the approved project on transportation was addressed in Section 3.15.3 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for transportation are listed in Table 3.17-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to questions a), b), and d), and removal of questions c) and f). Determinations for the current impact questions are discussed below. Impacts considerations regarding levels of service (LOS) and congestion were removed from the checklist questions, pursuant to Pub. Res. Code § 21099(b)(2) and CEQA Guidelines § 15064.3(a). Consistent with these CEQA amendments, LOS is not considered under any of the remaining thresholds.

Table 3.17-1 Summary of Proposed Modification Impacts for Transportation

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d) Result in inadequate emergency access?	☐	☒	☐	☐

a) Would the project conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
Less than Significant – Reduction from the 2017 Final MND

Construction of the proposed modifications would involve traffic and activities on the same roads and highways described in the 2017 Final MND, including the same transit, roadway, bicycle, and pedestrian facilities. As described in Section 3.15.3 of the 2017 Final MND, the Comprehensive Transportation Plan is a multi-modal plan administered by the Sonoma County Transportation Authority that defines goals, objectives, and policies for improving mobility on county streets and highways, and for reducing transportation-related impacts. None of the goals, objectives, and polices defined in the Comprehensive Transportation Plan are applicable to the proposed modifications because neither the approved project nor to the proposed project modifications would induce population growth or result in long-term effects on the circulation system.

The Circulation and Transit Element of the Sonoma County General Plan defines standards for maintaining LOS C or better on County highway and roadway segments and LOS D or better at intersections (Sonoma County, 2016). Caltrans attempts to maintain a target LOS on State highway facilities at the transition between LOS C and LOS D, but recognizes that such standards may not always be possible depending on the unique conditions of each highway segment (Caltrans, 2002). The County and Caltrans LOS standards are intended to address long-term circulation goals applicable to land use and transportation planning. The standards are not intended to address short-term circulation effects from construction activities of projects that would not result in population growth or making changes to transportation facilities. The impact assessment in the 2017 Final MND applied these LOS standards as significance thresholds for both short-term and long-term effects on the circulation system based on the CEQA Guidelines Appendix G checklist questions that were in effect at the time, which included greater consideration to short-term effects on LOS and congestion. As stated previously, impacts on LOS and congestion were removed from the checklist questions. Therefore, the previous significance thresholds identified in the 2017 Final MND pertaining to short-term effects on LOS no longer apply. There are no other programs, ordinances, or policies addressing the circulation system that apply because neither the approved project nor the proposed modifications would result in population growth or making changes to transportation facilities.

Temporary circulation impacts for the approved project were addressed under questions a) and b) of the 2017 Final MND, including those from construction traffic, lane and road closures, and detours routes during the an approximately 4-month construction period in the Southern Segment. The proposed modifications would result in increased construction activity in the Southern Segment required for pole replacement, which would involve additional construction trips, additional lane and road closures, and extending the construction period from approximately 4 to 8 months.

The total number of estimated vehicle trips for the proposed modifications by work area are summarized in Table 3.17-2. A large portion of the trips would occur between adjacent work

areas and staging areas, and would not occur on the regional transportation system (i.e., major roads and highways). Based on the assumptions for construction emission (refer to Table 3 in Appendix C), the combined haul trips for construction in both the Northern and Southern Segments would be approximately 3,325 trips. Up to 25 percent of the project total traffic can be attributed to construction in the Southern Segment, which would be approximately 831 haul trips. Approximately 303 of these haul trips would be from the additional construction activities described for the proposed modifications.

Table 3.17-2 Estimated Total Vehicle Trips during Construction for Each Work Area in the Southern Segment

Stage/Period	Staging Areas	Poles	Pull Sites	Mid-Span Work Areas	Guard Structures
Site Development	75	0	75	0	20
Dig and Set TSP Foundations	420	420	0	0	0
Set TSPs, Reconductor 60-kV, and Transfer Geysers #12	315	315	315	10	0
Transfer Geysers #17, Remove Old TSPs	315	315	315	10	0
Cleanup and Restoration	75	5	75	0	20
Southern Segment Total	**1,200**	**1,055**	**780**	**20**	**40**

Source: (PG&E, 2018b)

Although the total vehicle trips would increase to construct the proposed modifications, the vehicle trips would be spread out over a longer, 8-month construction period. Maximum daily construction traffic for the approved project and proposed modifications is summarized in Table 3.17-3. The estimated maximum daily construction traffic would be greater than that described in the 2017 Final MND, but would remain a small fraction of the existing daily traffic volume on local roads and highway segments in the project area. Construction traffic during peak commute periods could contribute to congestion; however, effects on the circulation system would be short-term and temporary during construction. Impacts from construction traffic related to conflicts with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities would be less than significant.

Table 3.17-3 Estimated Maximum Daily Construction Traffic in the Southern Segment

Source	Daily Construction Vehicle Trips		Daily Worker Vehicle Trips		Total Daily Trips		
	Peak Hour	Non-Peak Hour	Peak Hour	Non-Peak Hour	Peak Hour	Non-Peak Hour	Total
2017 Final MND	50	50	42	0	92	50	142

Source	Daily Construction Vehicle Trips		Daily Worker Vehicle Trips		Total Daily Trips		
Proposed Modifications [a]	200	185	42	15	242	250	442

Notes:

[b] Construction traffic values for the proposed modifications would be the same as those published in the 2017 Draft MND. Values in the 2017 Final MND were reduced to the values shown in this table, but the impact determination was the same. Refer to Table 3.15-10 in the 2017 Final MND.

Source: (PG&E, 2018b)

The effects of partial lane closures (up to a few days at a time) and traffic control were evaluated in the Southern Segment for the approved project. As described in Section 2.3.7, construction of the proposed modifications would require additional and longer lane and road closures, as well as detour routes. Lane closures for foundation excavation and setting would occur for 1 to 2 days at a time, totaling approximately 1 week at each pole. Site restoration and cleanup would require partial lane closures for up to approximately 3 days at a time, totaling approximately 1 week at each pole location. Full road closures would occur between adjacent poles for up to approximately 3 days at a time (up to 24 hours per day) while cranes are used to set new poles on foundations, transfer conductor, and remove old poles. Detour routes would be required during road closures. The additional and longer lane and road closures, additional detours routes, and longer construction period would increase congestion on the circulation system; however, vehicular congestion is no longer consider a physical environmental impact under CEQA. Impacts from temporary lane and road closures related to conflicts with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities would be less than significant.

The 2017 Final MND determined that impacts from the approved project on the circulation system and LOS standards would be potentially significant; however, as stated previously the short-term effects on LOS and congestion no longer apply under the current CEQA Guidelines Appendix G checklist questions. MM Traffic-1 was included in the 2017 Final MND to reduce vehicular congestion impacts on LOS, as well as maintain access and reduce road hazards. Elements of MM Traffic-1 directed at circulation and LOS would not apply to the proposed modifications and a significant impact would not occur pursuant to the current CEQA Guidelines. While impacts are no longer considered significant under threshold a), the previous mitigation measure has been revised. The remaining requirements of MM Traffic-1 are directed at other impacts regarding maintaining access and reducing potential road hazards.

MM Traffic-1: Construction Traffic Management

Construction Traffic. ~~Construction traffic shall be routed around roadways and intersections that are currently operating below LOS standards t~~To the greatest extent possible, ~~including the intersection at Faught Road and Old Redwood Highway. C~~ construction traffic through the intersection at Faught Road and Old Redwood Highway shall be avoided by using Airport Boulevard and alternate local roads to access the project alignment. Construction traffic through the intersection shall be limited to an absolute minimum ~~and shall not exceed 10 vehicle trips during weekday peak commute periods (7:00 am to 9:00 am, and 4:00 pm to 6:00 pm)~~.

Lane and Road Closures. Lane closures shall be limited to the minimum number necessary. Guard structures shall be installed to prevent lane closures where possible. At least one lane must remain open on all roadways unless full road closures are necessary for safety purposes or to complete a short-term construction activity. Full road closures shall not occur frequently or last for more than a few ~~minutes~~ days at a time.

~~Lane closures in the Southern Segment shall not occur during weekday peak commute periods (7:00 am to 9:00 am, and 4:00 pm to 6:00 pm). In addition, lane closures shall not occur on Lavell Road and Faught Road during pickup times at San Miguel Elementary School and Mark West Elementary School (1:00 pm to 3:45 pm Monday, Tuesday, Thursday, and Friday, and 12:15 pm to 1:45 pm Wednesdays when school is in session).~~

~~Should a lane closure be unavoidable during peak commute hours or school commute hours, a traffic model shall be run to demonstrate that the lane closure and detour routes do not cause a significant impact to LOS, as defined in this traffic analysis. If modeling shows that significant impacts to LOS could occur, other measures shall be incorporated and remodeled to demonstrate less than significant impacts, or the closure shall be limited to off-peak and off-school-commute hours.~~

Access shall be maintained to driveways, residential communities, and parking lots. Guard structures shall be installed if overhead reconductoring activities would affect access for more than 15 minutes per day.

Detour Routes. Detour routes shall be selected in coordination with Caltrans and Sonoma County when encroachment permits are obtained. ~~Traffic detours shall not divert existing traffic volume that would cause roadway or intersection LOS to drop below acceptable standards (LOS D for roadways and LOS F for intersections).~~

Safe detour routes shall be provided for pedestrians and cyclists along lane closures, and where traffic control occurs. Barriers shall be installed between the pathway and vehicle traffic, if necessary, to provide a safe clearance from traffic.

Encroachment Permits. PG&E shall obtain encroachment permits from Caltrans prior to working within the US 101 ROW and from Sonoma County prior to working within the Sonoma County ROW. PG&E shall provide the CPUC with all encroachment permits obtained from Caltrans and Sonoma County prior to work in the State or County ROW. Any modified or updated encroachment permits shall also be provided to the CPUC.

Applicable Locations: All public roadways

Performance Standards and Timing:

- **Before Construction:** N/A
- **During Construction:** (1) Construction traffic avoids congested intersections to the greatest extent possible ~~follows the designated routes that limit impacts to traffic circulation~~, (2) Lane and road closures are limited to the minimum number necessary ~~do not occur during peak weekday commute periods or during school pick up and drop off periods~~, (3) Detour routes are adequately identified and implemented, (4) Encroachment permits from Caltrans and Sonoma County are obtained and implemented adequately, and submitted to the CPUC
- **After Construction:** N/A

b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Less than Significant – Reduction from the 2017 Final MND

Section 15064.3 of the current 2019 CEQA guidelines provides guidance for lead agencies on determining the significance of a project's transportation impacts. The guidance directs lead agencies to use a vehicle miles traveled (VMT) metric, which refers to the amount and distance of automobile travel attributed to a project, rather than LOS, which focuses on capacity and delays. CEQA Section 15064.3(a) states "a project's effect on automobile delay shall not constitute a significant environmental impact" with the exception of certain transportation projects that affect capacity issues. This new guidance changes the basis for which

transportation impacts were analyzed in the 2017 Final MND, and the scope of checklist question b) has been narrowed to address VMT increases for land use and transportation projects. The previously broad scope of checklist question b) regarding congestion and circulation no longer applies.

The project, including the proposed modifications, would involve temporary traffic during construction. Construction haul trips and workers commuting to the project site would result in a minor temporary increase in regional VMT over the approximately 8-month construction period. As listed in Table 3.17-3, the maximum estimated vehicle trips during peak construction activities for the proposed modifications would be up to 442 trips per day (385 from construction vehicles and 57 from worker vehicles); however, such peak periods would not be constant and the average daily trips would be much lower. Furthermore, a large portion of the daily construction trips would be limited to local roads and cover short distances (approximately 2.5 miles or less) between poles and staging areas throughout the workday. Most workers would primarily be employed from the local labor pool and would not be travelling long distances. Local workers would be using the regional transportation network regardless of project approval, therefore, VMT from local workers would remain approximately the same as existing conditions. Construction traffic from implementation of the proposed modifications would not result in substantial levels of VMT. Impacts would be less than significant.

Lane and road closures during construction would cause congestion and may require detour routes, which would directly or indirectly divert existing traffic to travel longer distances on local roadways. Increasing driving distances for existing traffic could increase regional VMT; however, the locations of lane and road closures would be limited to pole locations along the Southern Segment and would not divert traffic very far (a few miles at most, likely less). Any induced VMT from lane and road closures would be minor and short-term. Impacts would be less than significant.

The project would not result in long-term increases in VMT. Operation and maintenance activities of the new facilities would be similar to those of the existing facilities, although it is expected that the new facilities would result in fewer failures and breakages and ultimately fewer vehicle trips to facilitate repairs. Operation and maintenance would not generate substantial levels of VMT. Impacts would be less than significant.

As described under checklist question a), requirements of MM Traffic-1 from the 2017 Final MND to preserve existing LOS would no longer apply to the proposed modifications, unlike the previous findings for checklist question b) in the 2017 Final MND. A revised version of MM Traffic-1 is provided under question a), which removed such requirements. The remaining requirements of MM Traffic-1 are directed at other impacts regarding maintaining access and reducing potential road hazards.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

The proposed modifications would involve overhead construction activities in the Southern Segment, a populated residential area, which pose a risk of falling objects. The proposed modifications would involve the same types of overhead activities as described for the approved project and in the same areas, but the overall intensity of construction activities would increase. Additional crane use would be required to install new poles and remove existing poles, and to transfer conductor. As with the approved project, PG&E would follow common safety practices for overhead construction activities to reduce hazards to the public. These would include either temporarily installing guard structures where public access would continue, closing public access, or positioning flaggers to direct members of the public when it is safe to pass. Guard structures have been identified for most public roadways (see detail maps in Appendix A); however, guard structures have not been identified at multiple locations where public access cannot be closed for the duration of construction activities, such as roadways, driveways, parking lot entrances, and pedestrian pathways. The potential hazards from falling objects would be a significant impact. Implementation of MM Traffic-2 would require PG&E to implement safety procedures in all areas during overhead construction activities, by either installing guard structures or positioning flaggers, or restricting public access. If access to properties must be closed during overhead activities, implementation of MM Traffic-2 would require PG&E to coordinate the timing of such activities with the affected property owners and residents. Impacts would be less than significant with mitigation.

The proposed modifications could substantially disrupt the circulation system from lane and road closures and from detouring traffic during construction. As with the approved project, disrupting the circulation system would temporarily increase traffic hazards. The increased traffic hazards from lane and road closures would be a significant impact. Implementation of MM Traffic-1 would require PG&E to implement appropriate traffic control procedures, including guidelines for installing barriers and signage. The revised version of MM Traffic-1 provided under checklist question a) retains these requirements. Traffic hazards from lane and road closures would be less than significant with mitigation.

The proposed modifications could damage the surface of curbs or roadways in the same manner as the approved project from the use of heavy construction equipment. Substantial damage would create a road hazard if the damaged area was not repaired quickly, which would be a significant impact. Implementation of MM Traffic-3 would require PG&E to assess road conditions before construction, and repair any damages caused by the project no more than 30 days after construction activities in the area are complete. If any damages would create a substantial traffic hazard, the damages must be adequately marked and repaired within 48 hours. Traffic hazard impacts from roadway damage would be less than significant with implementation of MM Traffic-3.

d)Would the project result in inadequate emergency access?
Less than Significant with Mitigation – Consistent with the 2017 Final MND
The proposed modifications could substantially disrupt the circulation system from lane and road closures and detour routes during construction. As with the approved project, unexpected lane and road closures or congestion could affect adequate emergency access in the project area, which would be a significant impact. Implementation of MM Traffic-1 would require PG&E to maintain and/or provide for emergency access during construction. The revised version of MM Traffic-1 provided under question a) retains these requirements. Implementation of MM Traffic-4 would require PG&E to notify local emergency service providers before construction and provide them with key information identifying where lane and road closures and detour routes could occur, including the approximate timing of construction activities that may impact traffic and emergency access. Impacts on emergency access would be less than significant with implementation of MM Traffic-1 and MM Traffic-4.

3.18 UTILITIES AND PUBLIC SERVICES

3.18.1 Environmental Setting
The environmental setting applicable to utilities and public services of the approved project is described in Section 3.15.2 of the 2017 Final MND. The proposed modifications would involve replacing 21 TSPs in the Southern Segment instead of reusing the poles. PG&E conducted surveys to identify existing underground utilities in the Southern Segment near existing and proposed pole locations; the results of the survey indicated the presence of several underground utilities with separation distances ranging from 2.7 to 38.5 feet from proposed pole locations, including electrical lines, gas pipelines, storm drains (including storm drain manholes and inlets), telephone lines, water lines, and sanitary sewers (PG&E Applied Technology Services, 2019).

3.18.2 Impact Discussion
Impacts of the approved project on utilities and public services were addressed in Section 3.16.2 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for utilities and public services are listed in Table 3.18-1 as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions. Revisions were made to questions b), d), f), and e), and questions a) and c) were removed. Determinations for the current impact questions are discussed below.

Table 3.18-1 Summary of Proposed Modification Impacts for Utilities and Public Services

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider that 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒
f) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government 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: (i) Fire protection; (ii) Police protection; (iii) Schools; (iv) Parks; or (v) Other public facilities?	☐	☒	☐	☐

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant – Minor Increase from the 2017 Final MND

Pole replacement for the proposed modifications has the potential to conflict with existing utilities in the Southern Segment, which could result in inadvertent damage and the need to repair and/or relocate existing utilities. Indirectly requiring the repair or relocation of other existing utilities could result in a significant environmental effect, which would be a significant impact of the project.

The proposed modifications would not conflict with existing above-grade utilities. Minor adjustments to existing distribution poles and streetlight heights or locations in the Southern Segment may be necessary to meet clearance requirements; however, no additional clearance requirements are anticipated for the proposed modifications because the new poles would be slightly taller (up to 20 feet) than the existing poles. The installation of new TSP foundations in the Southern Segment has the potential to conflict with existing underground utilities identified near proposed pole locations. As described previously, several underground utilities were identified in the Southern Segment with separation distances ranging from 2.7 to 38.5 feet from proposed pole locations, including electrical lines, gas pipelines, storm drains (including storm drain manholes and inlets), telephone lines, water lines, and sanitary sewers (PG&E Applied Technology Services, 2019). Based on the results of the initial surveys and separation distances, it is anticipated that all underground utility lines could be avoided, and no inadvertent damage or relocation would occur. PG&E would conduct USA surveys and any necessary potholing to identify utilities at final pole locations prior to construction. If necessary, PG&E would adjust the pole locations slightly to avoid the utility or coordinate with the utility owner to relocate the utility around the pole or pole locations. In the unlikely event that utility repair or relocation is necessary, any associated work would be minor and near the pole locations, such as within pole work areas and local roadways, where the environmental effects would be minor and consistent with the proposed modifications. The impact would be less than significant.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less than Significant – Consistent with the 2017 Final MND

As described in Section 2.3.8, construction of the proposed modifications would not require more water than estimated for the approved project. Operation and maintenance of the new facilities would not increase water use. The approved project would use up to approximately 20,000 gallons of water (0.06 acre-feet) during construction for dust suppression, concrete washout, and other miscellaneous activities. Water would be purchased from local suppliers or Sonoma County Water Authority's water trucking program. The amount of water that would be used would not be substantial relative to the local production of 7 to 10 million gallons per day. The impact would remain less than significant.

c) Would the project result in a determination by the wastewater treatment provider that 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?
Less than Significant – Consistent with the 2017 Final MND
Potential wastewater impacts from the approved project are discussed under checklist question e) of the 2017 Final MND, including wastewater from portable toilets used by 15 to 50 workers per day during construction. The estimated number of daily workers would remain the same with the proposed modifications, but the duration of construction would increase by approximately 4 months, which would increase sanitary wastewater generated by the project. Increasing the use of portable toilets by 4 months would not change the previous impact determination for the approved project. The impact would remain less than significant.

The potential for encountering groundwater and dewatering excavations was described in Section 3.9.2 the 2017 Final MND. Handling and disposal of extracted water was addressed as a potential water quality impact, including the proper testing, discharge, and/or disposal of potentially contaminated water (in accordance with applicable laws and as required by MM Hydrology-3). The potential for encountering polluted water was considered low, as was the estimated volume of any wastewater disposal need for pole replacement in the Northern Segment. Thus, dewatering was not considered to be a significant source of wastewater generation. TSP replacement for the proposed modifications would have a greater potential for encountering groundwater than in the Northern Segment, due to the size and depth of the new TSP foundations (5 to 7 feet in diameter and 20 to 30 feet deep) that would be located along the valley floor and near creeks and drainages, such as Mark West Creek. The results of a geotechnical investigation in the Southern Segment identified groundwater as shallow as 11.5 feet below grade during bore hole testing in July 2018 (Kleinfelder, 2018; Revised 2019). PG&E estimates the total volume of groundwater that may be extracted during construction of the proposed modifications would be between 10,000 and 100,000 gallons; however, this estimate could fluctuate significantly in response to seasonal rainfall variations, and groundwater withdrawal at the time of year the work is performed (PG&E, 2019b). Based upon the State Water Resource Control Board GeoTracker Database, there are no known contamination sites within 1,500 feet of the proposed TSP foundation excavation locations (PG&E, 2019c). It is not anticipated that contaminated groundwater would be encountered. If groundwater exhibited an unusual color, sheen or smell that could suggest possible contamination, PG&E would contain and collect representative groundwater samples for characterization. Groundwater that does not exhibit characteristics of contamination, or passes sampling thresholds, would be discharged in accordance with PG&E's land discharge permit with the State Water Resources Control Board Water Quality Order No. 2003-0003-DWQ, *Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality.* Groundwater that exceeds discharge limits would be transported offsite by PG&E's authorized waste hauler for disposal at an approved disposal facility. The proposed modifications would have a greater potential for generating wastewater compared to the approved project, but the volume of any wastewater would not be substantial, and the period of

generation would be temporary during TSP foundation installation (approximately 4 months). Impacts would be less than significant.

d) Would the project 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?

Less than Significant – Consistent with the 2017 Final MND

Solid waste generation and disposal for the approved project is described in Section 2.6.10 of the 2017 Final MND. As described in Section 2.3.9, it was estimated that the approved project would generate approximately 1,000 cubic yards of solid waste. The proposed modifications would generate an additional approximately 1,000 cubic yards of solid waste from existing TSPs and hardware that would be removed, and 100 cubic yards of solid waste from concrete that would be removed from existing foundations. Removed hollow TSPs and other metal hardware would be recycled; other project wastes would be disposed of in local landfills or another appropriate facility. Construction of the proposed modifications would approximately double the solid waste generation for the project, but the waste stream from the project would be temporary, and many of the replaced components would be recycled. The volume of non-recyclable waste would be far below the capacities of local landfills and would not impair solid waste reduction goals. Impacts would be less than significant.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact – Consistent with the 2017 Final MND

As described under checklist question d), the approved project including the proposed modifications would generate approximately 2,100 cubic yards of solid waste, and many of the replaced metal poles and hardware would be recycled. The approved project with the proposed modifications would not conflict with federal, state, and local management and reduction statutes and regulations related to solid waste. No impact would occur.

f) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government 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: (i) Fire protection; (ii) Police protection; (iii) Schools; (iv) Parks; or (v) Other public facilities?

Less than Significant with Mitigation – Consistent with the 2017 Final MND

The proposed modifications would not require new or physically altered government facilities. Refer to Section 3.18.2(e) for a discussion of construction impacts to emergency response times. Refer to Section 3.16.2 (a) for discussion of construction impacts to existing parks. Refer to Sections 3.17.2 (f) and 3.19.4 (a) for a discussion of construction impacts regarding wildfires, emergency response, and emergency evacuation. As described in these sections, APM HM-3 (smoking and fire rules), APM HM-4 (requires workers to carry emergency fire suppression equipment), APM REC-1 (coordinate with park management and post trail closure signs), MM Recreation-2 (provide trail detours and notifications), MM Traffic-1 (maintain and/or provide for emergency access during construction), MM Traffic 2 (position flaggers to maintain

access where possible), and MM Traffic-4 (notify local emergency service providers before construction) would be implemented to reduce potentially significant impacts on public services during construction. The impacts of the proposed modifications would remain less than significant with mitigation.

3.19 WILDFIRE

3.19.1 Overview

Environmental setting information on wildland fire hazards for the approved project is described in Section 3.8.2 of the 2017 Final MND. Since the 2017 Final MND was prepared, the Tubbs Fire occurred in Sonoma County, seriously affecting local communities near the project area. Wildfire related issues are a major public concern. The updated 2019 CEQA Guidelines Appendix G include a separate section on wildfire and new checklist questions to address impacts related to wildfire. The following sections include the updated 2019 information on wildfire and an evaluation of potential impacts from construction of the proposed modifications on wildfire risks.

As explained in Section 3.19.4, the proposed modifications would result in similar impacts related to wildfire as those described for the approved project in the 2017 Final MND. Construction activities in dry vegetation would involve a risk of igniting wildfires, which would be mitigated through implementation of APM HM-3 (requires smoking and fire rules), APM HM-4 (requires workers to carry emergency fire suppression equipment), and MM Hazards-2 (development and implementation of a Construction Fire Prevention Plan). New electrical facilities and PG&E operation and maintenance activities would not increase the risk of wildfires beyond those that currently exist. The primary objectives of the project are to address electrical reliability and not to specifically address a risk of wildfire associated with existing facilities; however, both the approved project and proposed modifications would have the benefit of reducing fire risk associated with the existing facilities because replacement poles would be newer, taller, stronger, and more resilient to wildfires, and conductor would be suspended higher above the ground, reducing the potential for the conductor coming into contact with vegetation and other foreign objects. The proposed modifications would not conflict with ongoing efforts by the CPUC and PG&E to address utility-associated wildfire risks and threats.

3.19.2 Regulatory Background

Federal

No federal regulations regarding wildfires apply to this project.

State

California Department of Forestry and Fire Protection

Pursuant to PRC §§ 4201 to 4204 and Government (Gov't) Code §§ 51175 to 51189, CAL FIRE has created FHSZ maps for the state that identify areas that are within state or local

responsibility for preventing or suppressing fires. These maps identify areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The FHSZ zones also define the application of various strategies to reduce risks associated with wildland fires.

State Responsibility Areas (SRAs) are areas of the state in which the financial responsibility of preventing and suppressing fires has been determined to be primarily the responsibility of the state (PRC § 4201). Local Responsibility Areas (LRAs) are areas in which the financial responsibility of preventing and suppressing fires is primarily the responsibility of local agencies, including cities and counties (Gov't Code §§ 51175 to 51189). SRAs were originally mapped by CAL FIRE in 1985 and LRAs in 1996.

Within SRAs, the Director of CAL FIRE has designated areas as moderate, high, and very high FHSZ (PRC § 4202). Outside of SRAs and within LRAs, the Director of CAL FIRE was charged with recommending the locations of very high zones FHSZ (Gov't Code § 51178). These recommendations were to be reviewed and adopted in ordinances by local agencies (Gov't Code § 51179), although not all local agencies have complied. All designations are mapped on the CAL FIRE website.

California Public Resources Code

PRC §§ 4290 to 4293 identify construction and operation requirements to minimize fire hazards for structures located in SRAs. These PRC sections include the following:

- 4290 was adopted to establish minimum wildfire protection standards in conjunction with building, construction, and development of all residential, commercial, and industrial buildings in SRAs. Under this section, all residential, commercial, and industrial building construction within SRAs must provide for basic emergency access and perimeter wildfire protection measures, as specified in the PRC. Local standards that exceed those of PRC § 4290 supersede PRC § 4290.
- 4291 addresses requirements for maintaining defensible space around buildings in SRAs.
- 4292 addresses power line hazard reduction. It identifies the requirements for firebreaks around "any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole" in wildland areas.
- 4293 provides specific clearances for power lines in wildland areas.

CPUC Rules for Overhead Electric Lines

CPUC GO 95 regulates all aspects of design, construction, and operation of overhead electrical power lines and fire safety hazards for utilities subject to its jurisdiction. CPUC GO 165 imposes inspection requirements for transmission and distribution lines and GO 166 requires emergency response procedures to respond to electric system failures, major outages, or hazards posed by damage to electric utility facilities. Rule 11 enables electric utilities to suspend customer service when minimum vegetation clearance requirements are not met.

On February 5, 2014, the CPUC approved its Decision Adopting Regulations to Reduce the Fire Hazards Associated with Overhead Electric Utility Facilities and Aerial Communications Facilities (Decision 14-02-015). In addition to updating various GO 95 requirements and

ordering further study, the decision called for creation by the CPUC of a HFTD map identifying zones of high hazard, elevated risk and extreme risk for destructive utility-associated wildfires. On December 21, 2017, the CPUC issued its Decision Adopting Regulations to Enhance Fire Safety in the High Fire Threat District, adding statewide HFTD map requirements to GO 95 and enhancing GO 95's fire safety regulations within HFTD areas (Decision 17-12-024). The decision also strengthened GO 165 and 166 requirements, and expanded Rule 11 concerning when utilities can disconnect service to customers who obstruct vegetation management activities.

In January 2018, the CPUC adopted its statewide HFTD Map. The HFTD Map designates three areas where there is an increased risk from wildfires: Tier 3 (extreme fire risk), Tier 2 (elevated fire risk), and Zone 1 (USFS and CAL FIRE Tree Mortality High Hazard Zone Tier 1 that are not included in Tier 3 or Tier 2). Tier 2 HFTDs depict areas where there is an elevated risk (including likelihood and potential impacts on people and property) from utility-associated wildfires. Tier 3 HFTDs depict areas where there is an extreme risk (including likelihood and potential impacts on people and property) from utility-associated wildfires (CPUC, 2018). These CPUC designations do not replace CAL FIRE's FHSZs.

On October 25, 2018, the CPUC entered an Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to Senate Bill 901 (2018), R.18-10-007. The decision implemented SB 901's additions to Public Utilities Code § 8386 require that PG&E and other utilities submit wildfire mitigation plans. PG&E submitted its Amended 2019 Wildfire Safety Plan on February 6, 2019, which "describes the enhanced, accelerated, and new programs that PG&E is and will aggressively continue to implement to prevent wildfires in 2019 and beyond." The plan identifies proposed short-term and long-term actions to reduce the threat and severity of wildfires associated with PG&E facilities, which include a range of facility inspections and treatments in CPUC HFTDs as well as other programmatic strategies to monitor and respond to fire threats in PG&E's service territory. PG&E's Wildfire Mitigation Plan (also called the 2019 Wildfire Safety Plan) includes the following types of actions to address the wildfire risks associated with its facility and territory (PG&E, 2019a):

- Enhancing situational awareness (i.e., using weather stations, cameras, and other monitoring systems)
- Enhancing safety inspections for both facilities and vegetation clearance
- Enhancing vegetation management (i.e., increase vegetation clearance distances beyond regulated levels
- Implementing a Public Safety Power Shutoff program
- Increasing system automation and protection

- Targeted distribution system[7] hardening (i.e., generally replacing certain distribution facilities in high-risk areas with lower-risk facilities, such as replacing wood poles with steel or composite poles, using low-risk fuses that produce fewer sparks, and installing covered conductor)
- Targeted distribution system undergrounding (i.e., generally installing certain distribution lines in high-risk areas underground)

On June 3, 2019, the CPUC approved PG&E's Wildfire Mitigation Plan (Decision 19-05-037) and those of the other state utilities as being consistent with the requirements of SB 901. In a separate decision, the CPUC provided guidance on implementing these plans (Decision 19-05-036).

Fire Prevention Standards for Electric Utilities
The Fire Prevention Standards for Electric Utilities (CCR Title 14, §§ 1250 to 1258) provide definitions, maps, specifications, and clearance standards for applying the requirements of PRC §§ 4292 to 4296 to projects in SRAs under the jurisdiction of CAL FIRE.

California Fire Code
The California Fire Code 2016 (CCR Title 24, Part 9) is based on the International Fire Code from the International Code Council and contains consensus standards related to establishing good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new or existing buildings, structures, and premises.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) (CCR Title 27) was mandated by the State of California in 1993. The Unified Program has six elements, including the Uniform Fire Code Hazardous Materials Management Plans and Hazardous Materials Inventory Statements.

At the local level, this program is accomplished by identifying a Certified Unified Program Agency (CUPA) that coordinates all of these activities to streamline the process for local businesses. The Sonoma County Fire and Emergency Services Department is approved by the CalEPA as the CUPA for Sonoma County (CalEPA, 2019).

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. This section provides

[7] PG&E's distribution system includes facilities transporting electricity below 60-kV. PG&E's transmission system includes facilities transporting bulk electricity at high voltages ranging from 60 to 500-kV (PG&E, 2019).

information on Sonoma County's local fire hazard mapping and emergency response policies for informational purposes and to support the CEQA review.

Sonoma County General Plan 2020 Public Safety Element
The General Plan includes a Public Safety Element with goals and policies to reduce damage from wildland fires and establishes the following goal:

- GOAL PS-3: Prevent unnecessary exposure of people and property to risks of damage or injury from wildland and structural fires

The Public Safety Element includes mapping of the high and very high wildland fire hazard zones as identified in the County's 2011 Hazard Mitigation Plan and consistent with the areas designated by CAL FIRE's FHSZ mapping. The Public Safety Element uses the hazard mitigation plan and existing data on wildland and urban fire hazards to guide new development and to help reduce damage from fire hazards.

Sonoma County General Plan Circulation and Transit Element
The Sonoma County General Plan Circulation and Transit Element, amended in 2016, contains Policy CT-4j related to emergency response on local roads:

- (1) Design local roads for reasonable access by emergency and service vehicles.
- (2) Design traffic calming improvements to accommodate local circulation, to accommodate emergency vehicles where possible, to reduce speeds, to promote the safety of pedestrian and bicycle traffic, and to discourage truck traffic and through traffic, particularly during peak periods.

Sonoma County Emergency Management Division
The Emergency Management Division of the Sonoma County Fire and Emergency Services Department is responsible for the planning, coordination of response, recovery, and mitigation activities related to county-wide emergencies and disasters. It serves as the primary coordination point for emergency management's communication flow between the Federal, State, and local levels, and is responsible for developing emergency operation plans for the county, cities, and districts in Sonoma County, conducting training and educational outreach programs related to emergency preparedness, and sponsoring emergency management training.

Sonoma County Transportation Authority
The Sonoma County Transportation Authority approved the Comprehensive Transportation Plan 2040 in 2016. Among its long-term goals is congestion reduction on County roadways, specifically to reduce person hours of delay by 20 percent below 2005 levels by 2040. The Plan notes that congestion causes, among other negative impacts, longer emergency response times.

3.19.3 Environmental Setting

The Southern Segment, where the proposed modifications would occur, is approximately 1.4 miles long and is located in the residential community of Larkfield-Wickiup between Fulton Substation and Shiloh Ranch Regional Park. The existing Geysers-Fulton 230-kV lines and

Fulton-Hopland 60-kV line are collocated on TSPs that run in a north to south direction. From Fulton Substation, the lines cross US 101 and continue north along Lavell Road, cross Old Redwood Highway, and follow Faught Road along residential and agricultural land uses including residences, schools (e.g., Mark West Elementary School and San Miguel Elementary School), regional parks (e.g., Maddux Ranch Regional Park and Shiloh Range Regional Park), and vineyards. Most vegetated areas along the Southern Segment include street trees, urban landscaping, and mixed agricultural land. There are a few small areas along the Southern Segment that have wildland vegetation characteristics, such as grassland (between Poles 1 through 9) and mixed woodland along Mark West Creek (between Poles 12 and 13) and Shiloh Ranch Regional Park (Pole 23) (refer to Figure D-2, Appendix D, of the 2017 Final MND).

Existing wildfire threat and severity designations in the Southern Segment were evaluated through review of CAL FIRE's FHSZ mapping and CPUC's HFTD mapping (refer to Section 3.19.2). Sonoma County uses CAL FIRE's FHSZ mapping to identify wildland fire hazard areas for the general plan. CAL FIRE FHSZ designations in the Southern Segment are shown on Figure 3.19-1. CPUC HFTD designations in the Southern Segment are shown on Figure 3.19-2.

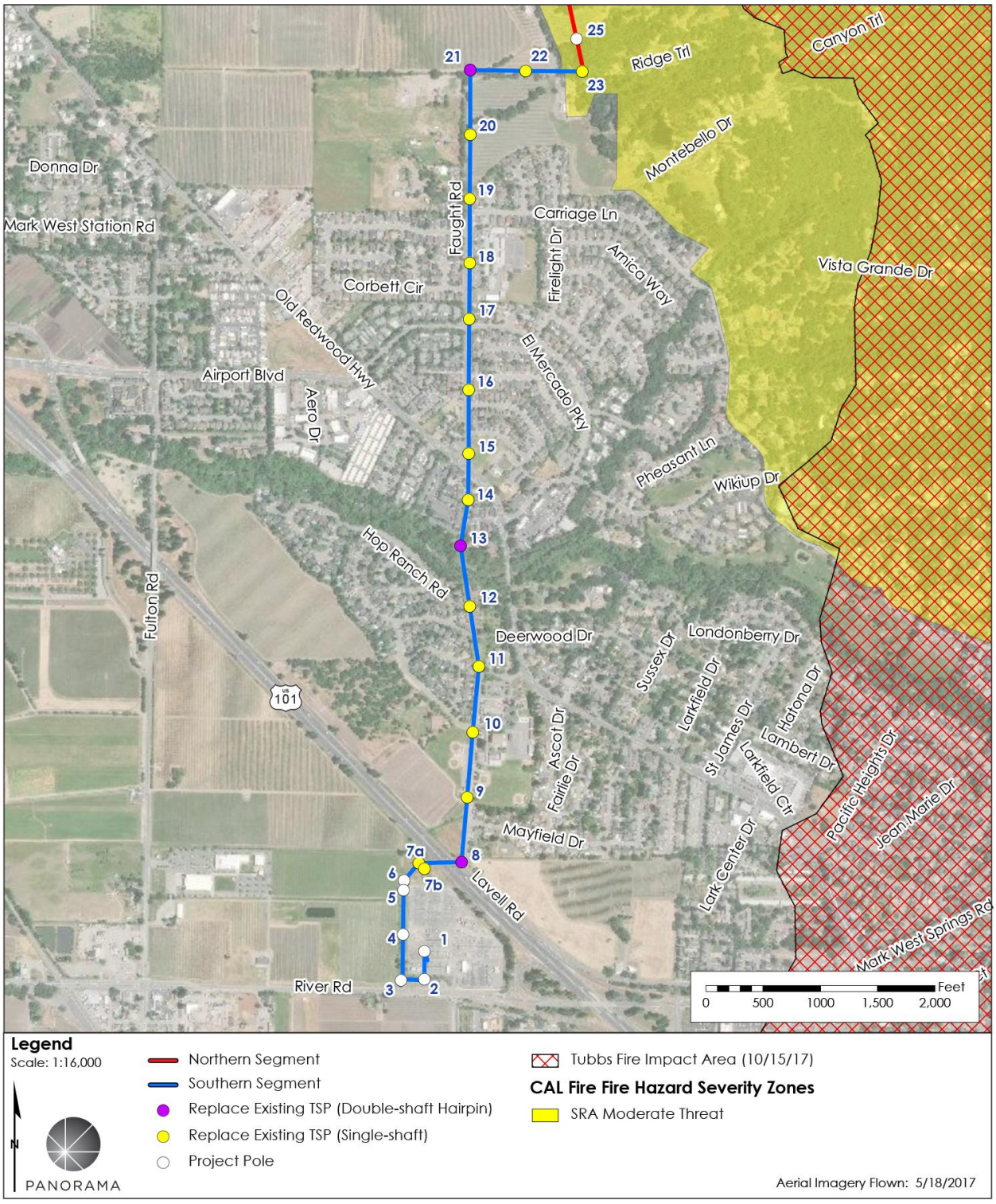
Most of the Southern Segment is within an LRA in unincorporated Sonoma County, as shown in Figure 3.19-1. The northern 220 feet of the Southern Segment in Shiloh Ranch Regional Park is in an SRA, which is designated by CAL FIRE as a moderate FHSZ. The closest high and very high FHSZs to the Southern Segment are located approximately 1.5 and 3.7 miles to the northeast, respectively (CAL FIRE, 2008; CAL FIRE, 2012).

The same northern 220 feet of the Southern Segment in Shiloh Range Regional Park is also in a CPUC-designated HFTD, as shown on Figure 3.19-2. Approximately 220 feet of the Southern Segment is located in Tier 2 (elevated risk), including Pole 23 and the western half of PS-6; the eastern half of PS-6 is in Tier 3 (extreme risk) (CPUC, 2018).

The Tubbs Fire, which occurred during what CAL FIRE calls the "October 2017 Fire Siege," burned a total of 36,807 acres; destroyed 5,636 structures; and, resulted in 22 civilian fatalities and one fire fighter injury (CAL FIRE, 2019). The results of CAL FIRE investigations determined the fire was caused by a private electrical system adjacent to a residential structure (CAL FIRE, 2019). The area affected by the Tubbs Fire in the Southern Segment is shown on Figure 3.19-1 and Figure 3.19-2. A small area along the Northern Segment (between Poles 26 and 30) was also affected by the fire (not in the map view) (CAL FIRE, 2017).

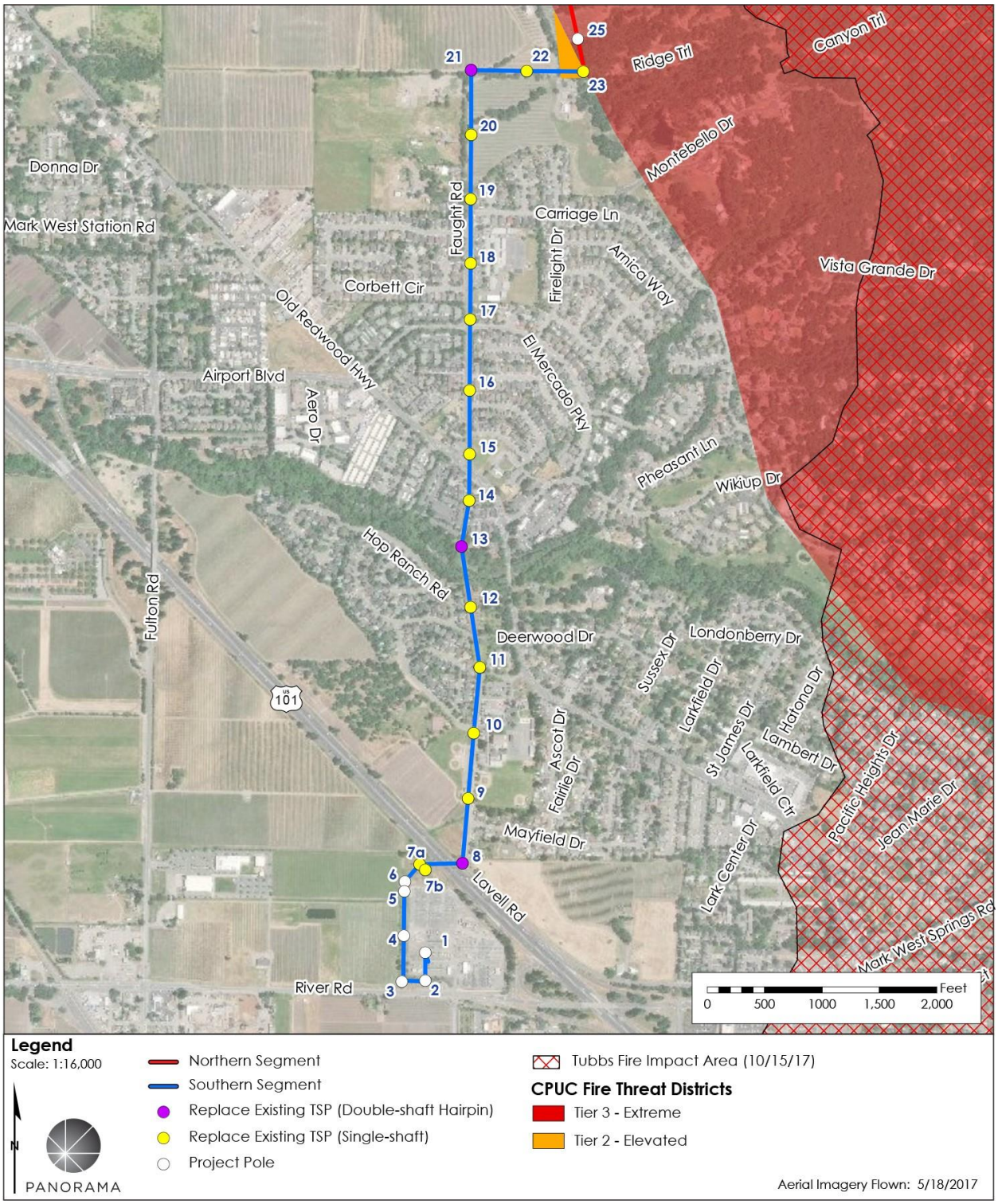
Fire protection and emergency services in the project area are identified in Section 3.16.1 of the 2017 Final MND.

Figure 3.19-1 CAL FIRE High Fire Severity Zones in the Southern Segment



Sources: *(DigitalGlobe, 2017; County of Sonoma GIS Central, City of Santa Rosa, Merrick & Company, 2001; CAL FIRE, 2007; CAL FIRE, 2019; PG&E, 2018b)*

Figure 3.19-2 CPUC High Fire-Threat Districts in the Southern Segment



Sources: (DigitalGlobe, 2017; County of Sonoma GIS Central, City of Santa Rosa, Merrick & Company, 2001; CAL FIRE, 2019; CPUC, 2018; PG&E, 2018b)

3.19.4 Impact Discussion

A new section on wildfire has been added to the CEQA Guidelines. Impact checklist questions from Appendix G of the CEQA Guidelines for wildfire are listed in Table 3.19-1 as well as a summary of determinations for the proposed modifications. Determinations for the current impact questions are discussed below.

Table 3.19-1 Summary of Proposed Modification Impacts for 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 Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
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?	☐	☒	☐	☐
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?	☐	☐	☒	☐
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?	☐	☒	☐	☐

a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant with Mitigation

Overview

The Southern Segment is not located in or near a very high FHSZ designated by CAL FIRE (refer to Figure 3.19-1). The closest very high FHSZ to the Southern Segment is located approximately 3.7 miles to the northeast (CAL FIRE, 2008). Approximately 220 feet of the Southern Segment in Shiloh Range Regional Park is in an SRA designated by CAL FIRE as a moderate FHSZ. The same 220 feet of the Southern Segment is also designated by CPUC as a HFTD (refer to Figure 3.19-2). Approximately 220 feet of the Southern Segment is located in Tier 2 (elevated risk), including Pole 23 and the western half of PS-6; the eastern half of PS-6 is in Tier 3 (extreme risk) (CPUC, 2018). In this same area in Shiloh Ranch Regional Park, the boundary of the 2017 Tubbs Fire is similar to the areas designated as a moderate FHSZ and Tier 2 and Tier 3 HFTDs. Based on the FHSZ and HFTD mapping and Tubbs Fire boundary,

existing conditions include an elevated to extreme risk of wildfire threat and severity is found in the northern-most portion of the Southern Segment, generally where dense oak woodland and forest vegetation occurs on slopes that could provide fuel for wildfires. In addition, dense riparian woodland along Mark West Creek and other drainages near the Southern Segment may pose a similar existing high risk of wildfire threat and severity because they are connected to expansive wildland areas to the east and north.

There are no specific emergency response plans or emergency evacuation plans applicable to the project. Emergency response or evacuation may be necessary along any highway, road, or driveway in the project area. The proposed modifications could result in a significant impact if it directly or indirectly prevented adequate emergency response or evacuation on a highway, road, or driveway.

Construction

The project would not substantially impair an adopted emergency response plan or emergency evacuation. As described in Section 3.17.2 (e), the proposed modifications could substantially disrupt the circulation system, temporarily restrict access from lane, road, and driveway closures, and detour routes during construction. Unexpected access restrictions or congestion could affect adequate emergency access in the project area in the event of a wildfire or another emergency. As described in Section 2.3.7, residents would be notified in advance of road closures and access would be maintained to driveways, except for short periods when maneuvering cranes or during overhead work directly above the driveways. A PG&E customer service specialist would coordinate with affected residents to arrange specific times for the residents' vehicles to safely enter or exit the closed work area. Work would be halted if immediate emergency access was necessary. Implementation of MM Traffic-1 would require PG&E to maintain and/or provide for emergency access during construction. The revised version of MM Traffic-1 provided in Section 3.17 checklist question a) retains these requirements. Implementation of MM Traffic-4 would require PG&E to notify local emergency service providers before construction and to provide them with key information identifying where lane and road closures and detour routes could occur, including the approximate timing of construction activities that may impact traffic and emergency access. Impacts on emergency access would be less than significant with implementation of MM Traffic-1 and MM Traffic-4.

Operation and Maintenance

In the event of a major wildfire in the area, utility power lines and poles could fail and potentially block emergency response or evacuation. The approved project, including the proposed modifications, would reduce the existing risk associated with existing facilities because replacement poles would be newer, taller, stronger, and more resilient to wildfires, and conductor would be suspended higher above the ground. The proposed modifications would not conflict with ongoing efforts by the CPUC and PG&E to address utility-associated wildfire risks and threats, including those described in PG&E's Wildfire Mitigation Plan. Impacts associated with wildfire from operation and maintenance of the new project facilities would be less than significant.

b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project – 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?
Less Than Significant with Mitigation

Construction
As explained under checklist question a), an elevated to extreme risk of wildfire threat is assumed to exist in the Southern Segment where dense wildland vegetation is located, such as within and surrounding Shiloh Ranch Regional Park and along Mark West Creek and other drainages. Construction of the proposed modifications would result in a significant impact if it resulted in increased wildfire threat or severity in a wildland area.

The risk from fire hazards for the approved project was addressed in Section 3.8 of the 2017 Final MND. Heat or sparks from vehicles or equipment have the potential to ignite dry vegetation and cause wildfires. Construction activities would primarily be confined to areas that have been cleared of vegetation, including access roads and work areas. Vehicles and equipment would generally access work areas via existing paved, dirt, and/or gravel access roads, which would be cleared of brush to reduce fire potential; however, construction of the proposed modifications has the potential to spark or ignite a wildfire from vehicles and equipment, construction personnel smoking and improperly disposing of cigarettes, falling conductor or breaking of a transmission line during installation, improper grounding during construction, and parking vehicles on dry vegetation. As with the approved project, the increased risk of wildfire ignition during construction of the proposed modifications is potentially significant without mitigation.

PG&E would implement APMs HM-3 and HM-4, which require implementation of fire prevention practices, such as only smoking in designated areas and keeping appropriate fire-fighting equipment on site to quickly extinguish a fire if one were ignited. Even with incorporation of these APMs, the impact would remain significant without mitigation. Implementation of MM Hazards-2 from the 2017 Final MND requires PG&E to develop and implement a Construction Fire Prevention Plan, including providing worker training, restricting high-risk construction activities during high-risk periods, and maintaining fire prevention equipment on site. The impact from fire hazards during construction of the proposed modifications would be less than significant with implementation of MM Hazards-2.

Operation and Maintenance
The replacement of the existing conductor and poles would further reduce fire risks associated with the age and wear, and potential breakage of the existing line. The new steel poles would provide greater durability compared to the existing steel poles being replaced. The new line and poles would be constructed in accordance with current safety practices, state law, and CPUC GO 95. CPUC GO 95 specifies the design and maintenance of the project for the strength requirements and safety factors (i.e., the ratio of material strength to loads such as weight, temperature, and wind). Poles and lines are also designed to withstand accidental scenarios such as vehicle collisions, high winds, and lightning strikes per CPUC GO 95. Incorporation of

the design requirements would minimize line accidents or other hazards caused by accidental conditions that could ignite wildfires. Impacts associated with wildfire from operation and maintenance of the new project facilities would be less than significant.

PG&E would continue to implement fire risk management procedures during operation and maintenance activities of the new facilities pursuant to GO 95. In addition, enhanced inspection and vegetation clearances and applicable equipment replacements would be implemented as described in PG&E's Wildfire Mitigation Plan pursuant to SB 901, R.18-10-007. The proposed modifications would not involve new operation and maintenance activities that would increase the risk of wildfire. Impacts would be less than significant.

c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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?

Less than Significant Impact

As explained under checklist question a), it is assumed that there is an existing elevated to extreme risk of wildfire threat and severity in the Southern Segment where dense wildland vegetation is located, such as within and surrounding Shiloh Ranch Regional Park and along Mark West Creek and other drainages. The proposed modifications would result in a significant impact if it resulted in new or modified facilities that increased wildfire threat or severity in a wildland area or resulted in fire prevention facilities or activities that may result in substantial temporary or ongoing impacts on the environment.

As explained under checklist questions a) and b), the proposed modifications would involve replacing existing poles and conductor with new poles and conductor that would be more resilient to wildfires. Replacing existing electrical facilities would not exacerbate fire risk or involve fire prevention facilities or other fire prevention activities that may result in impacts on the environment. PG&E would implement applicable elements of their Wildfire Mitigation Plan separately from the project, pursuant to SB 901, R.18-10-007. Construction of the proposed modifications would not conflict with PG&E's implementation of their Wildfire Mitigation Plan, nor would potential environmental effects from its implementation be attributed to the project. PG&E's Wildfire Mitigation Plan would be implemented where applicable, regardless of the approved project and proposed modifications. The impact would be less than significant.

d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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?

Less Than Significant Impact with Mitigation

As explained under checklist question a), an elevated to extreme risk of wildfire threat and severity is assumed to exist in the Southern Segment where dense wildland vegetation is located, such as within and surrounding Shiloh Ranch Regional Park and along Mark West Creek and other drainages.

As described under checklist question b), construction activities pose a potentially significant risk of igniting wildfires from working in and around dry vegetation. Post-fire effects could also pose a significant risk to people or structures due to the densely vegetated slopes to the north, east, and south of the project area that could be subject to mudslides or slope instability after a fire. PG&E would implement APMs HM-3 (smoking rules) and HM-4 (fire prevention equipment), but the APMs do not address the potential for ignition from construction activities that cause sparks, falling conductor or breaking of a transmission line during installation, improper grounding, and parking vehicles on dry vegetation. The impact would remain less than significant without mitigation. Implementation of MM Hazards-2 from the 2017 Final MND requires PG&E to develop and implement a Construction Fire Prevention Plan, including providing worker training, restricting high-risk construction activities during high-risk periods, and maintaining fire prevention equipment on site. This measure would also apply to the construction of the proposed modifications to reduce effects to less than significant.

As described under checklist questions a) and b), operation and maintenance of the proposed modifications would not increase fire risks associated with the existing project lines that could in turn cause post-fire effects like mudslides. The new steel poles would provide greater durability compared to the existing steel poles being replaced. The new line and poles would be constructed in accordance with current safety practices, state law, and CPUC GO 95. In addition, enhanced inspection, vegetation clearances, and applicable equipment replacements would be implemented as described in PG&E's Wildfire Mitigation Plan pursuant to SB 901, R.18-10-007. The impact would be less than significant.

3.20 MANDATORY FINDINGS OF SIGNIFICANCE

3.20.1 Impact Discussion

Appendix G checklist questions of the CEQA Guidelines for mandatory findings of significance were addressed for the approved project in Section 3.17.1 of the 2017 Final MND. Impact checklist questions from Appendix G of the CEQA Guidelines for mandatory findings of significance are listed in Table 3.20-1. as well as a summary of determinations for the proposed modifications. Since the 2017 Final MND was prepared, changes were made to the impact checklist questions, including revisions to question a). Determinations for the current impact questions are discussed below.

Table 3.20-1 Summary of Proposed Modification Impacts for Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☒	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☒	☐	☐
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) Would 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 – Consistent with the 2017 Final MND

Potential impacts to the environment, fish and wildlife habitat, fish and wildlife populations, plant and animal communities, endangered, rare, or threatened species, and examples of the major periods of California history or prehistory would be the same as for the approved project. PG&E would implement the same APMs and MMs as for the approved project. Impacts from the proposed modifications would be less than significant with mitigation.

b) Would the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)
Less than Significant with Mitigation – Consistent with the 2017 Final MND

Overview

The cumulative project list in the 2017 Final MND, which included projects within a 1-mile buffer of the Southern Segment (2-mile-wide-corridor), remains current and applicable to the proposed modifications area. In addition to the projects identified in the 2017 Final MND, three additional cumulative projects have been identified within 1 mile, identified in Table 3.20-2.

Table 3.20-2 Additional Cumulative Projects within 1 mile of the Southern Segment

Project Name (Project Type)	Project Actions and Components	Proximity to Project at Nearest Point	Status
Landscaping of Highway 101 at Airport Boulevard Interchange (Transportation)	Plant visually-screening replacement trees within Airport Blvd interchange ramp area and plant streetscape trees along Airport Blvd (follow-up project to the interchange construction improvements recently completed at Airport Blvd and Hwy 101)	Approximately 1 mile west of Southern Segment	Currently under construction
PG&E Fulton Substation Security Upgrade (Utilities)	Install taller fencing/wall/barbed wire around substation perimeter	Fulton Substation	Currently under construction; anticipated completion in August 2019
PG&E Fulton-Calistoga 60-kV Line Rebuild (Utilities)	Replace conductor and structures on the Fulton-Calistoga 60-kV Line	Approximately 0.25 mile from the Southern Segment	Construction anticipated to begin June 2019; anticipated completion by October 2019

Sources: (County of Sonoma, 2019; PG&E, 2019d)

Cumulative Impacts

Cumulative impacts were assessed for the approved project in the 2017 Final MND and it was determined the project would not result in a significant cumulative environmental impact with implementation of mitigation. The potential impacts from construction and operation of the proposed modifications with regard to aesthetics, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, paleontological resources, traffic and transportation, utilities and public services would be similar to the approved project. PG&E would implement the same APMs and MMs as for the approved project, with one revision to MM Traffic-1 (refer to Section 3.17: Transportation under

checklist question a). Because three additional projects have been identified, this Supplemental MND must evaluate potential cumulative impacts for the proposed modifications and the newly identified projects in relation to these resources. Since publication of the 2017 Final MND, the Appendix G checklist questions of the CEQA Guidelines were modified to include standalone sections for energy and wildfire. The proposed modifications' contributions to a potential significant cumulative impact in relation to these standalone topics are also addressed below.

Additional Cumulative Projects

Similar to the proposed modifications, the three additional cumulative projects identified involve modifications to and/or rebuild of existing infrastructure. As such, impacts from operation-related activities is expected to be relatively minor for the proposed modifications and cumulative projects. Cumulative impacts would primarily be limited to construction-related impacts. Cumulative impacts are discussed below by cumulative project.

- **Highway 101 Landscaping Project**. This landscaping project consists of planting replacement trees within the Airport Boulevard interchange ramp area and planting streetscape trees along Airport Boulevard. The landscaping project would not result in a new cumulative impact not disclosed in the 2017 Final MND due to the nature of the landscaping work, which would result in minimal disturbance occurring within an existing Caltrans right-of-way over a short construction period.
- **PG&E Fulton Substation Security Upgrade.** This substation upgrade project would be completed prior to the start of construction on the Southern Segment and would involve minor work to an existing substation. The substation upgrade project would not result in a new cumulative impact due to the lack of overlapping construction periods with the proposed modifications and that the substation work involves only minor activities being completed within the existing footprint of the substation.
- **Fulton-Calistoga 60-kV Line Rebuild Project.** This line rebuild would be completed prior to start of construction of the Southern Segment, as such, construction periods for the line rebuild and the proposed modifications would not overlap. The western terminus of the line rebuild is approximately 0.25 mile from the Southern Segment and would continue eastward, away from the Southern Segment. Given the distance from the proposed modifications and the staggered construction periods, the line rebuild would not result in new cumulative impacts.

Energy

Geographic Extent

The geographic extent for the analysis of cumulative impacts associated with energy is the state of California. This geographic extent is appropriate because energy efficiency and renewable energy standards and goals have been put forth via state regulatory guidelines.

Impacts Avoided by the Proposed Modifications
The proposed modifications would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The proposed modifications would not contribute to cumulative impacts on these resources.

Potential Cumulative Impacts
Construction of the cumulative projects would result in the consumption of energy; however, these impacts would be short term and temporary. Operation of the cumulative projects are not expected to result in a substantial increase in energy consumption during operation because they involve redevelopment of existing areas or are utility- and transportation-related projects. The cumulative impact would be less than significant.

Wildfire
Geographic Extent
The geographic extent for the analysis of cumulative impacts associated with wildfire is the area within approximately 0.25 mile of the Southern Segment. This geographic extent is appropriate because concurrent projects located within short range of each other increase the potential for ignition that could result in a wildfire.

Potential Cumulative Impacts
The PG&E Fulton Substation Security Upgrade and PG&E Fulton-Calistoga 60-kV Line Rebuild are the only cumulative projects located within 0.25 mile of the Southern Segment. The PG&E Fulton Substation Security Upgrade is within an existing paved substation in a developed area. Developed areas do not have a high risk of wildfire. Portions of the PG&E Fulton-Calistoga 60-kV Line Rebuild are located within an SRA classified as a moderate and high fire hazard severity zones and are within CPUC HFTD map Tier 2 elevated risk and Tier 3 extreme risk areas. The rebuild project would replace existing poles and conductors in an existing utility line corridor and will not require the installation or maintenance of new infrastructure. Potential fire hazards from this cumulative project would be subject to the same safety regulations required for the approved project, which would reduce potential cumulative hazards. As with the modified project, PG&E would implement fire risk management procedures during operation and maintenance of existing lines, including the enhanced wildfire reduction programs and measures described in PG&E's Amended 2019 Wildfire Safety Plan. Additionally, PG&E's Wildfire Safety Operations Center will be staffed 24 hours a day to monitor and respond to fire threat hazards throughout PG&E's service area. As such, the proposed modifications would not contribute to cumulative impacts related to wildfire.

c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant with Mitigation – Consistent with the 2017 Final MND
As discussed in the sections above, construction and operation of the proposed project modifications would occur within the existing project study area and have the same impacts to aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazardous materials, hydrology and water quality, noise, transportation, or utilities

and service systems as the existing project analyzed in the 2017 Final MND. Impacts to air quality, greenhouse gas emissions, noise, hazardous materials, transportation, and wildfire by the proposed modifications could directly affect human beings, and all CEQA impacts discussed above could indirectly affect human beings. However, as with the approved project, implementation of APMs and MMs and compliance with applicable federal, state, and local regulations would reduce these impacts to less-than-significant levels. No other direct or indirect adverse effects have been identified on human beings. The impact would be less than significant with mitigation.

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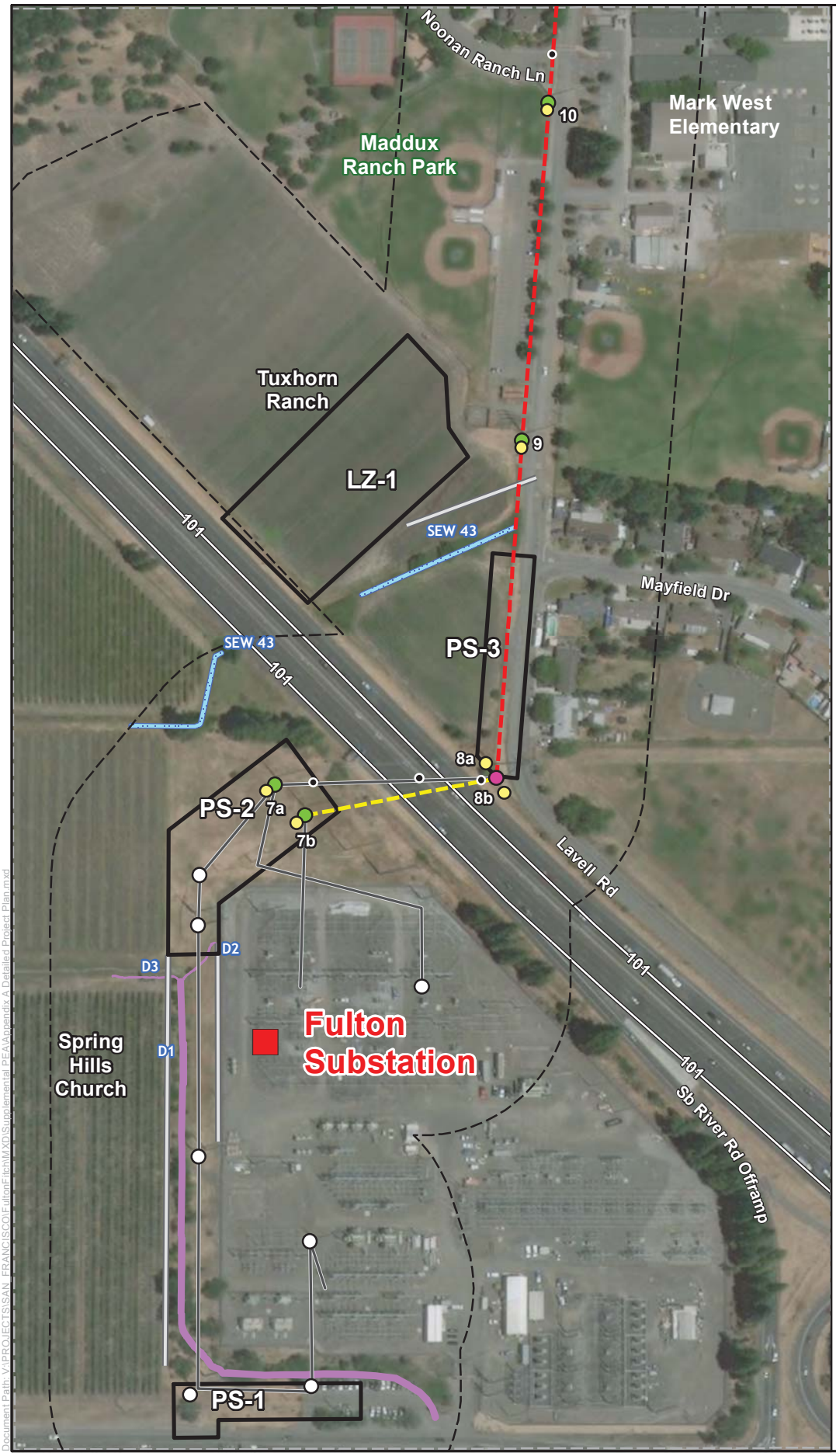
APPENDIX A DETAIL MAPS AND GRADING PLAN



Appendix A:
Detailed Project Plan

Fulton-Fitch Mountain Reconductoring Project

Fulton Substation

Approved Project

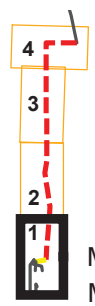
- Project Pole
- Transmission Line
- Construction Work Area
- Guard Structure
- Vehicle Turnaround
- Access Road
- Project Study Area

Proposed Modifications

- Replace Tubular Steel Pole (TSP)
- Replace 2-Pole with 2 Single-Shaft TSPs
- Proposed New Pole Location
- Reconductor Geysers-Fulton #17 230 kV
- Transfer Two 230 kV Circuits to New TSP
- Remove Pull Site
- Temporary Bridge

Waters

- Seasonal Watercourse
- Riparian Woodland
- Channel
- Drainage Ditch (per Bio Report)



Map 1 of 4
Map Index

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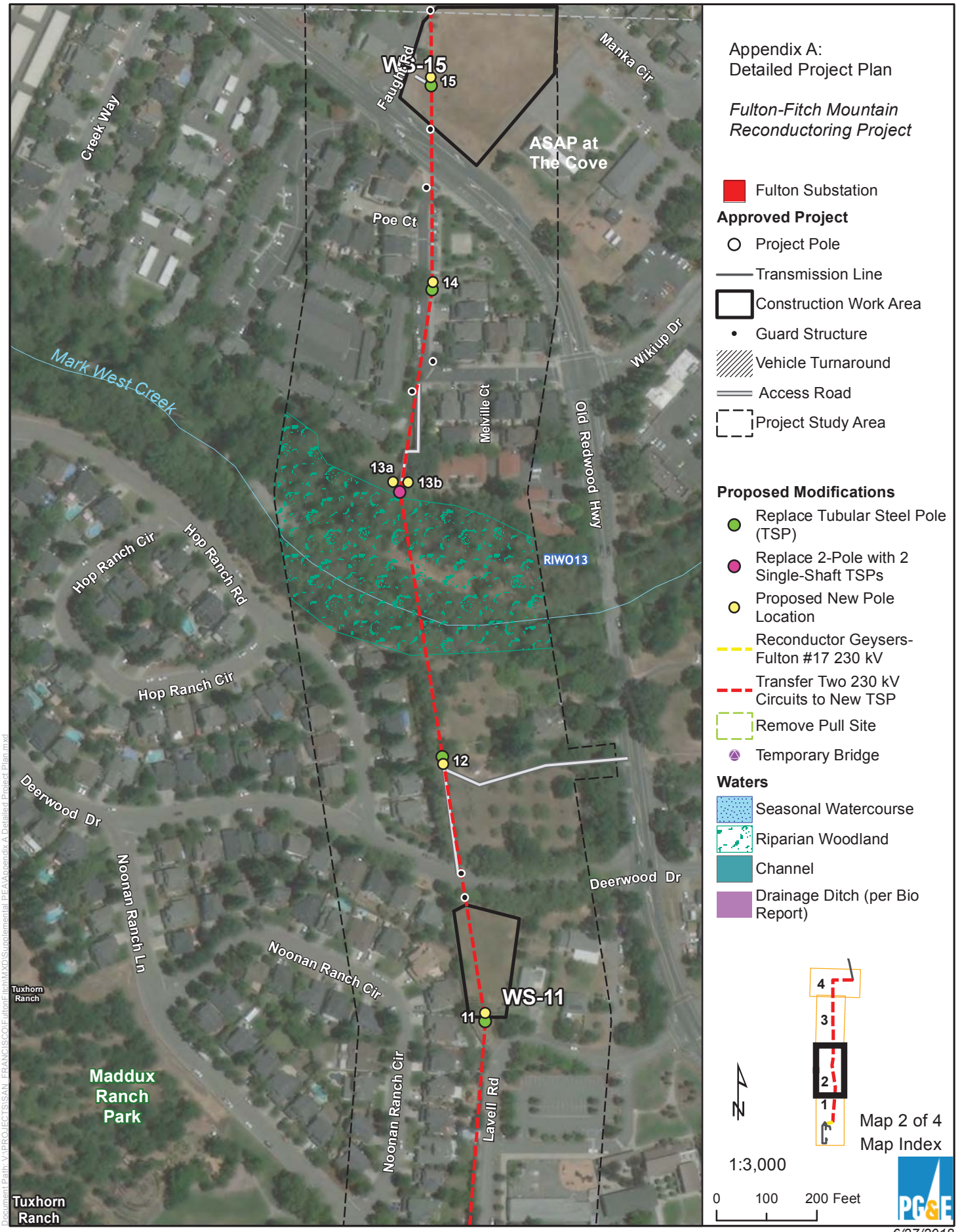
ESRI Basemap 2018



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Map 2 of 4
Map Index

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6/27/2018

ESRI Basemap 2018

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Appendix A:
Detailed Project Plan

Fulton-Fitch Mountain Reconductoring Project

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Map 3 of 4
Map Index

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6/27/2018

ESRI Basemap 2018

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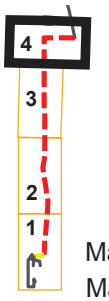

Map 4 of 4
Map Index

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ESRI Basemap 2018

FULTON-FITCH ALIGNMENT
RE-CONDUCTOR PULL SITE
SHILOH RANCH PARK

SONOMA COUNTY, CALIFORNIA

APN: 067-260-032
SITE LAT./LONG.: 38°36'24"N; 122°50'30"W

TOPOGRAPHY SOURCE

BASE CONTOUR DATA PROVIDED BY PG&E AS A COGO POINT FILE ON MAY 7, 2018.

DATUM

HORIZONTAL - NAD 83, CALIFORNIA, ZONE II, US FEET
VERTICAL - NAVD 88, US FEET

ASSESSORS PARCEL NUMBERS

EXISTING PROPERTY LINE INFORMATION WAS OBTAINED BY THE SONOMA COUNTY GIS DATABASE. PROPERTY LINES SHOWN WITHIN THIS PLAN SET ARE SUBJECT TO VERIFICATION IN THE FIELD.

APN: 067-260-032
COUNTY OF SONOMA
2300 COUNTY CENTER DR 120A
SANTA ROSA, CA 95403

TOTAL AREA OF DISTURBANCE

SHILOH RANCH PARK - 0.59 ACRES

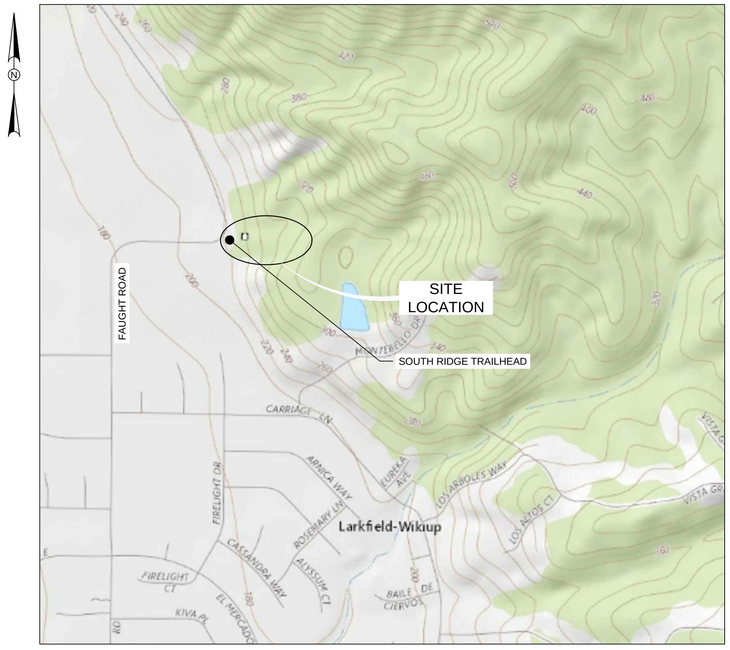
GRADING QUANTITIES

SHILOH RANCH PARK

GRADED AREA _____ 0.35 [ACRES]
CUT QUANTITIES _____ 372 [CYD]
FILL QUANTITIES_____ 368 [CYD]
NET_____ 4 [CYD] CUT

QUANTITIES PROVIDED ABOVE ARE FOR COUNTY PERMITTING PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THEIR QUANTITIES FOR BID PURPOSES. THE ENGINEER OF RECORD DOES NOT CERTIFY TO THE QUANTITIES ABOVE.

WDID#_____



LOCATION MAP

SCALE: 1" = 500'

USA NORTH 811 Call 811 Before You Dig

PLAN REPRODUCTION WARNING

THE PLANS HAVE BEEN CREATED ON ANSI D (22"x34") SHEETS. FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

THE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.

WARNING: INFORMATION MAY BE LOST IN COPYING AND/OR GRAY SCALE PLOTTING.

PROJECT OWNER

PACIFIC GAS & ELECTRIC COMPANY
HENRY HO, P.E. 925-328-5318
6111 BOLLINGER CANYON RD
SAN RAMON, CA 94583

Pacific Gas and Electric Company®

SHEET INDEX

KLEINFELDER
Bright People. Right Solutions.
40 Clark Street, Suite J
Salinas, CA 93901
Phone: 831-755-7900
www.kleinfelder.com

REVISIONS

REV	DESCRIPTION	DSN	CHK	DATE
		DWN	APP	
A	ISSUED FOR REVIEW	MRS	AB	7/13/2018
		MRS	AT	
B	ISSUED FOR REVIEW	KRV	AGB	2/7/2019
		KRV	AT	

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 24 x 36

COVER

FULTON-FITCH ALIGNMENT
RE-CONDUCTOR PULL-SITE
SHILOH RANCH PARK

Pacific Gas and Electric Company®
PACIFIC GAS & ELECTRIC COMPNAY
6121 BOLLINGER CANYON ROAD
SAN RAMON, CA 94583

GRADING PERMIT PLANS

PROJECT NO.	20190767
ISSUE DATE	02/07/2019
CURRENT REVISION	B
DESIGNED BY	K.VOLETTE
DRAWN BY	K.VIOLETTE
CHECKED BY	A. BISACKY
APPROVED BY	A. TRAUM

1

SHEET 1 of 6

CAD FILE: C:\pwworking\kleinfelderpw01\kleinfelder_kviolette\d0181832\01_Shiloh Park_Cover.dwg LAYOUT: 1 COVER PLOTTED: 2/7/2019 1:51 PM BY: kurt.violette

GENERAL NOTES

1. APPROVAL OF THESE PLANS BY SONOMA COUNTY'S ENGINEER DOES NOT AUTHORIZE ANY WORK TO BE PERFORMED UNTIL A PERMIT HAS BEEN ISSUED.
2. THE APPROVAL OF THIS PLAN OR ISSUANCE OF A PERMIT BY SONOMA COUNTY DOES NOT AUTHORIZE THE OWNER OR CONTRACTOR TO VIOLATE ANY FEDERAL, STATE , COUNTY OR CITY LAWS, ORDINANCES, REGULATIONS, OR POLICIES, INCLUDING, BUT NOT LIMITED TO, THE FEDERAL ENDANGERED SPECIES ACT OF 1973 AND AMENDMENTS THERETO (16 USC SECTION 1531 ET.SEQ.).
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEY MONUMENTS AND/OR VERTICAL CONTROL BENCHMARKS WHICH ARE DISTURBED OR DESTROYED BY CONSTRUCTION. A LAND SURVEYOR MUST FIELD LOCATE, REFERENCE, AND/OR PRESERVE ALL HISTORICAL OR CONTROLLING MONUMENTS PRIOR TO ANY EARTH DISTURBANCE. IF DESTROYED, A LAND SURVEYOR SHALL REPLACE SUCH MONUMENTS WITH APPROPRIATE MONUMENTS. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED AS REQUIRED BY THE PROFESSIONAL LAND SURVEYORS ACT, SECTION 8771 OF THE BUSINESS AND PROFESSIONS CODE OF THE STATE OF CALIFORNIA. IF ANY VERTICAL CONTROL IS TO BE DISTURBED OR DESTROYED, CONTRA COSTA COUNTY FIELD SURVEY SECTION MUST BE NOTIFIED, IN WRITING, AT LEAST 3 DAYS PRIOR TO THE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPLACING ANY VERTICAL CONTROL BENCHMARKS DESTROYED BY THE CONSTRUCTION.
4. IMPORTANT NOTICE: SECTION 4216 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER, CALL UNDERGROUND SERVICE ALERT AT 811 OR TOLL FREE 1-800-422-4133, TWO DAYS BEFORE YOU DIG.
5. PG&E'S SWPPP SUBCONTRACTOR SHALL IMPLEMENT AN EROSION AND SEDIMENT CONTROL PROGRAM DURING THE PROJECT GRADING AND/OR CONSTRUCTION ACTIVITIES. THE PROGRAM SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE STATE WATER RESOURCE CONTROL BOARD AND THE CONTRA COSTA COUNTY STORMWATER REQUIREMENTS.
6. PRIOR TO ANY DISTURBANCE TO THE SITE, EXCLUDING UTILITY MARK-OUTS AND SURVEYING, THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR A PRE-CONSTRUCTION MEETING WITH THE OWNER'S PROJECT MANAGER: MRINMOY "MOY" BASU PHONE: 925-328-5292.
7. DEVIATIONS FROM THESE SIGNED PLANS WILL NOT BE ALLOWED UNLESS A CONSTRUCTION CHANGE IS APPROVED BY THE ENGINEER OF RECORD OR THE CHANGE IS REQUIRED BY A CITY INSPECTOR.

EROSION & SEDIMENT CONTROL NOTES

1. CONTRACTOR SHALL COORDINATE AS APPROPRIATE WITH PG&E'S SWPPP SUBCONTRACTOR. IF THE CONTRACTOR IDENTIFIES ANY AREAS THAT NEED ADDITIONAL PROTECTION OR BMP'S IN NEED OF REPAIR, THIS SHOULD BE BROUGHT TO PG&E'S SWPPP SUBCONTRACTOR'S ATTENTION.
2. PG&E'S SWPPP SUBCONTRACTOR WILL PROVIDE QSP INSPECTION SERVICES, AND THE CONTRACTOR SHALL WORK WITH THEM TO LIMIT EROSION AND SEDIMENTATION AT THE SITE DURING STORM EVENTS, AS NECESSARY.
3. THE CONTRACTOR IS RESPONSIBLE FOR TRAINING SUBCONTRACTORS AT LEAST ONCE EVERY OTHER MONTH OR AS NEW SUBCONTRACTORS MOBILIZE ON SITE. TRAINING SHALL BE RECORDED IN THE SWPPP.
4. PRIOR TO THE START OF CLEARING, GRUBBING, OR EARTHMOVING ACTIVITIES, PG&E'S SWPPP SUBCONTRACTOR SHALL INSTALL ALL PERIMETER CONTROLS AND THE CONSTRUCTION ENTRANCE PER THE PLANS.
5. PG&E'S SWPPP SUBCONTRACTOR SHALL INSTALL PROTECTION AROUND ANY EXISTING INLETS WITHIN THE PUBLIC RIGHT-OF-WAY.
6. PG&E'S SWPPP SUBCONTRACTOR SHALL PROVIDE APPROPRIATE MEANS TO DIRECT NATURAL DRAINAGE AROUND WORK AREAS, AND TO PREVENT OFF-SITE RUN-ON THROUGH THE CONSTRUCTION AREA.
7. PG&E'S SWPPP SUBCONTRACTOR SHALL PROTECT EXISTING DRAINAGE SWALE IN PLACE. PROVIDE MEANS FOR FLOW TO CONTINUE TO PASS UNDER THE TEMPORARY ACCESS ROAD.
8. PG&E'S SWPPP SUBCONTRACTOR SHALL STORE ADEQUATE SEDIMENT CONTROL MATERIALS ONSITE TO CONTROL DISCHARGES AT THE DOWNGRADE PERIMETER AND OPERATIONAL INLETS IN THE EVENT OF A PREDICTED STORM.
9. EQUIPMENT AND WORKERS SHALL BE AVAILABLE FOR EMERGENCY WORK AT ALL TIMES. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ONSITE AT CONVENIENT LOCATIONS TO FACILITATE THE RAPID INSTALLATION/CONSTRUCTION OF TEMPORARY EROSION CONTROL MEASURES WHEN RAIN IS IMMINENT.
10. CLEARING AND GRUBBING SHALL BE DONE ONLY IN AREAS WHERE EARTHWORK WILL BE PERFORMED AND ONLY IN AREAS WHERE CONSTRUCTION IS PLANNED TO COMMENCE WITHIN 14 DAYS AFTER THE CLEARING AND GRUBBING.
11. DISTURBED AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 14 DAYS SHALL BE TEMPORARILY STABILIZED WITH HYDROSEEDING, HYDROMULCHING, OR WITH A BIODEGRADABLE BONDED FIBER MATRIX.
12. PG&E'S SWPPP SUBCONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL MEASURES AS NEEDED OR AS REQUESTED BY A CITY OFFICIAL, THE OWNER'S ENGINEER, AND/OR REGULATORY AGENCY.
13. PG&E'S SWPPP SUBCONTRACTOR SHALL BE RESPONSIBLE AND TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS INTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.
14. PG&E'S SWPPP SUBCONTRACTOR SHALL FURNISH AND INSTALL EROSION CONTROL BLANKET (NORTH AMERICAN GREEN SC150BN OR EQUAL) ON ALL CUT AND FILL SLOPES.
15. EMERGENCY SWPPP CONTACT:

NAME:_____ _____ PHONE:_____

QUALIFIED SWPPP PRACTIONER:

NAME:_____ _____ PHONE:_____

LEGEND

- EXISTING TRANSMISSION LINE
- EXISTING TRANSMISSION TOWER
- PROPOSED PAD AND SITE ACCESS DRIVE EDGE
- PROPOSED ROCK SLOPE PROTECTION
- PROPOSED ROAD CENTERLINE
- 360 EXISTING MAJOR 10 FT CONTOUR
- EXISTING MINOR 2 FT CONTOUR
- 360 PROPOSED MAJOR 10 FT CONTOUR
- PROPOSED MINOR 2 FT CONTOUR
- LOD LOD LOD PROPOSED LIMIT OF DISTURBANCE
- PROPOSED LIMIT OF GRADING
- PROPOSED COMPOST FILTER SOCK
- PROPOSED ROCK CONSTRUCTION ENTRANCE

RESTORATION NOTES

1. ALL RESTORED SLOPES WILL BE COATED WITH A HEAVY DUTY, SEEDED HYDROMULCH THAT WILL PROVIDE A CRUST ON THE EXISTING SOIL FOR UP TO ONE YEAR AFTER RESTORATION.
2. THE SEED MIX FOR THE HYDROMULCH SHALL BE CERTIFIED WEED FREE.
3. THE SEED MIX IS EXPECTED TO CONTAIN NATIVE, PERENNIAL GRASSES, NATIVE ANNUAL GRASSES, NON-NATIVE, NON-INVASIVE ANNUAL GRASSES, AND LEGUMES. NATIVE WILDFLOWERS MAY BE INCLUDED. A STERILE WHEATGRASS, SUCH AS REGREEN STERILE WHEATGRASS (ELYMUS X TRITICUMI) MAY BE APPLIED ON STEEPER SLOPES THAT REQUIRE QUICKER COVER AND STABILIZATION.
4. SEED MIXES SHALL BE SUBMTITED TO PG&E'S PROJECT MANAGER AND BIOLOGIST FOR REVIEW AND JURISDICTIONAL AGENCY APPROVAL PRIOR TO PURCHASE AND APPLICATION.

CONTRACTOR SUBMITTALS

1. THE CONTRACTOR SHALL PREPARE AND PROVIDE SUBMITTALS FOR THE FOLLOWING ITEMS TO CONFIRM CONFORMANCE WITH THESE PLANS. SUBMITTALS SHALL BE PREPARED PRIOR TO THE PURCHASE OF MATERIALS. PROVIDE 2 COPIES OF EACH SUBMITTAL TO PG&E'S PROJECT MANAGER AND 2 COPIES OF EACH SUBMITTAL TO THE ENGINEER OF RECORD FOR REVIEW.
2. THE CONTRACTOR IS RESPONSIBLE FOR NOTING ANY AND ALL DEVIATIONS FROM THE MATERIALS SPECIFIED ON THESE PLANS. FAILURE TO DO SO, REGARDLESS OF ACCEPTANCE OF THE SUBMITTAL BY PG&E OR THE ENGINEER OF RECORD, DOES NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THESE PLANS. PG&E AND THE ENGINEER OF RECORD WILL NOT BE RESPONSIBLE FOR ANY DELAY IN SCHEDULE, COST OF RETURNING, RESTOCKING OR REPURCHASING OTHER MATERIALS THAT CONFORM TO THE REQUIREMENTS OF THESE PLANS.
3. REQUIRED SUBMITTALS (PRE-CONSTRUCTION)
   - -GEOFABRIC
   - -CALTRANS ROCK SLOPE PROTECTION
   - -EROSION CONTROL BLANKET AND STAKES
   - -SITE RESTORATION SEED MIX
4. REQUIRED SUBMITTALS (DURING CONSTRUCTION)
   - -COMPACTION CURVES FOR SUBGRADE AND IMPORT MATERIAL

GEOTECHNICAL NOTES

1. THE CONTRACTOR SHALL STRIP THE TOP 2 TO 3 INCHES OF TOP SOIL AND ROOTS AT EACH SITE. ORGANIC MATERIAL AND ROCKS GREATER THAN 6-INCHES IN ANY DIMENSION SHALL NOT BE USED IN ENGINEERED FILL.
2. MAXIMUM PERMISSIBLE CUT AND FILL SLOPES, UP TO 10 FEET IN HEIGHT, SHALL NOT EXCEED A SLOPE OF 1.5H:1V.
3. FILL PLACEMENT SHALL BE DONE IN 8-INCH MAXIMUM LOOSE LIFTS AND COMPACTED TO AT LEAST 90% MAXIMUM DENSITY AT MOISTURE CONTENT AT OR ABOVE 2% OF OPTIMUM PER ASTM D 1557.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING COMPACTION CURVES ON NATIVE SUBGRADE AND ANY IMPORT MATERIALS.
5. TEMPORARY ACCESS ROADS AND EQUIPMENT PULL SITE PADS SHALL BE SCARIFIED TO A DEPTH OF AT LEAST 8-INCHES, UNIFORMLY MOISTURE CONDITIONED TO 2% ABOVE THE OPTIMUM MOISTURE CONTENT, THEN RECOMPACTED TO 90% RELATIVE COMPACTION PER ASTM D 1557. THE SUBGRADE SHALL NOT BE ALLOWED TO DRY OUT PRIOR TO PLACEMENT OF NEW ENGINEERED FILL OR GEOFABRIC AND ROCK.
6. TEMPOARARY ACCESS ROAD AND EQUIPMENT PAD SUBGRADE SHALL BE GRADED AND SLOPED TO DRAIN, AT A MINIMUM OF 1%, TO THE DOWN SLOPE SIDE OF THE SITE. THIS IS ESPECIALLY CRITICAL WHERE THE FINISHED PAD SURFACE HAS ZERO SLOPE FOR EQUIPMENT SETUP PURPOSES.
7. MIRAFI 500X (OR APPROVED EQUAL) GEOFABRIC SHALL BE PLACED ON ALL TEMPOARARY ACCESS ROADS AND EQUIPMENT PADS BETWEEN THE FINISHED ENGINEERED SURFACE AND FINAL ROCK COURSE.
8. CALTRANS CLASS II BASE (OR APPROVED EQUAL) MATERIAL SHALL BE PLACED ON THE GEOFABRIC AND COMPACTED TO COMPLETE THE FINISHED TEMPORARY ROAD AND EQUIPMENT PADS.
9. ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH NORTH AMERICAN GREEN SC150BN (OR APPROVED EQUAL) EROSION CONTROL BLANKET. CONTRACTOR SHALL USE BIODEGRADABLE STAKES FOR INSTALLATION.

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS AND THE SPECIFICATIONS AND STANDARD DRAWINGS OF THE COUNTY OF SONOMA.

STANDARD SPECIFICATIONS:

DESCRIPTION

1. STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK), 2018 EDITION
2. CALIFORNIA DEPARTMENT OF TRANSPORTATION U.S. CUSTOMARY STANDARD SPECIFICATIONS, LATEST EDITION

STANDARD DRAWINGS:

DESCRIPTION

1. COUNTY OF SONOMA STANDARD DRAWINGS, LATEST EDITION.
2. CALIFORNIA DEPARTMENT OF TRANSPORTATION U.S CUSTOMARY STANDARD PLANS, 2015 EDITION

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Phone: 831-755-7900
www.kleinfelder.com

REVISIONS

REV	DESCRIPTION	DSN / DWN	CHK / APP	DATE
A	ISSUED FOR REVIEW	MRS / MRS	AB / AT	7/13/2018
B	ISSUED FOR REVIEW	KRV / KRV	AGB / AT	2/7/2019

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 24 x 36

NOTES AND LEGEND

FULTON-FITCH ALIGNMENT
RE-CONDUCTOR PULL-SITE
SHILOH RANCH PARK

Pacific Gas and Electric Company®

PACIFIC GAS & ELECTRIC COMPNAY
6121 BOLLINGER CANYON ROAD
SAN RAMON, CA 94583

GRADING PERMIT PLANS

PROJECT NO.	20190767
ISSUE DATE	02/07/2019
CURRENT REVISION	B
DESIGNED BY	K.VOLETTE
DRAWN BY	K.VIOLETTE
CHECKED BY	A. BISACKY
APPROVED BY	A. TRAUM

2

SHEET 2 of 6

CAD FILE: C:\pwworking\kleinfelder\nor011\kleinfelder_kvolette\d0181832\02_Shiloh Park_Notes.dwg LAYOUT: 2 NOTES AND LEGEND PLOTTED: 2/7/2019 2:00 PM BY: kurt voltette

SONOMA COUNTY STANDARD NOTES

1. PERFORM GRADING AND DRAINAGE IMPROVEMENTS IN ACCORDANCE WITH CHAPTER AND 11A OF THE SONOMA COUNTY CODE (SCC), APPLICABLE SONOMA COUNTY REGULATIONS AND, IF APPLICABLE, TO THE RECOMMENDATIONS OF THE SOILS REPORT PREPARED BY (INSERT NAME) AND DATED (INSERT DATE).
2. ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. THE APPROVED PLANS AND SPECIFICATIONS SHALL NOT BE CHANGED WITHOUT THE WRITTEN APPROVAL OF THE PERMIT SONOMA. PROPOSED MODIFICATIONS TO THE APPROVED PLANS AND SPECIFICATIONS SHALL BE SUBMITTED TO PERMIT SONOMA IN WRITING, TOGETHER WITH ALL NECESSARY TECHNICAL INFORMATION AND DESIGN DETAILS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROPERTY OWNER AND ENGINEER OF RECORD, IF APPLICABLE, UPON DISCOVERING DISCREPANCIES, ERRORS, OR OMISSIONS IN THE APPROVED PLANS. PRIOR TO PROCEEDING, THE PROPERTY OWNER SHALL HAVE THE APPROVED PLANS REVISED TO CLARIFY IDENTIFIED DISCREPANCIES, ERRORS, OR OMISSIONS. PERMIT SONOMA MAY REQUIRE UNAUTHORIZED WORK TO BE REDONE OR REMOVED TO VERIFY COMPLIANCE WITH SCC. PERMIT SONOMA MAY INITIATE ENFORCEMENT ACTION AND SEEK THE IMPOSITION OF CIVIL PENALTIES FOR VIOLATIONS OF SCC.
3. THE GRADING OR DRAINAGE PERMIT AND A COPY OF THE APPROVED PLANS SHALL BE MAINTAINED ON THE PROJECT SITE THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
4. PERMIT SONOMA MAY ORDER THAT ANY WORK STOP IMMEDIATELY IF IT IS PERFORMED CONTRARY TO CHAPTER 11 AND 11A OF THE SCC, THE APPROVED PLANS AND SPECIFICATIONS, PERMIT CONDITIONS, OR ANY WORK THAT HAS BECOME HAZARDOUS TO PROPERTY OR THE PUBLIC. A GRADING OR DRAINAGE PERMIT MAY BE SUSPENDED, REVOKED, OR MODIFIED BY PERMIT SONOMA IN ACCORDANCE WITH SCC 11.24.080.
5. ISSUANCE OF A GRADING OR DRAINAGE PERMIT BY PERMIT SONOMA DOES NOT ELIMINATE THE RESPONSIBILITY OF THE PROPERTY OWNER TO SECURE PERMITS FROM OTHER AGENCIES WITH REGULATORY RESPONSIBILITIES FOR THE USES AND CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE WORK SHOWN ON THE APPROVED PLANS. FAILURE TO OBTAIN ALL REQUIRED PERMITS MAY RESULT IN FINES FROM OTHER AGENCIES.
6. EXISTING DRAINAGE COURSES RECEIVING WATERS FROM THE PROJECT SITE AND LOCATED THROUGHOUT THE PROJECT SITE SHALL REMAIN OPEN AND CLEAR OF DEBRIS TO PROPERLY CONVEY STORM WATER. IF EXISTING DRAINAGE COURSES RECEIVING WATERS FROM THE PROJECT SITE ARE LOCATED IN THE COUNTY RIGHT-OF- WAY AND NEED MAINTENANCE, CONTACT THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS AT (707) 565-2231 FOR FURTHER ASSISTANCE. IN ANY EVENT, THE PROPERTY OWNER AND/OR CONTRACTOR SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.
7. THE CONTRACTOR SHALL CONTACT THE UNDERGROUND SERVICE ALERT (USA), AT 811, AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN 14 CALENDAR DAYS, PRIOR TO EXCAVATION. THE CONTRACTOR SHALL UNCOVER RELEVANT UTILITIES TO VERIFY THEIR LOCATION AND ELEVATION. IF UNEXPECTED OR CONFLICTING UTILITIES ARE ENCOUNTERED DURING EXCAVATION, NOTIFY USA, THE UTILITY OWNER, AND/OR THE ENGINEER OF RECORD, IF APPLICABLE, IMMEDIATELY. UTILITIES INCLUDE BUT ARE NOT LIMITED TO WATER, SEWER, ELECTRICAL, GAS, TELEPHONE, AND CABLE/TV. THE EXCAVATOR SHALL DELINEATE WITH PAINT OR OTHER SUITABLE MARKINGS THE AREA TO BE EXCAVATED.
8. IN THE EVENT CULTURAL RESOURCES (SUCH AS HISTORICAL, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES, AND HUMAN REMAINS) ARE DISCOVERED DURING GRADING OR OTHER CONSTRUCTION ACTIVITIES, WORK SHALL IMMEDIATELY BE HALTED WITHIN THE VICINITY OF THE FIND. THE NORTHWEST INFORMATION CENTER SHALL BE NOTIFIED AT (707) 588-8455. A QUALIFIED ARCHEOLOGIST SHALL BE CONSULTED FOR AN ON-SITE EVALUATION. ADDITIONAL MITIGATION MAY BE REQUIRED BY THE COUNTY PER THE ARCHEOLOGIST'S RECOMMENDATIONS AND SCC 11.16.050. IF HUMAN BURIALS OR HUMAN REMAINS ARE ENCOUNTERED, THE CONTRACTOR SHALL ALSO NOTIFY THE COUNTY CORONER AT (707) 565-5070.
9. SHOULD GRADING OPERATIONS ENCOUNTER HAZARDOUS MATERIALS, OR WHAT APPEAR TO BE HAZARDOUS MATERIALS, STOP WORK IMMEDIATELY IN THE CONTAMINATED AREA AND CONTACT 911 OR THE APPROPRIATE AGENCY FOR FURTHER INSTRUCTION.
10. RETAINING WALLS, UNLESS EXEMPTED PER SCC 7.13(A)(3)4, ARE NOT APPROVED UNDER A GRADING PERMIT. A SEPARATE BUILDING PERMIT IS REQUIRED.
11. EQUIPMENT SHALL NOT CROSS OR DISTURB CHANNELS OF ACTIVELY FLOWING STREAMS WITHOUT A PERMIT SONOMA APPROVED ROILING PERMIT AND BEST MANAGEMENT PRACTICES (SCC 23.1 AND 11.16.060.D).
12. GRADING AND DRAINAGE IMPROVEMENTS SHALL BE SET BACK FROM LAKES, PONDS, STREAMS, AND WETLANDS IN COMPLIANCE WITH THE REQUIREMENTS OF SCC 11.16.100, 11.16.120, AND 11.16.130. EXISTING VEGETATION SHALL BE RETAINED IN STREAM SETBACK AREAS TO FILTER SOIL AND OTHER POLLUTANTS CARRIED IN STORM WATER.
13. EXCESS SOIL SHALL BE REMOVED FROM THE PROJECT SITE UNLESS DEPICTED TO REMAIN ON SITE PER THE APPROVED PLAN. THE SITE RECEIVING SOIL MAY REQUIRE A GRADING PERMIT UNLESS EXEMPTED BY SCC 11.04.010.C.
14. CONTOURS, ELEVATIONS, AND SHAPES OF FINISHED SURFACES SHALL BE BLENDED WITH ADJACENT NATURAL TERRAIN TO ACHIEVE A CONSISTENT GRADE AND NATURAL APPEARANCE. BORDERS OF CUT SLOPES AND FILLS SHALL BE ROUNDED OFF TO A MINIMUM RADIUS OF FIVE FEET TO BLEND WITH THE NATURAL TERRAIN.
15. FILL MATERIAL SHALL NOT INCLUDE ORGANIC, FROZEN, OR OTHER DELETERIOUS MATERIALS. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL GREATER THAN SIX INCHES IN ANY DIMENSION SHALL BE INCLUDED IN FILLS EXCEPT WHERE APPROVED BY THE SOILS ENGINEER. FILLS SHALL BE CONSTRUCTED IN LIFTS NOT EXCEEDING EIGHT INCHES IN DEPTH. COMPLETED FILLS SHALL BE STABLE, WELL-INTEGRATED, AND BONDED TO ADJACENT MATERIALS AND THE MATERIALS ON WHICH THEY REST. FILLS SHALL BE COMPETENT TO SUPPORT ANTICIPATED LOADS AND BE STABLE AT THE DESIGN SLOPES SHOWN ON THE APPROVED PLANS AND SPECIFICATIONS OR AS DIRECTED BY THE SOILS ENGINEER.
16. GROUND SURFACES SHALL BE PREPARED TO RECEIVE FILL BY REMOVING VEGETATION, TOPSOIL, AND OTHER UNSUITABLE MATERIALS, AND SCARIFYING THE GROUND TO PROVIDE A BOND WITH THE FILL MATERIAL.
17. FILL SHALL NOT BE PLACED ON NATURAL SLOPES STEEPER THAN 2H:1V (50 PERCENT).
18. FILLS INTENDED TO SUPPORT STRUCTURES OR SURCHARGES SHALL BE COMPACTED TO A MINIMUM OF 90 PERCENT OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D 1557, MODIFIED PROCTOR. A HIGHER COMPACTION PERCENTAGE MAY BE REQUIRED BY THE SOILS ENGINEER.
19. FILLS NOT INTENDED TO SUPPORT STRUCTURES OR SURCHARGES SHALL BE COMPACTED AS FOLLOWS:
    - 19.1. FILL GREATER THAN THREE FEET IN DEPTH SHALL BE COMPACTED TO THE DENSITY SPECIFIED BY THE SOILS ENGINEER.
    - 19.2. FILLS NO GREATER THAN THREE FEET IN DEPTH SHALL BE COMPACTED TO THE DENSITY NECESSARY FOR THE INTENDED USE OR AS DIRECTED BY THE SOILS ENGINEER.

SONOMA COUNTY GRADING & DRAINAGE INSPECTION NOTES

1. THE PERMITTEE AND THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE WORK TO BE PERFORMED IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, CHAPTER 11 AND 11A OF THE SONOMA COUNTY CODE (SCC), AND ANY PERMIT CONDITIONS. WORK SHALL BE SUBJECT TO INSPECTION AS REQUIRED BY PERMIT SONOMA TO VERIFY COMPLIANCE. THE CONTRACTOR SHALL CONSULT THE PROJECT JOB CARD FOR COORDINATION OF INSPECTION REQUESTS.
2. PRIOR TO THE START OF ANY GRADING OR DRAINAGE WORK, THE PERMITTEE SHALL HAVE A PRE-CONSTRUCTION CONSULTATION WITH PERMIT SONOMA STAFF TO DISCUSS THE SCOPE OF THE PROJECT, PERMIT CONDITIONS, REQUIRED INSPECTIONS, APPROPRIATE APPLICATION OF BEST MANAGEMENT PRACTICES (BMP'S) AND ANY OTHER CONSTRUCTION ISSUES.
3. INSPECTION REQUESTS SHALL BE MADE THROUGH THE SONOMA COUNTY AUTOMATED INSPECTION REQUEST SYSTEM (SELECTRON), AT PHONE NUMBER (707) 565-3551.
4. PERMIT SONOMA MAY REQUIRE PROFESSIONAL INSPECTIONS AND CERTIFICATIONS TO VERIFY PROPER COMPLETION OF THE WORK. WHERE THE USE OF PROFESSIONAL PERSONNEL IS REQUIRED, THESE PERSONNEL SHALL IMMEDIATELY REPORT IN WRITING TO PERMIT SONOMA AND THE PERMITTEE ANY INSTANCE OF WORK NOT IN COMPLIANCE WITH THE APPROVED PLANS, SPECIFICATIONS, OR ANY PERMIT CONDITIONS. IF PROFESSIONAL PERSONNEL IS CHANGED DURING THE COURSE OF THE WORK, THE WORK SHALL BE STOPPED UNTIL THE REPLACEMENT INDIVIDUAL HAS NOTIFIED PERMIT SONOMA IN WRITING OF THEIR AGREEMENT TO ACCEPT RESPONSIBILITY FOR APPROVAL OF THE COMPLETED WORK WITHIN THE AREA OF THEIR TECHNICAL COMPETENCE.
5. PERMIT SONOMA SHALL FINAL A PERMIT WHEN ALL WORK, INCLUDING THE INSTALLATION OF ALL DRAINAGE IMPROVEMENTS AND THEIR PROTECTIVE DEVICES, AND ALL STORM WATER BMP'S, HAVE BEEN COMPLETED IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND ALL FINAL REPORTS REQUIRED BY SCC 11.14.040.A HAVE BEEN SUBMITTED AND ACCEPTED. FINAL REPORTS MAY INCLUDE: AS-BUILT PLANS, TESTING RECORDS, PROFESSIONAL OPINIONS, AND DECLARATIONS ABOUT COMPLETED WORK FROM PROFESSIONAL PERSONNEL. SIMILAR REPORTS MAY BE REQUIRED AT OTHER STAGES OF THE WORK.
6. THE PERMITTEE SHALL PROVIDE ADEQUATE AND SAFE ACCESS TO THE PROJECT SITE FOR INSPECTION DURING THE PERFORMANCE OF ALL WORK.
7. DURING CONSTRUCTION ACTIVITIES, THE PROJECT SITE ADDRESS SHALL BE POSTED AS FOLLOWS:
    1. THE STREET NUMBERS MUST BE AT LEAST FOUR INCHES TALL, WITH A REFLECTIVE SURFACE.
    2. THE ADDRESS MUST BE VISIBLE FROM BOTH DIRECTIONS ALONG THE ROAD.
    3. THE ADDRESS MUST BE POSTED AT ALL FORKS IN ANY ACCESS ROAD AND AT THE PROJECT SITE.

SONOMA COUNTY EROSION PREVENTION & SEDIMENT CONTROL NOTES

1. PERFORM EROSION PREVENTION AND SEDIMENT CONTROL IN ACCORDANCE WITH CHAPTER 11 AND 11A OF THE SONOMA COUNTY CODE (SCC).
2. THE APPROVED PLANS SHALL CONFORM TO PERMIT SONOMA EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) GUIDE AS POSTED ON THE PERMIT SONOMA WEBSITE.
3. THE PROPERTY OWNER IS RESPONSIBLE FOR PREVENTING STORM WATER POLLUTION GENERATED FROM THE CONSTRUCTION SITE YEAR ROUND. WORK SITES WITH INADEQUATE EROSION PREVENTION AND/OR SEDIMENT CONTROL MAY BE SUBJECT TO A STOP WORK ORDER AND/OR ADDITIONAL INSPECTION FEES TO VERIFY COMPLIANCE WITH SCC
4. IF DISCREPANCIES OCCUR BETWEEN THESE NOTES, MATERIAL REFERENCED ON THE APPROVED PLANS OR MANUFACTURER'S RECOMMENDATIONS, THEN THE MOST PROTECTIVE SHALL APPLY.
5. AT ALL TIMES THE PROPERTY OWNER IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH THE STATE OF CALIFORNIA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBING ACTIVITIES SUCH AS CLEARING, GRADING, EXCAVATION, STOCKPILING, AND RECONSTRUCTION OF EXISTING FACILITIES INVOLVING REMOVAL AND REPLACEMENT.
6. THE PROPERTY OWNER MUST IMPLEMENT AN EFFECTIVE COMBINATION OF EROSION PREVENTION AND SEDIMENT CONTROL ON ALL DISTURBED AREAS DURING THE RAINY SEASON (OCTOBER 1 - APRIL 30). GRADING AND DRAINAGE IMPROVEMENT SHALL BE PERMITTED DURING THE RAINY SEASON ONLY WHEN ON-SITE SOIL CONDITIONS PERMIT THE WORK TO BE PERFORMED IN COMPLIANCE WITH SCC
7. DURING THE RAINY SEASON, STORM WATER BMP'S REFERENCED OR DETAILED IN PERMIT SONOMA'S BMP GUIDE SHALL BE IMPLEMENTED AND FUNCTIONAL ON THE SITE AT ALL TIMES AND THE AREA OF ERODIBLE LAND EXPOSED AT ANY ONE TIME DURING THE WORK SHALL NOT EXCEED ONE ACRE OR 20 PERCENT OF THE PERMITTED WORK AREA, WHICHEVER IS GREATER, AND THE TIME OF EXPOSURE SHALL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE.
8. DURING THE NON-RAINY SEASON, ON ANY DAY WHEN THE NATIONAL WEATHER SERVICE FORECAST IS A CHANCE OF RAIN OF 30 PERCENT OR GREATER WITHIN THE NEXT 24 HOURS, STORM WATER BMP'S REFERENCED OR DETAILED IN PERMIT SONOMA'S BMP GUIDE SHALL BE IMPLEMENTED AND FUNCTIONAL ON THE SITE TO PREVENT SOIL AND OTHER POLLUTANT DISCHARGES. AT ALL OTHER TIMES, BMP'S SHOULD BE STORED ON SITE IN PREPARATION FOR INSTALLATION PRIOR TO RAIN EVENTS.
9. EROSION PREVENTION AND SEDIMENT CONTROL BMP'S SHALL BE INSPECTED BY THE PROPERTY OWNER BEFORE FORETASTED STORM EVENTS AND AFTER STORM EVENTS TO ENSURE BMP'S ARE FUNCTIONING PROPERLY. EROSION PREVENTION AND SEDIMENT CONTROL BMP'S THAT HAVE FAILED OR ARE NO LONGER EFFECTIVE SHALL BE PROMPTLY REPLACED. EROSION PREVENTION AND SEDIMENT CONTROL BMP'S SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED.
10. THE LIMITS OF GRADING SHALL BE DEFINED AND MARKED ON SITE TO PREVENT DAMAGE TO SURROUNDING TREES AND OTHER VEGETATION. PRESERVATION OF EXISTING VEGETATION SHALL OCCUR TO THE MAXIMUM EXTENT PRACTICABLE. ANY EXISTING VEGETATION WITHIN THE LIMITS OF GRADING THAT IS TO REMAIN UNDISTURBED BY THE WORK SHALL BE IDENTIFIED AND PROTECTED FROM DAMAGE BY MARKING, FENCING, OR OTHER MEASURES.
11. CHANGES TO THE EROSION PREVENTION AND SEDIMENT CONTROL PLAN MAY BE MADE TO RESPOND TO FIELD CONDITIONS IF THE ALTERNATIVE BMP'S ARE EQUIVALENT OR MORE PROTECTIVE THAN THE BMP'S SHOWN ON THE APPROVED PLANS. ALTERNATIVE BMP'S ARE SUBJECT TO REVIEW AND APPROVAL BY PERMIT SONOMA STAFF.
12. DISCHARGES OF POTENTIAL POLLUTANTS FROM CONSTRUCTION SITES SHALL BE PREVENTED USING SOURCE CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SEDIMENT, TRASH, NUTRIENTS, PATHOGENS, PETROLEUM HYDROCARBONS, METALS, CONCRETE, CEMENT, ASPHALT, LIME, PAINT, STAINS, GLUES, WOOD PRODUCTS, PESTICIDES, HERBICIDES, CHEMICALS, HAZARDOUS WASTE, SANITARY WASTE, VEHICLE OR EQUIPMENT WASH WATER, AND CHLORINATED WATER.
13. ENTRANCE(S) TO THE CONSTRUCTION SITE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF POTENTIAL POLLUTANTS OFF SITE. POTENTIAL POLLUTANTS DEPOSITED ON PAVED AREAS WITHIN THE COUNTY RIGHT-OF- WAY, SUCH AS ROADWAYS AND SIDEWALKS, SHALL BE PROPERLY DISPOSED OF AT THE END OF EACH WORKING DAY OR MORE FREQUENTLY AS NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING CONSTRUCTION VEHICLES LEAVING THE SITE ON A DAILY BASIS TO PREVENT DUST, SILT, AND DIRT FROM BEING RELEASED OR TRACKED OFF SITE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AT THE END OF EACH WORKING DAY OR MORE OFTEN, AS NECESSARY.
14. ALL DISTURBED AREAS SHALL BE PROTECTED BY USING EROSION PREVENTION BMP'S TO THE MAXIMUM EXTENT PRACTICABLE, SUCH AS ESTABLISHING VEGETATION COVERAGE, HYDROSEEDING, STRAW MULCH, GEOTEXTILES, PLASTIC COVERS, BLANKETS, OR MATS. TEMPORARY REVEGETATION SHALL BE INSTALLED AS SOON AS PRACTICAL AFTER VEGETATION REMOVAL, BUT IN ALL CASES PRIOR TO OCTOBER 1. PERMANENT REVEGATATION OR LANDSCAPING SHALL BE INSTALLED PRIOR TO FINAL INSPECTION.
15. WHENEVER IT IS NOT POSSIBLE TO USE EROSION PREVENTION BMP'S ON EXPOSED SLOPES, SEDIMENT CONTROL BMP'S SUCH AS FIBER ROLLS AND SILT FENCES SHALL BE INSTALLED TO PREVENT SEDIMENT MIGRATION. FIBER ROLLS AND SILT FENCES SHALL BE TRENCHED AND KEYED INTO THE SOIL AND INSTALLED ON CONTOUR. SILT FENCES SHALL BE INSTALLED APPROXIMATELY 2 TO 5 FEET FROM TOE OF SLOPE.
16. HYDROSEEDING SHALL BE CONDUCTED IN A THREE STEP PROCESS. FIRST, EVENLY APPLY SEED MIX AND FERTILIZER TO THE EXPOSED SLOPE. SECOND, EVENLY APPLY MULCH OVER THE SEED AND FERTILIZER. THIRD, STABILIZE THE MULCH IN PLACE. AN EQUIVALENT SINGLE STEP PROCESS, WITH SEED, FERTILIZER, WATER, AND BONDED FIBERS IS ACCEPTABLE. APPLICATIONS SHALL BE BROADCASTED MECHANICALLY OR MANUALLY AT THE RATES SPECIFIED BELOW. SEED MIX AND FERTILIZER SHALL BE WORKED INTO THE SOIL BY ROLLING OR TAMPING. IF STRAW IS USED AS MULCH, STRAW SHALL BE DERIVED FROM WHEAT, RICE, OR BARLEY AND BE APPROXIMATELY SIX TO EIGHT INCHES IN LENGTH. STABILIZATION OF MULCH SHALL BE DONE HYDRAULICALLY BY APPLYING AN EMULSION OR MECHANICALLY BY CRIMPING OR PUNCHING THE MULCH INTO THE SOIL. EQUIVALENT METHODS AND MATERIALS MAY BE USED ONLY IF THEY ADEQUATELY PROMOTE VEGETATION GROWTH AND PROTECT EXPOSED SLOPES.

    MATERIALS AND APPLICATION RATE (POUNDS PER ACRE)
    SEED MIX
    - O BROMUS MOLLIS (BLANDO BROME) 40 POUNDS
    - O TRIFOLIUM HIRTUM (HYKON ROSE CLOVER) - 20 POUNDS

    FERTILIZER
    - O 16-20-0 & 15% SULPHUR - 500 POUNDS

    MULCH
    - O STRAW - 4000 POUNDS

    HYDRAULIC STABILIZING
    NON-ASPHALTIC, DERIVED FROM PLANTS
    - O M-BINDER OR SENTINEL - 75-100 POUNDS

    EQUIVALENT MATERIAL
    - O PER MANUFACTURER
17. DUST CONTROL SHALL BE PROVIDED BY CONTRACTOR DURING ALL PHASES OF CONSTRUCTION.
18. SOIL, MATERIAL STOCKPILES, AND FERTILIZING MATERIAL SHALL BE PROPERLY PROTECTED WITH PLASTIC COVERS OR EQUIVALENT BMP'S TO MINIMIZE SEDIMENT AND POLLUTANT TRANSPORT FROM THE CONSTRUCTION SITE.
19. SOLID WASTE, SUCH AS TRASH, DISCARDED BUILDING MATERIALS AND DEBRIS, SHALL BE PLACED IN DESIGNATED COLLECTION AREAS OR CONTAINERS. THE CONSTRUCTION SITE SHALL BE CLEARED OF SOLID WASTE DAILY OR AS NECESSARY. REGULAR REMOVAL AND PROPER DISPOSAL SHALL BE COORDINATED BY THE CONTRACTOR.
20. A CONCRETE WASHOUT AREA SHALL BE DESIGNATED TO CLEAN CONCRETE TRUCKS AND TOOLS. AT NO TIME SHALL CONCRETE PRODUCTS AND WASTE BE ALLOWED TO ENTER COUNTY WATERWAYS SUCH AS CREEKS OR STORM DRAINS. NO WASHOUT OF CONCRETE, MORTAR MIXERS, OR TRUCKS SHALL BE ALLOWED ON SOIL. CONCRETE WASTE SHALL BE PROPERLY DISPOSED.
21. PROPER APPLICATION, CLEANING, AND STORAGE OF POTENTIALLY HAZARDOUS MATERIALS, SUCH AS PAINTS AND CHEMICALS, SHALL BE CONDUCTED TO PREVENT THE DISCHARGE OF POLLUTANTS.
22. TEMPORARY RESTROOMS AND SANITARY FACILITIES SHALL BE LOCATED AND MAINTAINED DURING CONSTRUCTION ACTIVITIES TO PREVENT THE DISCHARGE OF POLLUTANTS.
23. APPROPRIATE VEHICLE STORAGE, FUELING, MAINTENANCE, AND CLEANING AREAS SHALL BE DESIGNATED AND MAINTAINED TO PREVENT DISCHARGE OF POLLUTANTS.

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REVISIONS

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A	ISSUED FOR REVIEW	MRS / MRS	AB / AT	7/13/2018
B	ISSUED FOR REVIEW	KRV / KRV	AGB / AT	2/7/2019

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 24 x 36

SONOMA COUNTY NOTES

FULTON-FITCH ALIGNMENT
RE-CONDUCTOR PULL-SITE
SHILOH RANCH PARK

Pacific Gas and Electric Company®

PACIFIC GAS & ELECTRIC COMPNAY
6121 BOLLINGER CANYON ROAD
SAN RAMON, CA 94583

GRADING PERMIT PLANS

PROJECT NO.	20190767
ISSUE DATE	02/07/2019
CURRENT REVISION	B
DESIGNED BY	K.VOLETTE
DRAWN BY	K.VIOLETTE
CHECKED BY	A. BISACKY
APPROVED BY	A. TRAUM

3

SHEET 3 of 6

CAD FILE: C:\goworking\kleinfeldergow01\wien\folder_kviolette\d0181832\02_Shiloh Park_Notes.dwg LAYOUT: 3 NOTES PLOTTED: 2/7/2019 2:00 PM BY: kurt violette

4,247'

APN: 067-260-032
COUNTY OF SONOMA
2300 COUNTY CENTER DR 120 A
SANTA ROSA, CA 95403

6,747'

7,811'

6,673'

5,456'

EXISTING STREAM

SOUTH RIDGE TRAILHEAD

28'

PROPOSED PULL PADS AND ROADWAY

FAUGHT ROAD

233'

220'

8,361'

EXISTING STRUCTURE

APPROXIMATE LOCATION OF SEPTIC SYSTEM

PLOTTED: 2/7/2019 1:55 PM BY: kurt violette

LAYOUT: 4 SITE PLAN

CAD FILE: C:\poworking\kleinfeldernw03\kleinfelder.kviolette\d0181832\03_Shiloh Park_Site Plan.dwg

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 400' 800' 1,200'

SCALE: 1" = 400' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 24 x 36

OVERALL LOCATION PLAN

FULTON-FITCH ALIGNMENT
RE-CONDUCTOR PULL-SITE
SHILOH RANCH PARK

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DESIGNED BY	K.VOLETTE
DRAWN BY	K.VIOLETTE
CHECKED BY	A. BISACKY
APPROVED BY	A. TRAUM

4

SHEET 4 of 6

APN: 067-260-006
MICHAEL FAUGHT
3800 FAUGHT RD
SANTA ROSA, CA 95403

APN: 067-260-032
COUNTY OF SONOMA
2300 COUNTY CENTER DR 120 A
SANTA ROSA, CA 95403

APN: 039-012-019
5500 FAUGHT RD
SANTA ROSA, CA 95403

EXISTING TRANSMISSION LINE (TYP)

TOP OF BANK

EXISTING STREAM MEAN HIGH WATERLINE

COMPOST FILTER SOCK (TYP.)

SOUTH RIDGE TRAILHEAD

NORTHING 1951548.1581
EASTING 6344964.4671

NORTHING 1951574.6381
EASTING 6345060.8975

NEW POLE NO. 23

TRANSMISSION TOWER

OLD POLE NO. 23

NORTHING 1951571.0356
EASTING 6345278.1445

NORTHING 1951570.1412
EASTING 6345378.1405

PROPOSED CONSTRUCTION ENTRANCE

FAUGHT ROAD

NORTHING 1951518.6864
EASTING 6344972.5601

PROPOSED TEMPORARY PULL PAD

NORTHING 1951517.1430
EASTING 6345040.3437

PROPOSED CHECK DAM AT 25-FT (TYP)

PROPOSED 12-FT WIDE PERMANENT ROAD

PROPOSED TEMPORARY PULL PAD

NORTHING 1951520.1432
EASTING 6345377.6933

SOUTH RIDGE TRAIL

SOUTH RIDGE TRAIL WILL BE TEMPORARILY CLOSED DURING CONSTRUCTION. THE PROPOSED TRAIL ALIGNMENT WILL MATCH EXISTING POST-CONSTRUCTION.

100-FT

50-FT

0+00

1+00

2+02+05

LOD

MHW

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		KRV	AT	

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 20' 40' 60'

SCALE: 1" = 20' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 24 x 36

SITE PLAN

FULTON-FITCH ALIGNMENT
RE-CONDUCTOR PULL-SITE
SHILOH RANCH PARK

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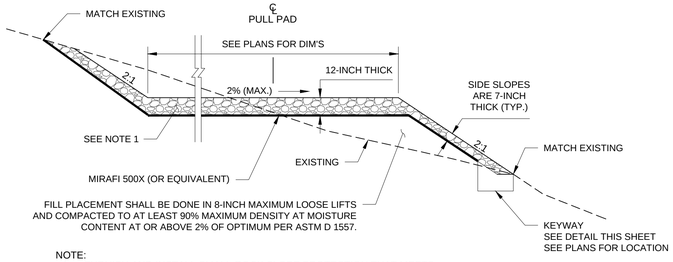
CHECKED BY	A. BISACKY
APPROVED BY	A. TRAUM

5

SHEET 5 of 6

PLOTTED: 2/7/2019 1:54 PM BY: kurt.violette
CAD FILE: C:\pwworking\kleinfelderpwx01\kwerkfolder_kvioletted\d0181832\05_Shiloh Park_Site Plan.dwg LAYOUT: 5 GRADING PLAN

SECTION A - A



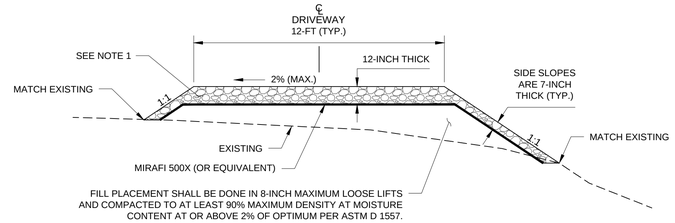
NOTE:

1. FURNISH AND INSTALL SMALL-ROCK SLOPE PROTECTION THAT MEETS THE GRADATION REQUIREMENTS OF CALTRANS STANDARD SPECIFICATION 72-4 ROCK GRADING FOR 7-INCH THICK LAYER.
2. SLOPE SHALL BE OVERBUILT AND TRIMMED.
3. EXISTING GRAD SHALL BE SCARIFIED AND RECOMPACTED TO AT LEAST90% MAXIMUM DENSITY AT MOISTURE CONTENT AT OR ABOVE 2% OF OPTIMUM PER ASTM D 1557.

1 TYPICAL SECTION - PULL PAD

SCALE: N.T.S

SECTION B-B



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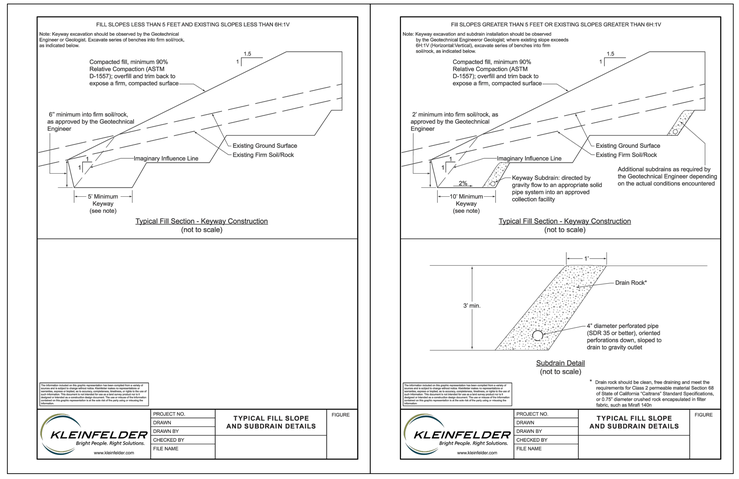
2. SLOPE SHALL BE OVERBUILT AND TRIMMED.
3. EXISTING GRAD SHALL BE SCARIFIED AND RECOMPACTED TO AT LEAST90% MAXIMUM DENSITY AT MOISTURE CONTENT AT OR ABOVE 2% OF OPTIMUM PER ASTM D 1557.

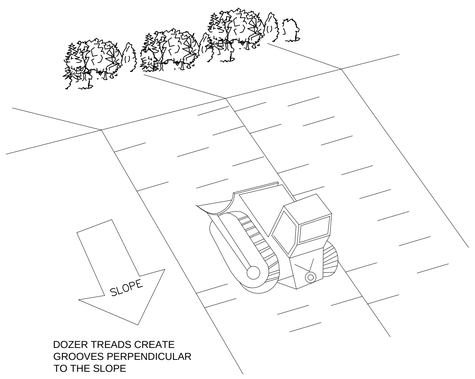
2 TYPICAL SECTION - SITE ACCESS DRIVE

SCALE: N.T.S



3 KEYWAY

SCALE: N.T.S



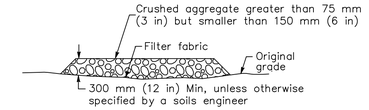
DOZER TREADS CREATE GROOVES PERPENDICULAR TO THE SLOPE

NOTE

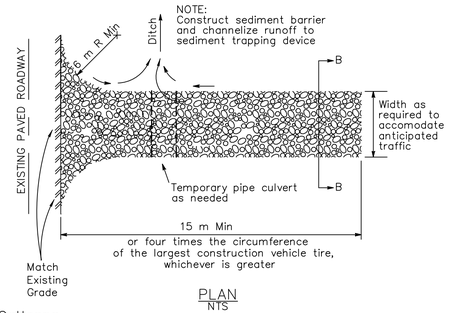
1. TRACKING SLOPES IS DONE BY RUNNING TRACKED MACHINERY UP AND DOWN THE SLOPE, LEAVING TREAD MARKS PARALLEL TO THE CONTOUR. IF A BULLDOZER IS USED, THE BLADE SHOULD BE UP.

4 BULLDOZER TRACKING DETAIL

SCALE: N.T.S



SECTION B–B
NTS

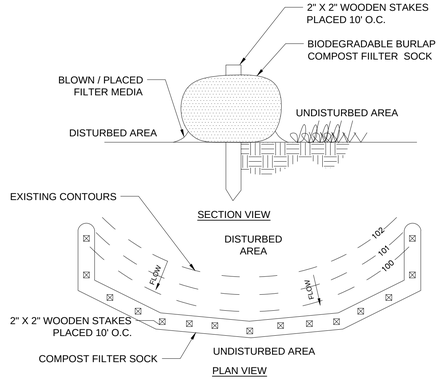


PLAN
NTS

Caltrans
Stabilized Construction Entrance/Exit TC–1

5 CONSTRUCTION ENTRANCE

SCALE: N.T.S



NOTES

1. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
2. PLACE COMPOST FILTER SOCK 10-FEET APART ON SLOPES STEEPER THAN 2:1.
3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
5. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
6. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS;
7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

6 COMPOST FILTER SOCK

SCALE: N.T.S

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0 — 1"

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ORIGINAL DRAWING SIZE IS 24 x 36

CONSTRUCTION DETAILS

FULTON-FITCH ALIGNMENT
RE-CONDUCTOR PULL-SITE
SHILOH RANCH PARK

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GRADING PERMIT PLANS

PROJECT NO.	20190767
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DESIGNED BY	K.VOLETTE
DRAWN BY	K.VIOLETTE
CHECKED BY	A. BISACKY
APPROVED BY	A. TRAUM

SHEET 6 of 6

6

CAD FILE: C:\pwworking\kleinfelderpw01\kleinfelder_kvolette\d0181832\D_Shiloh Park_Details.dwg LAYOUT: CONSTRUCTION DETAILS PLOTTED: 2/7/2019 1:57 PM BY: kurt.violette

APPENDIX B AESTHETICS SUPPORT INFORMATION

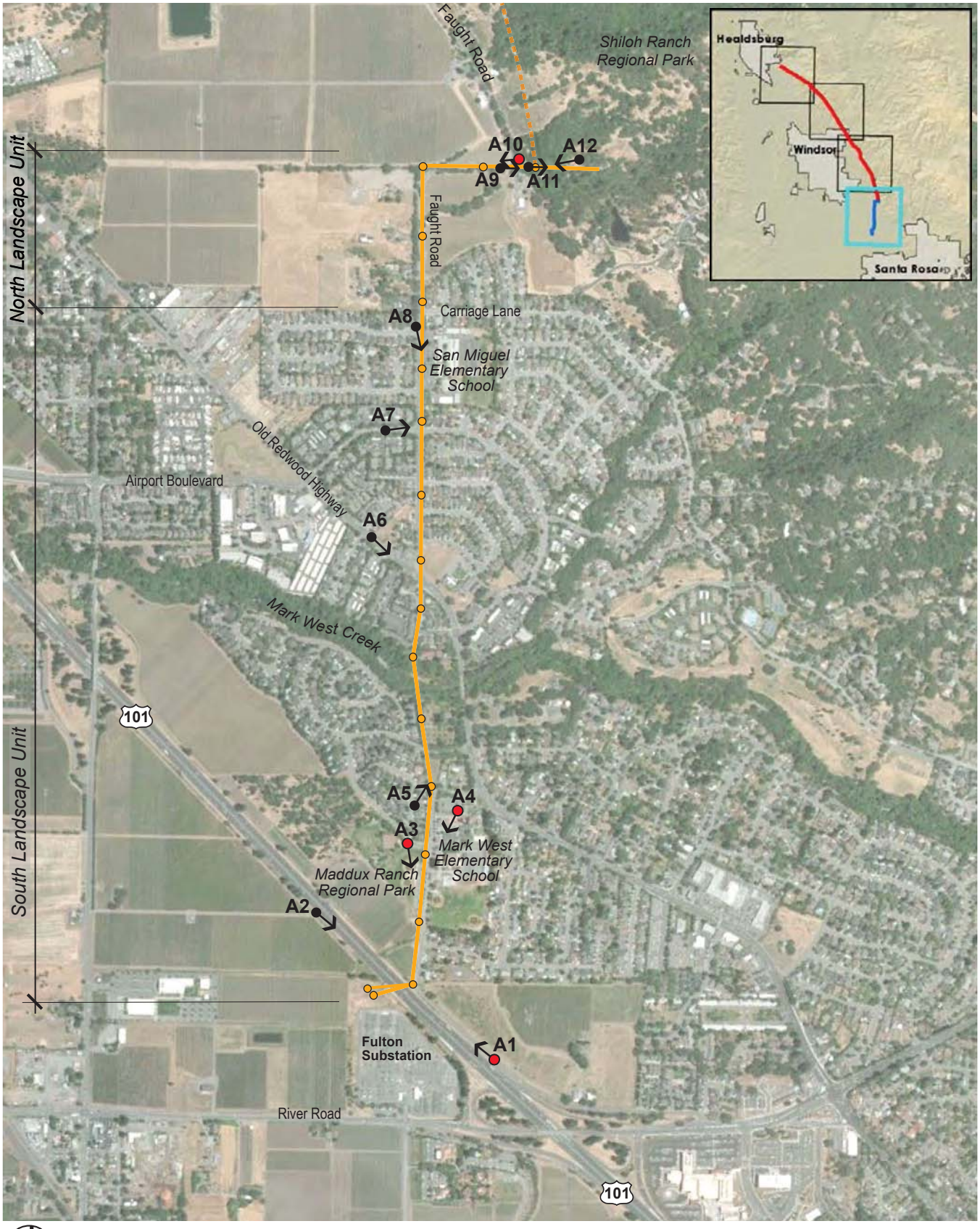

Figure B-1
Photograph Viewpoint Locations
PG&E Fulton-Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

A1. Northbound Highway 101 looking northwest *

A2. Southbound Highway 101 looking southeast

*Simulation Viewpoint; see Figure B-3(b) for visual simulation of the project.
Refer to Figure B-1 for viewpoint locations.

Figure B-2(a)
Photographs of the Project and Vicinity
PG&E Fulton-Fitch Mountain Reconductoring Project

A3. Maddux Ranch Regional Park near children's play area and ball field looking south *

A4. Mark West Elementary School looking south *

*Simulation Viewpoints; see Figures B-4(b) and B-5(b) for visual simulations.
Refer to Figure B-1 for viewpoint locations.

Figure B-2(b)
Photographs of the Project and Vicinity
PG&E Fulton-Fitch Mountain Reconductoring Project

A5. Noonan Ranch Circle looking north

A6. Old Redwood Highway near Creek Way looking southeast

Refer to Figure B-1 for viewpoint locations.

Figure B-2(c)
Photographs of the Project and Vicinity
PG&E Fulton-Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

A7. Airport Boulevard near Faught Road looking east

A8. Faught Road at San Miguel Elementary School and Corbett Circle looking south

Refer to Figure B-1 for viewpoint locations.

Figure B-2(d)
Photographs of the Project and Vicinity
PG&E Fulton-Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

A9. Faught Road near Shiloh Ranch Regional Park looking east

A10. Faught Road at Shiloh Ranch Regional Park trail access looking west *

*Simulation Viewpoint; see Figure B-6(b) for visual simulation of the project.
Refer to Figure B-1 for viewpoint locations.

Figure B-2(e)
Photographs of the Project and Vicinity
PG&E Fulton-Fitch Mountain Reconductoring Project

A11. Shiloh Ranch Regional Park South Ridge Trail looking east

A12. Shiloh Ranch Regional Park South Ridge Trail looking west

Refer to Figure B-1 for viewpoint locations.

Figure B-2(f)
Photographs of the Project and Vicinity
PG&E Fulton-Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

Existing View from northbound Highway 101 looking northwest (VP A1)

Figure B-3(a)
Existing View - Highway 101
PG&E Fulton - Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

Visual Simulation of Proposed Project

Figure B-3(b)
Visual Simulation - Highway 101
PG&E Fulton - Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

Existing View from Maddux Ranch Regional Park near children's play area and ball field looking south (VP A3)

Figure B-4(a)
Existing View - Maddux Ranch Regional Park
PG&E Fulton - Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

Visual Simulation of Proposed Project

Figure B-4(b)
Visual Simulation - Maddux Ranch Regional Park
PG&E Fulton - Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

Existing View from Mark West Elementary School looking south (VP A4)

Figure B-5(a)
Existing View - Mark West Elementary School
PG&E Fulton - Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

Visual Simulation of Proposed Project

Figure B-5(b)
Visual Simulation - Mark West Elementary School
PG&E Fulton - Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

Existing View from Faught Road at Shiloh Ranch Regional Park trail access looking west (VP A10)

Figure B-6(a)
Existing View - Faught Road
PG&E Fulton - Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

Visual Simulation of Proposed Project

Figure B-6(b)
Visual Simulation - Faught Road
PG&E Fulton - Fitch Mountain Reconductoring Project

ENVIRONMENTAL VISION
061518

AESTHETICS SUPPORTING INFORMATION

This document provides supplemental information for the Aesthetics impact assessment approach described in Section 3.2.3 of the 2017 Final MND. The CPUC has not developed its own method for assessing visual character and quality under CEQA. The visual impact assessment follows the CEQA Guidelines and supplements the CEQA Guidelines with guidelines provided in *Visual Impact Assessment for Highway Projects*, which uses a numeric evaluation approach to assess the degree of impact (FHWA 1988). Information provided in this document includes a detailed description of the analysis methodology and visual impact rating sheets.

METHODOLOGY

The purpose of the analysis was to address the following three questions:

1. What are the visual qualities of the characteristic landscape in the project area?
2. What are the potential effects of the proposed project on the area's visual quality and aesthetics?
3. Who would see the project, and what is their likely level of concern about how the project visually fits within the existing characteristic landscape?

The photograph of existing conditions and visual simulation for each elevated viewpoint (A1, A3, A4, and A10) was evaluated quantitatively with a numerical rating system to analyze the Proposed Project's impact on visual quality. The evaluation involved the following steps:

1. **Viewer Response.** Analyze, describe, and define numerical ratings for viewer response using the following criteria:
    a. **Viewer Sensitivity.** The extent to which the viewing public would notice or experience a substantial change in visual quality. Viewer sensitivity is based on several factors that can differ in level of importance from one viewer to another. Because this sensitivity is important to understand, the proposed project was evaluated to consider the visual experience of many different viewers.
    b. **Viewer Exposure.** Typically assessed by measuring the number of viewers exposed to the resource change, type of viewer activity, the viewing distance to the resource change (foreground, middleground, or background) the duration of their view, the speed at which the viewer moves, and the position of the viewer.
2. **Existing Visual Quality.** Use the baseline photographs to analyze, describe, and assign numerical ratings for existing visual quality using three criteria:
    a. **Vividness.** The visual power or memorability of landscape components as they combine in distinctive visual patterns.

b. **Intactness.** The memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.
c. **Unity.** The degree to which the visual resources of the landscape join to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or inter-compatibility between landscape elements.

3. **Proposed Visual Quality.** Prepare photo-simulations of the proposed project. Analyze the photo-simulation and assign numerical ratings for the Proposed Project's visual quality using vividness, intactness, and unity.
4. **Visual Quality Change.** Calculate visual change as the difference between existing visual quality and visual quality with presence of the proposed project (numerical assessment). Assess resulting visual quality before and after mitigation, if necessary.

The numerical rating scale presented in Table B-1 was used to determine visual quality and viewer response.

Table B-1 Visual Quality and Viewer Response Rating Scale

Numeric Value	Description
0 = None	No or very low degree of visual change to the existing visual resource.
1 = Low	Minor adverse change to existing visual quality, with low viewer response to change in the visual environment.
2 = Moderate	Moderate adverse change to existing visual quality with moderate viewer response. Impact can be reduced within 5 years using conventional visual resource mitigation measures of facilities including landscaping.
3 = Moderately High	Moderate adverse change to existing visual quality with high viewer response; or high adverse visual resource change with moderate viewer response. Conventional visual resource mitigation measures of facilities including landscape treatment practices will generally reduce impacts.
4 = High	A high level of adverse change to the visual quality or a high level of viewer response to visual change such that architectural design and landscape treatment cannot reduce the impacts to below a significant level. Viewer response level is high.

The ratings for viewer response and change in visual quality were multiplied together to produce an overall score (refer to KOP impacts rating sheets below for detailed calculations at each KOP). For example:

Visual Quality Change (VQC)	-3.0
Viewer Response (VR)	3.5
Visual Impact (VQC × VR)	-10.5 (Moderately High)

The composite visual impact score reflects both the degree of visual quality change resulting from the proposed project and the viewer response to the change. The interrelationship of these two factors in determining whether visual impacts would be significant is shown in Table B-2. Overall visual impact scores of moderately high and high are considered significant under

CEQA and require mitigation. The scoring relationship between overall visual change or impact and potential need for mitigation is provided in Table B-3.

Table B-2 Guidelines for Determining Significance of Visual Impact

Overall Viewer Sensitivity	Overall Visual Change				
	Low (0 to <1)	Low to Moderate (1 to <2)	Moderate (2 to <3)	Moderate to High (3 to <4)	High (4)
Low (0 to <1)	Not Significant	Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant
Low to Moderate (1 to <2)	Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant
Moderate (2 to <3)	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant
Moderate to High (3 to <4)	Adverse, but Not Significant	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant
High (4)	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant	Significant

No impact visual changes are not perceptible.

Not Significant impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.

Adverse but Not Significant impacts are perceived as negative but do not exceed environmental thresholds.

Adverse and Potentially Significant impacts are perceived as negative and may exceed environmental thresholds depending on project and site-specific circumstances.

Significant impacts with feasible mitigation may be reduced to less than significant levels or avoided all together. Without mitigation or avoidance measures, significant impacts would exceed environmental thresholds.

Table B-3 Visual Impact Scoring Scale

Cumulative Score Range	Impact Description
0	**No visual impact.** No mitigation is required.
-1 to -4	**Low/less than significant level of visual impact.** No mitigation is required.
-4 to -9	**Moderate level of visual impact.** Mitigation may be required depending on the level of viewer response to reduce the impact to a less than significant level.
-9 to -13	**Moderately high level of visual impact.** Mitigation would reduce the impact to a less than significant level.
-13 or below	**High level of visual impact.** The project may require design changes along with mitigation measures to reduce the impact.

IMPACT RATING SHEETS

Impact rating sheets were used to assess the visual change to the existing visual quality for the elevated viewpoints following proposed pole replacement. Rating sheets are provided below.

APPENDIX B

Viewpoint A1 Visual Impact Rating Sheet

Parameter	Numerical Rating Value	
Visual Quality (VQ)	**Existing**	**Proposed**
Vividness	1.0	1.0
Intactness	1.0	1.0
Unity	0.0	0.0
VQ Total	**2.0**	**2.0**
VQ Change (Proposed VQ – Existing VQ)	**0.0**	
Viewer Response (VR)		
Viewer Sensitivity (S)	1.0	
Viewer Exposure (E)	3.0	
Average VR ([S + E] / 2)	**2.0**	
Visual Impact		
VQ Change	0.0	
Average VR	2.0	
Visual Impact (VQ Change × Average VR)	**0 (NO IMPACT)**	

Viewpoint A3 Visual Impact Rating Sheet

Parameter	Numerical Rating Value	
Visual Quality (VQ)	**Existing**	**Proposed**
Vividness	4.0	4.0
Intactness	2.0	2.0
Unity	2.0	2.0
VQ Total	8.0	8.0
VQ Change (Proposed VQ – Existing VQ)	**0.0**	
Viewer Response (VR)		
Viewer Sensitivity (S)	2.0	
Viewer Exposure (E)	4.0	
Average VR ([S + E] / 2)	3.0	
Visual Impact		
VQ Change	0.0	
Average VR	3.0	
Visual Impact (VQ Change × Average VR)	**0 (NO IMPACT)**	

APPENDIX B

Viewpoint A4 Visual Impact Rating Sheet

Parameter	Numerical Rating Value	
Visual Quality (VQ)	**Existing**	**Proposed**
Vividness	4.0	4.0
Intactness	2.0	2.0
Unity	2.0	2.0
VQ Total	8.0	8.0
VQ Change (Proposed VQ – Existing VQ)	**0.0**	
Viewer Response (VR)		
Viewer Sensitivity (S)	2.0	
Viewer Exposure (E)	4.0	
Average VR ([S + E] / 2)	**3.0**	
Visual Impact		
VQ Change	0.0	
Average VR	3.0	
Visual Impact (VQ Change × Average VR)	**0 (NO IMPACT)**	

Viewpoint A10 Visual Impact Rating Sheet

Parameter	Numerical Rating Value	
Visual Quality (VQ)	**Existing**	**Proposed**
Vividness	4.0	4.0
Intactness	2.5	2.5
Unity	3.0	2.5
VQ Total	9.5	9.0
VQ Change (Proposed VQ – Existing VQ)	**-0.5**	
Viewer Response (VR)		
Viewer Sensitivity (S)	4.0	
Viewer Exposure (E)	3.0	
Average VR ([S + E] / 2)	**3.5**	
Visual Impact		
VQ Change	-0.5	
Average VR	3.5	
Visual Impact (VQ Change × Average VR)	**-1.75 (LOW)**	

APPENDIX C AIR QUALITY AND GREENHOUSE GASES SUPPORT INFORMATION

TECHNICAL MEMORANDUM

TO: Caitlin Gilleran, Panorama Environmental

FROM: Michael Ratte, RCH Group

DATE: May 7, 2019

SUBJECT: CPUC Fulton to Fitch Air Quality Impacts – Project with Proposed Modifications

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The Fulton-Fitch Mountain Reconductoring Project analyzed in the Final Initial Study/Mitigated Negative Declaration (Final MND) was adopted and approved for construction. Since the Final MND, Pacific Gas and Electric Company (PG&E) submitted a Petition for Modification (PFM) (PFM 1) in which PG&E proposes to make changes to the Southern Segment of the approved project located within the community of Larkfield-Wikiup. A Supplemental MND is being prepared to address the proposed modifications.

The project with proposed modifications would involve reinforcing the electric transmission system in Sonoma County by replacing the conductor on a 9.9-mile-long section of the Fulton-Hopland 60 kV Power Line (Fulton-Hopland Line) between the communities of Fulton and Healdsburg. Construction would involve fourteen (generally sequential) phases: Survey, Vegetation Removal and Trimming, Site Improvements and Reestablishment, Drainage Crossings, Auger LDS Pole Holes, Pole Delivery, Material, Equipment, Supply Haul, Guard Structure Install, LDS Pole Install – Ground, Conductor Installation, Auger TSP Holes, Restoration and Cleanup, TSP Concrete Foundation Removal, TSP Installation with Concrete Pier, TSP Installation with Micropile, Circuit Breaker Installation, Road Subgrade Preparation, and Asphalt Road Paving, and LDS Pole Install – Aerial. An air quality impact analysis was conducted to estimate the air quality impacts due to the construction and operation of the project with modifications. This air quality impact assessment provides the basis for preparing the air quality analyses in the CEQA Initial Study. **Attachment A** provides a detailed summary of the construction emissions inventory. **Attachment B** provides the construction equipment schedule and other assumptions for the construction emissions inventory. **Attachment** C provides the emissions estimation output for the construction off-road equipment.

Air Quality Overview

Primary air emissions from the project with modifications include construction emissions associated with fugitive dust (from grading, loading/unloading, and vehicle movement on unpaved surfaces), heavy construction equipment (cranes, loaders, excavators, etc), helicopter usage (fugitive dust and combustion emissions), and construction workers commuting to and

from the project site. Operation and maintenance activities that would affect air quality will not increase as a result of the project with modifications.

The air quality analysis is consistent with the methods described in the Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines* (dated June 2010, updated in May 2011, and revised in May 2012).[1] Mitigation measures are presented to reduce impacts to less than significant, as applicable.

The air quality analysis includes a review of criteria pollutant[2] emissions such as carbon monoxide (CO)[3], nitrogen oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOC) as reactive organic gases (ROG)[4], particulate matter less than or equal to 10 micrometers (coarse particulate or PM10), particulate matter less than or equal to 2.5 micrometers (fine particulate or PM2.5).[5] The air quality analysis also addresses health impacts due to air toxics emissions such as diesel particulate matter (DPM). Impacts on climate change are addressed through a greenhouse gas (GHG) emissions inventory.

Regulatory models used to estimate air quality impacts include (but not limited to):

- California Air Resources Board's (CARB) EMFAC[6]emissions inventory model. EMFAC is the latest emission inventory model that calculates emission inventories and emission rates for motor vehicles operating on roads in California. This model reflects CARB's current understanding of how vehicles travel and how much they emit. EMFAC can be used to show how California motor vehicle emissions have changed over time and are projected to change in the future.
- CARB OFFROAD[7] emissions inventory model. OFFROAD is the latest emission inventory model that calculates emission inventories and emission rates for off-road

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1 The Air District's June 2010 adopted thresholds of significance were challenged in a lawsuit. Although the BAAQMD's adoption of significance thresholds for air quality analysis has been subject to judicial actions, the lead agency has determined that BAAQMD's Revised Draft Options and Justification Report (October 2009) provide substantial evidence to support the BAAQMD recommended thresholds. Therefore, the lead agency has determined the BAAQMD recommended thresholds are appropriate for use in this analysis.

2 Criteria air pollutants refer to those air pollutants for which the United States Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) has established National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) under the Federal Clean Air Act (CAA).

3 CO is a non–reactive pollutant that is a product of incomplete combustion of organic material, and is mostly associated with motor vehicle traffic, and in wintertime, with wood–burning stoves and fireplaces.

4 VOC means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. ROGs are any reactive compounds of carbon, excluding methane, CO, CO_2, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. The terms VOC and ROG are often used interchangeably.

5 PM10 and PM2.5 consists of airborne particles that measure 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects.

6 CARB EMFAC2014 User's Guide, April 30, 2014, https://www.arb.ca.gov/msei/msei.htm

7 CARB OFFROAD Instructions, http://www.arb.ca.gov/msprog/ordiesel/info_1085/oei_write_up.pdf

equipment such as loaders, excavators, and off-road haul trucks operating in California. This model reflects CARB's current understanding of how equipment operates and how much they emit. OFFROAD can be used to show how California off-road equipment emissions have changed over time and are projected to change in the future.

- CalEEMod (California Emissions Estimator Model Version 2013.2.2)[8] land use emissions model estimates emissions due to demolition and construction activities and operations.[9]

The northern segment of the project with modifications is located within the Northern Sonoma County Air Pollution Control District (NSCAPCD), which covers the northern and coastal regions of Sonoma County.[10] The NSCAPCD is designated "attainment" or "unclassifiable" for all pollutants. The BAAQMD and San Francisco Bay Area Air Basin encompasses Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa Counties, and the southern portions of Solano and Sonoma Counties. The southern segment of the project with modifications is located within the BAAQMD. The Bay Area Air Basin is currently designated "nonattainment" for state and national (1-hour and 8-hour) ozone standards, for the state PM10 standards, and for state and national (annual average and 24-hour) PM2.5 standards. ROG and NO_x are precursors to ozone formation. The Bay Area Air Basin is designated "attainment" or "unclassifiable" with respect to the other ambient air quality standards.

Thresholds of Significance

The BAAQMD *CEQA Air Quality Guidelines* thresholds of significance applied to assess project-level air quality impacts are:

- Average daily construction exhaust emissions of 54 pounds per day of ROG, NO_x, or PM2.5 or 82 pounds per day of PM10;
- Average daily operation emissions of 54 pounds per day of ROG, NO_x, or PM2.5 or 82 pounds per day of PM10; or result in maximum annual emissions of 10 tons per year of ROG, NO_x, or PM2.5 or 15 tons per year of PM10;
- Exposure of persons by siting a new source or a new sensitive receptor to substantial levels of air toxics resulting in (a) a cancer risk level greater than 10 in one million, (b) a noncancerous risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average PM2.5 of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$). For this

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[8] CARB California Emissions Estimator Model User's Guide, July 2013. http://www.caleemod.com/

[9] On October 14 of 2016, the California Air Pollution Control Officers Association released an upgrade to CalEEMod (Version 2016.3.1). The upgrades include the use of CARB's OFFROAD and EMFAC2014 emissions model (the previous version used the EMFAC2011 emissions model) updates and trip rates from Institute of Transportation Engineers 9th edition of the Trip Generation Manual (the previous version used the 8th edition). The likely outcome of the model update for the project with modifications is that the reported estimated emissions are slightly higher (conservative) than the values with the upgraded (CalEEMod 2016.3.1) version.

[10] The dividing line begins just West of Valley Ford, going North past the East end of the Occidental area. It then runs Northeast between Graton and Forestville, and cuts across the Northwest corner of the Windsor city limit. It then runs due East all the way to the East edge of Sonoma County; http://sonomacounty.ca.gov/TPW/Air-Quality/Air-Quality-District-Boundaries/

threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers; and

- Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people.

The BAAQMD *CEQA Air Quality Guidelines* also identify a project-specific threshold of 1,100 metric tons of CO_2 equivalent (CO_2e) per year, which is also considered a cumulatively considerable contribution to the global GHG burden.

NSCAPCD has adopted the BAAQMD *CEQA Air Quality Guidelines* and thresholds of significance.

Construction Air Quality Impacts

The project with modifications would generate short-term emissions of air pollutants, including fugitive dust and equipment exhaust emissions from construction activities. The BAAQMD *CEQA Air Quality Guidelines* recommend quantification of construction-related exhaust emissions and comparison of those emissions to significance thresholds. The CalEEMod (California Emissions Estimator Model) was used to quantify construction-related pollutant emissions for the project with modifications.

Construction activities commenced in mid-2018 with project site surveys, followed by additional site preparation and construction tasks. Construction activities are expected to be completed by the end of June of 2020 with aerial pole installation.[11] During the 24 month period there will be some periods in which construction activity is dormant (i.e., to avoid wildlife migration, rainy season, etc.) such that the active construction activities would occur over a 17 month period.[12] A total of approximately 2,132 haul truck trips were estimated during site improvements and a total of approximately 1,103 haul trucks were estimated during pole delivery, LDS pole installation and TSP installation, and 90 haul trucks were estimated during the Fitch Substation pavement installation.[13] An average daily construction crew of 15 employees, with a maximum crew size of up to 50 employees, would be present.

Helicopter operations are assumed to occur daily (up to 10 hours per day and 7 days per week) and involve a Hughes 500D or similar (small helicopter) and/or Bel1 214B or similar (large helicopter) depending on the duties required. Helicopter activities would include landing and takeoffs (LTO) and cruise operations. Helicopter activity would involve a total of 313 days of operations; which is approximately 238 days of operations (17 weeks of operations and 7 days per week) for the Hughes 500D, approximately 63 days of operations (9 weeks of operations

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[11] The construction period has been delayed for approximately one year; these delays would not change the emission calculations substantially.

[12] The anticipated construction period in the Southern Segment would increase from 4 to 8 months, and the total anticipated construction period for the project with modifications would increase from approximately 12 to 24 months which includes delays encountered in 2018 and 2019 and periods of construction inactivity in 2019.

[13] An additional 2,450 cubic yards of cut and fill materials is required in association with the TSP installation for concrete piers when compared to the estimations within the Final MND. This additional material would require 303 additional trucks trips when compared to the estimations within the Final MND.

and 7 days per week) for the Bell 214B, and approximately 12 days of operations (2 weeks of operations and 6 days per week) for the Bell 214B.

A single Hughes 500D helicopter would be used during construction in the Southern Segment six days a week for up to 2 weeks. At any one time, up to four helicopters (three Hughes 500D and one Bell 214B) may be used simultaneously.[14]

Table 1 provides the estimated construction exhaust emissions that would be associated with the project with modifications and compares those emissions to the BAAQMD's significance thresholds for construction emissions. Notably, BAAQMD's significance thresholds for construction emissions do not include fugitive dust. As the construction phases are sequential, the average daily construction period emissions (i.e., total construction emissions divided by the number of construction days or 510 days) were compared to the BAAQMD significance thresholds. Of the 9.9-mile project with modifications length between the communities of Fulton and Healdsburg,[15] approximately 3.6 miles (34 percent) is located within the North Coast Air Basin and approximately 6.3 miles (66 percent) is located within the Bay Area Air Basin. The air emissions were apportioned accordingly. **Table 1** shows the air emissions without and with the Applicant Proposed Measures (APM) to reduce fugitive dust and combustion exhaust emissions.

The following provides a summary of the construction emissions:

- Construction-related ROG, NOx, PM10, and PM2.5 exhaust emissions would be below the significance thresholds within NSCAPCD, and thus, a less than significant impact on air quality within the NSCAPCD.
- Construction-related ROG, NOx, PM10, and PM2.5 exhaust emissions would be below the significance thresholds within BAAQMD, and thus, a less than significant impact on air quality within the BAAQMD.

[14] Since the Final MND it was determined that a single Hughes 500D helicopter may be used in the Southern Segment for 6 hours a day for approximately 12 days. The light helicopter would fly workers approximately 8 trips/day and materials approximately 42 trips/day, for a total of approximately 50 trips/day. Each trip would take about 3 minutes from landing zone to the pole, typically under a minute at the pole, and 3 minutes back to the landing zone. For the Northern Segment, the light and heavy helicopters would be used about 10 hours per day with about 3 trips per day for each helicopter. Each trip would take a total of 13.5 minutes.

[15] The boundary between NSCAPCD and BAAQMD is near the intersection of Mount Weske Drive and Brookes Road along the proposed project.

Table 1: Estimated Average Daily Construction Exhaust Emissions (pounds)

Condition	ROG	NOx	PM10 (exhaust)	PM2.5 (exhaust)	CO
	Without APM				
Construction Equipment and Vehicles	3.34	65.9	1.87	1.84	55.0
Helicopter Activities	17.5	17.3	0.51	0.51	41.5
Total Project with Proposed Modifications	**20.9**	**83.2**	**2.38**	**2.35**	**96.5**
Total Project with Proposed Modifications within NSCAPCD	**7.10**	**28.3**	**0.81**	**0.80**	**32.8**
Total Project with Proposed Modifications within BAAQMD	**13.8**	**54.9**	**1.57**	**1.55**	**63.7**
BAAQMD Significance Threshold	54	54	82	54	---
Potentially Significant (Yes or No)?	No	**Yes**	No	No	No
	APM AIR-1 and AIR-2				
Construction Equipment and Vehicles	3.18	62.6	1.78	1.75	52.4
Helicopter Activities	17.5	17.3	0.51	0.51	41.5
Total Project with Proposed Modifications	**20.7**	**79.9**	**2.29**	**2.26**	**93.9**
Total Project with Proposed Modifications within NSCAPCD	**7.04**	**27.2**	**0.78**	**0.77**	**31.9**
Total Project with Proposed Modifications within BAAQMD	**13.7**	**52.7**	**1.51**	**1.49**	**62.0**
BAAQMD Significance Threshold	54	54	82	54	---
Potentially Significant (Yes or No)?	No	No	No	No	No

SOURCES: CalEEMod Version 2013.2.2 and FOCA Guidance on Determination of Helicopter Emissions, Edition 2, December 2015.

NOTES: Several changes were made to the estimated Average Daily Construction Emissions calculation when compared to the Final MND: the amount and type of construction equipment and duration of use (See Table 2.4-1 of the Supplemental PEA, the type of helicopters and the duration of use (See footnote 14), the number of truck trips (see footnote 13), an extension of the construction schedule of 4 months, and corrections to helicopter emission calculations and adjustments to the helicopter duration of use and emission factors including using FOCA Guidance from December 2015 instead of March 2009 (See Attachment B for further details).

Table 2 shows the air emissions for this Supplemental MND and the Final MND (Appendix C: CPUC Fulton to Fitch Air Quality Impacts dated June 2, 2017) without and with the APM to reduce fugitive dust and combustion exhaust emissions. As shown, the estimated average daily construction emissions for the Supplemental MND are lower than the Final MND for ROG and CO but for the Supplemental MND are higher than the Final MND for NOx, PM10, and PM2.5. As a further detail, construction emissions estimated for the Supplemental MND related to construction equipment and vehicle are higher for all pollutants due to changes to the assumed amount and type of construction equipment and the number of truck trips. However, for helicopter activities, the modifications to emission factors and other changes/corrections result in lower ROG and CO emissions but higher NOx, PM10, and PM2.5.

Notably, construction-related ROG, NOx, PM10, and PM2.5 exhaust emissions with ***APM AIR-1 through AIR-2*** would be below the significance thresholds within each air district for the Supplemental MND, and thus, a less than significant air quality impact within the Bay Area Air Basin and within the North Coast Air Basin.

Table 2: Comparison of Estimated Average Daily Construction Exhaust Emissions (pounds) for the Supplemental MND and Final MND

Condition	ROG	NOx	PM10 (exhaust)	PM2.5 (exhaust)	CO
	Without APM				
Construction Equipment and Vehicles	3.34	65.9	1.87	1.84	55.0
Helicopter Activities	17.5	17.3	0.51	0.51	41.5
Total Project with Proposed Modifications (Supplemental MND)	**20.9**	**83.2**	**2.38**	**2.35**	**96.5**
Construction Equipment and Vehicles	2.33	38.3	1.18	1.17	34.9
Helicopter Activities	54.0	23.2	0.76	0.76	68.3
Total Approved Project (Final MND)	**56.3**	**61.6**	**1.94**	**1.92**	**103**
	APM AIR-1 and AIR-2				
Construction Equipment and Vehicles	3.18	62.6	1.78	1.75	52.4
Helicopter Activities	17.5	17.3	0.51	0.51	41.5
Total Project with Proposed Modifications (Supplemental MND)	**20.7**	**79.9**	**2.29**	**2.26**	**93.9**
Construction Equipment and Vehicles	2.21	36.4	1.12	1.11	33.2
Helicopter Activities	54.0	23.2	0.76	0.76	68.3
Total Approved Project (Final MND)	**56.2**	**59.6**	**1.88**	**1.87**	**102**

Applicant Proposed Measures

The BAAQMD's *CEQA Air Quality Guidelines* consider construction-related air quality impacts to be less than significant if best management practices are employed to reduce construction-related emissions. PG&E shall implement the following APM to further reduce fugitive dust and combustion exhaust emissions:

APM AIR-1: Fugitive Dust Emissions

Per BAAQMD *CEQA Air Quality Guidelines*, PG&E shall implement the following Applicant Proposed Measures to further reduce fugitive dust emission:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) in active construction zones shall be watered two times per day during dry conditions.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers or equivalent method at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles-per-hour.
- Post a publicly visible sign with the telephone number and person to contact at PG& regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.
- Helicopter landing zone shall be watered prior to takeoff and landings.

APM AIR-2: Exhaust Emissions

Per BAAQMD *CEQA Air Quality Guidelines*, PG&E shall implement the following Applicant Proposed Measures to further reduce exhaust emission:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of five consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. Clear signage shall be provided for construction workers at all access points indicating idling restrictions.
- All construction equipment shall be regularly maintained in accordance with PG&E standards. All equipment shall be checked by a certified visible emissions evaluator.

APM AIR-1 is estimated to reduce fugitive dust emissions by approximately 75 percent. Notably, with ***APM AIR-1***, fugitive dust emissions during the construction period would decrease from 4.6 tons per year (18.1 pounds per day) to 1.1 tons per year (4.1 pounds per day) of PM10 and decrease from 0.6 tons per year (2.2 pounds per day) to 0.2 tons per year (0.6 pounds per day) of PM2.5. ***APM AIR-2*** is estimated to reduce combustion exhaust emissions by three percent.

In conclusion, construction-related ROG, NO_x, PM10, and PM2.5 exhaust emissions with ***APM AIR-1 through AIR-2*** would be below the significance thresholds within each air district, and thus, a less than significant air quality impact within the BAAQMD and within the NSCAPCD.

Operational Air Quality Impacts

Other than the use of sulfur hexafluoride (SF_6) circuit breakers (and associated GHG emissions), operation and maintenance activities that would affect air quality will not increase as a result of the project with proposed modifications. PG&E will continue to employ standard Best Management Practices—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during operation of the project with proposed modifications.

Health Impacts

Diesel-powered equipment and vehicles such as haul trucks, back hoes, and cranes would be used during construction of the project with proposed modifications. Operation of diesel-powered equipment would generate diesel exhaust emissions. Diesel exhaust is a complex mixture of gases and fine particles and includes over 40 substances that are listed by the USEPA as hazardous air pollutants and by the CARB as toxic air contaminants.[16] Additionally, helicopters would be operated throughout construction which, depending upon engine type, may be fueled by either aviation turbine fuel or aviation gasoline, which can also contain air toxics such as formaldehyde.

Some receptors are considered more sensitive to air pollutants than others, because of preexisting health problems, proximity to the emissions source, or duration of exposure to air pollutants. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are also considered sensitive to poor air quality because people in residential areas are often at home for extended periods. Recreational land uses are moderately sensitive to air pollution because vigorous exercise associated with recreation places having a high demand on respiratory system function. Children under 16 years are more susceptible to carcinogens compared to adults. As such, child care centers and schools are higher risk sensitive receptors.

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16 In August of 1998, CARB identified particulate emissions from diesel-fueled engines as a toxic air contaminant. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. The document represents a proposal to reduce diesel particulate emissions, with the goal to reduce emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra-low sulfur diesel fuel on diesel-fueled engines.

Diesel particulate matter (DPM) is the most complex of diesel emissions. Diesel particulates, as defined by most emission standards, are sampled from diluted and cooled exhaust gases. This definition includes both solid and liquid material that condenses during the dilution process. The basic fractions of DPM are elemental carbon; heavy hydrocarbons derived from the fuel and lubricating oil and hydrated sulfuric acid derived from the fuel sulfur. DPM contains a large portion of the polycyclic aromatic hydrocarbons found in diesel exhaust. Diesel particulates include small nuclei particles of diameters below 0.04 micrometers (μm) and their agglomerates of diameters up to 1 μm.

Within the project area, the majority of the sensitive receptors including child care centers, schools, residences, and elder care facilities are located along the Southern Segment. Construction vehicles and trucks carrying construction equipment to and from work sites would travel along construction routes to and from staging yards in the vicinity of sensitive receptors. Truck traffic and associated diesel exhaust would increase for approximately three months at any one sensitive receptor during construction of this segment. Residences were identified within varying distances to the project area, as close as being adjacent to the existing PG&E right-of-way and 130 feet from the closest pole construction location along the transmission line corridor. The Fulton-Shiloh segment runs adjacent to many residential receptors living in the Larkfield-Wikiup residential neighborhood and is very close to schools such as Mark West Elementary School and San Miguel Elementary School.

In accordance with California Code of Regulations (CCR) § 2485, trucks with a gross vehicle weight rating over 10,000 pounds must not idle longer than five consecutive minutes except under extenuating circumstances. As required by CCR § 2480, a vehicle stopping at or within 100 feet of a school must not idle for more than 30 seconds. Idling restriction regulations would limit impacts to sensitive receptors in the vicinity of the staging yards, construction routes, and work areas in the Southern Segment. Construction would be limited in duration and scope along the Southern Segment. Receptors located near the five landing zones may experience increased emissions during helicopter take-off and landing activities. However, given the type of construction requirements, helicopter activities along the Southern Segment will be infrequent during the construction period and will be divided between five different landing zones.

Construction-related emissions would be short term in duration. Secondly, due to the linear nature of the project with proposed modifications, emissions would generally only occur for a few days to a week at a given location. Therefore, it is not anticipated that exposure to construction-related DPM or other air toxics would result in an adverse health impacts and health impacts to sensitive receptors would be less than significant.

Greenhouse Gas Emissions

"Global warming" and "global climate change" are the terms used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal, with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing GHG concentrations resulting from human activity such as fossil fuel burning and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the

national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth's atmosphere are thought to be the main cause of human-induced climate change. GHG naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHG occur naturally and are necessary for keeping the earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Gases that trap heat in the atmosphere are referred to as GHG because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG has been implicated as the driving force for global climate change. The primary GHG are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), ozone, and water vapor.

While the presence of the primary GHG in the atmosphere are naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHG include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in "carbon dioxide-equivalent" measures (CO_2e).[17]

There is international scientific consensus that human-caused increases in GHG have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.[18]

The estimated construction GHG emissions are 3,572 metric tons of CO_2e. As indicated, 30-year amortized annual construction related GHG emissions would be approximately 119 metric tons of CO_2e per year. The project with proposed modifications will not require a change in PG&E's existing O&M activities, with the exception of actions taken to address potential leakage of SF_6 from new circuit breakers, and will not result in a net change in long-term vehicle or equipment exhaust emissions. Estimated potential SF_6 emissions assume a one percent leak rate (36.2 metric tons of CO_2e per year), reduced to 0.5 percent (18.1 metric tons of CO_2e per year) through implementation of ***APM GHG***.

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[17] Because of the differential heat absorption potential of various GHG, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

[18] 2006 Final Climate Action Team Report to the Governor and Legislature. March 2006. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

Estimated 30-year amortized construction and operational GHG emissions from the project with proposed modifications are presented in **Table 3**. The GHG construction and unmitigated operational emissions would be 155 metric tons of CO_2e per year. The GHG construction and mitigated operational emissions would be 137 metric tons of CO_2e per year. Therefore, the GHG emissions are below the BAAQMD significance threshold of 1,100 metric tons of CO_2e per year.

Compared to the estimated construction GHG emissions reported in the Final MND, the Supplemental MND estimated construction GHG emissions are slightly higher with 3,572 metric tons of CO_2e compared to 3,457 metric tons of CO_2e (greater for construction equipment and vehicles but lower for helicopter activities).

Table 3: Comparison of Estimated Greenhouse Gas Emissions

Source	Annual CO_2e Metric Tons (Supplemental MND)	Annual CO_2e Metric Tons (Final MND)
Construction Equipment and Vehicles	2,006	933
Helicopter Activities	1,566	2,524
Total Construction Emissions	**3,572**	**3,457**
30-Year Amortized Construction Emissions	**119**	**115**
Operational Emissions (Without APM)	**36.2**	**36.2**
Total GHG Emissions (Construction plus Operational)	**155**	**151**
Operational Emissions (With APM GHG)	**18.1**	**18.1**
Total GHG Emissions (Construction plus Operational)	**137**	**133**
BAAQMD Significance Threshold	1,100	1,100
Potentially Significant (Yes or No)?	No	No

SOURCES: CalEEMod Version 2013.2.2 and FOCA Guidance on Determination of Helicopter Emissions, Edition 2, December 2015.

NOTES: Several changes were made to the estimated Average Daily Construction Emissions calculation when compared to the Final MND: the amount and type of construction equipment and duration of use (See Table 2.4-1 of the Supplemental PEA, the type of helicopters and the duration of use (See footnote 14), the number of truck trips (see footnote 13), an extension of the construction schedule of 4 months, and corrections to helicopter emission calculations and adjustments to the helicopter duration of use and emission factors including using FOCA Guidance from December 2015 instead of March 2009 (See Attachment B for further details).

Operation and maintenance of the project with proposed modifications will have less-than-significant GHG-related impacts. PG&E will continue to employ standard Best Management Practices—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during operations, and will comply with CARB Early Action Measures as these policies become effective. PG&E shall also implement the following mitigation measure that is specifically related to avoiding and minimizing potential SF_6 emissions:

APM GHG: Minimize SF_6 Emissions

- Incorporate the new circuit breakers at Fitch Mountain Substation into PG&E's system-wide SF_6 emission reduction program. CARB has adopted the Regulation for Reducing SF_6 Emissions from Gas-Insulated Switchgear (Sections 95350 to 95359, Title 17,

California Code of Regulations), which requires that the company-wide SF_6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor system-wide SF_6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF_6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF_6 handling and accidental releases. PG&E is an active member of USEPA SF_6 Emission Reduction Partnership for Electrical Power Systems.

- Require that the new circuit breakers at Fitch Mountain Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6.
- Maintain the new substation circuit breakers in accordance with PG&E's maintenance standards.
- Comply with CARB Early Action Measures as these policies become effective.

PG&E Fulton-Fitch CPUC: Summary of Emissions w/o APM
Page 1.1

Total Project Emissions w/o APM

	ROG	Nox	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2e
	tons										MT
CalEEMod Total	0.6	16.7	12.2	0.0	0.3	0.4	0.7	0.1	0.4	0.6	2,007
EMFAC	0.0	0.1	0.5	0.0		0.0	0.0		0.0	0.0	
Veg. Trim Equipment	0.2	0.0	1.4			0.0	0.0		0.0	0.0	
Helicopters	4.5	4.4	10.6	0.6	4.3	0.1	4.5	0.4	0.1	0.6	1,566
Total	5.3	21.2	24.6	0.6	4.6	0.6	5.2	0.6	0.6	1.2	3,573

Average Daily Emissions w/o APM

	ROG	Nox	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	average lbs/day									
CalEEMod Total	2.5	65.6	47.8	0.1	1.1	1.7	2.8	0.5	1.7	2.2
EMFAC	0.1	0.2	1.9	0.0		0.0	0.0		0.0	0.0
Veg. Trim Equipment	0.7	0.0	5.3			0.1	0.1		0.1	0.1
Helicopters	17.5	17.3	41.5	2.4	17.0	0.5	17.5	1.7	0.5	2.2
Total	20.9	83.2	96.5	2.5	18.1	2.4	20.5	2.2	2.4	4.5

Peak Daily Emissions wo APM

	ROG	Nox	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lbs/day									
CalEEMod Total	8.4	210	155	0.3	7.4	5.5	13.0	3.3	5.5	8.8
EMFAC	0.1	0.2	1.8	0.0		0.1	0.1		0.0	0.0
Veg. Trim Equipment	9.6	0.2	69.0			1.4	1.4		1.4	1.4
Helicopters	110	95.3	140	11.2	66.2	2.8	69.0	6.6	2.8	9.4
Total	127.9	305	366	11.5	73.6	9.7	83.4	9.9	9.7	19.6

Notes:
Average lbs/day is based on a 17-month construction activity at 30 days per month
Consistent with the BAAQMD CEQA Air Quality Guidelines updated May 2012, the measures associated with minimizing vehicle idling time and maintaining equipment are assumed to reduce emissions 5%.

RCH Notes:
Input unmitigated fugitive dust values from CalEEMOD (without periodic watering and speed limitation on unpaved surfaces per APM AIR-1)
Adjusted to reflect 17 months of construction activties instead of 13 months.
Set total peak daily emissions equal to the total of CalEEmod, Veg. Trim Equipment, and Helicopters
Included peak daily emissions from Veg. Trim for ROG, SO2, PM10 (exhaust), and PM2.5 (exhuast)

ROG	NO_x	PM10	PM2.5	CO	
3.34	65.9	1.87	1.84	55.0	Construction Equipment and Vehicles
17.5	17.3	0.51	0.51	41.5	Helicopter Activities
20.9	83.2	2.38	2.35	96.5	**Total Proposed Project**
7.10	28.3	0.81	0.80	32.8	**Total Proposed Project within NSCAPCD**
13.8	54.9	1.57	1.55	63.7	**Total Proposed Project within BAAQMD**
54	54	82	54	N/A	**BAAQMD Thresholds**

PM10	PM2.5
6.15	0.74
11.9	1.43
18.1	2.17

PG&E Fulton-Fitch CPUC: Summary of Emissions w/ APM AIR-1 and AIR-2
Page 1.2

Total Project Emissions w/ APM AIR-1 and AIR-2

	ROG	Nox	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	CO2e
	tons										MT
CalEEMod Total	0.6	15.9	11.6	0.0	0.2	0.4	0.6	0.1	0.4	0.5	2,006
EMFAC	0.0	0.1	0.5	0.0		0.0	0.0		0.0	0.0	
Veg. Trim Equipment	0.2	0.0	1.3			0.0	0.0		0.0	0.0	
Helicopters	4.5	4.4	10.6	0.6	0.9	0.1	1.0	0.1	0.1	0.2	1,566
Total	5.3	20.4	23.9	0.6	1.1	0.6	1.6	0.2	0.6	0.7	3,572

Average Daily Emissions w/ APM AIR-1 and AIR-2

	ROG	Nox	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	average lbs/day									
CalEEMod Total	2.4	62.3	45.4	0.1	0.7	1.6	2.3	0.3	1.6	1.9
EMFAC	0.1	0.2	1.9	0.0		0.0	0.0		0.0	0.0
Veg. Trim Equipment	0.7	0.0	5.0			0.1	0.1		0.1	0.1
Helicopters	17.5	17.3	41.5	2.4	3.4	0.5	4.0	0.3	0.5	0.9
Total	20.7	79.9	93.9	2.5	4.1	2.3	6.4	0.6	2.3	2.9

Peak Daily Emissions w/ APM AIR-1 and AIR-2

	ROG	Nox	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lbs/day									
CalEEMod Total	8.0	199	147	0.3	4.5	5.3	9.4	1.8	5.3	6.8
EMFAC	0.1	0.2	1.7	0.0		0.1	0.1		0.0	0.0
Veg. Trim Equipment	9.1	0.2	65.6			1.3	1.3		1.3	1.3
Helicopters	110	95.3	140	11	13.4	2.8	16.2	1.3	2.8	4.1
Total	126.9	295	354	11	17.9	9.4	26.9	3.1	9.4	12.2

Notes:
Average lbs/day is based on a 17-month construction activity at 30 days per month
Consistent with the BAAQMD CEQA Air Quality Guidelines updated May 2012, the measures associated with minimizing vehicle idling time and maintaining equipment are assumed to reduce emissions 5%.

ROG	NO_x	PM10	PM2.5	CO	
3.18	62.6	1.78	1.75	52.4	Construction Equipment and Vehicles
17.5	17.3	0.51	0.51	41.5	Helicopter Activities
20.7	79.9	2.29	2.26	93.9	**Total Proposed Project**
7.04	27.2	0.78	0.77	31.9	**Total Proposed Project within NSCAPCD**
13.7	52.7	1.51	1.49	62.0	**Total Proposed Project within BAAQMD**
54	54	82	54	N/A	**BAAQMD Thresholds**

PM10	PM2.5
1.40	0.21
2.72	0.40
4.13	0.61

"*Add equipment used for "Vegetation Removal and Trimming"* "

Equipment for this Phase is listed below.

Equipment	Quantity	Fuel	Days/Wk	Hrs/Day	No. Wks	Notes
Pickup Trucks	2	Gasoline	6	10	5	Removed from CalEEMod Input. Added to EMFAC Calculation (see below). Not likely to operate 10 hrs/day.
Bucket Trucks	2	Diesel	6	10	5	Previously included in CalEEMod input. Not likely to operate 10 hrs/day.
Chipper Truck	2	Diesel	6	4	5	Previously included in CalEEMod input. Hours operating reduced to accommodate chipper.
Chipper Engine	2	Diesel	6	6	5	Added to CalEEMod input. Chipper Truck will not be operating while Chipper Engine is operating.
Chainsaw	2	Gasoline	6	8	5	Emissions are estimated below.
Leaf Blowers	2	Gasoline	6	2	5	Emissions are estimated below. This equipment is unlikely to be used.

Emissions Estimates for Gasoline Fueled Equipment

		Total Emissions (lbs)					
Equipment	**Quantity**	ROG	CO	NOx	PM10	PM2.5	SOx
Pickup Trucks		INCLUDED WITH EMFAC CALCULATIONS					
Chainsaws (5 hp)	2	253.9	1499.3	4.8	40.7	40.7	-
Leaf Blowers (2 hp)	2	34.2	572.1	1.5	0.1	0.1	-
Total		**288.0**	**2071.4**	**6.3**	**40.8**	**40.8**	**-**

		Daily Emissions (lbs/day)					
Equipment	**Quantity**	ROG	CO	NOx	PM10	PM2.5	SOx
Pickup Trucks		INCLUDED WITH EMFAC CALCULATIONS					
Chainsaws (5 hp)	2	8.5	50.0	0.2	1.4	1.4	-
Leaf Blowers (2 hp)	2	1.1	19.1	0.0	0.0	0.0	-
Total		**9.6**	**69.0**	**0.2**	**1.4**	**1.4**	**-**

Sources

Pickup trucks: see EMFAC calculations.

Chainsaw/Leaf Blower factors: EPA (2010). *Exhaust Emission Factors for Nonroad Engines Modeling - Spark-Ignition.* Phase 2 small SI engines

Notes

SO2 assumed to be negligible.

"...reclassify any pickup trucks or on road vehicles to EMFAC2014 as appropriate

Total Emissions

								Emissions (lbs)					
Phase	Category	Quantity	Days/Wk	Total Wks	Hours/Day	Miles/Hour	Miles/Day	ROG	CO	NOx	PM10	PM2.5	SOx
Survey	MDV	1	4	5	8	15	120	0.64	10.1	1.30	0.25	0.10	0.03
Vegetation Removal and Trimming	MDV	2	6	5	10	15	150	2.39	38.0	4.87	0.93	0.39	0.11
Site Improvements and Reestablishment	MDV	1	4	4	8	15	120	0.51	8.11	1.04	0.20	0.08	0.02
Drainage Crossings	MDV	1	4	4	4	15	60	0.25	4.05	0.52	0.10	0.04	0.01
Auger LDS Pole Holes	MDV	1	5	6	6	15	90	0.72	11.4	1.46	0.28	0.12	0.03
Guard Structure Install	MDV	3	1	2	6	15	90	0.14	2.28	0.29	0.06	0.02	0.01
LDS Pole Install - Aerial	MDV	1	7	4	4	15	60	0.45	7.09	0.91	0.17	0.07	0.02
LDS Pole Install - Ground	MDV	1	7	4	6	15	90	0.67	10.6	1.36	0.26	0.11	0.03
TSP Concrete Foundation Removal	MDV	2	5	9	2	15	30	0.72	11.4	1.46	0.28	0.12	0.03
TSP Installation with Micropile	MDV	2	7	6	6	15	90	2.01	31.9	4.09	0.78	0.33	0.09
TSP Installation with Concrete	MDV	8	5	16	2	15	30	5.10	81.1	10.4	1.98	0.83	0.22
Conductor Installation	MDV	4	7	34	8.4	15	126	32.5	512	65.4	12.4	5.18	1.40
Right-of-Way Restoration and Cleanup	MDV	1	5	8	6	15	90	0.96	15.2	1.95	0.37	0.16	0.04
Road Subgrade Prep	MDV	3	5	2	10	15	150	0.24	3.80	0.49	0.09	0.04	0.01
Asphalt Road Paving	MDV	3	5	1	10	15	150	0.12	1.90	0.24	0.05	0.02	0.01
							Total	**47.4**	**749**	**95.8**	**18.2**	**7.61**	**2.06**

Peak Daily Emissions

						Emissions (lbs)					
Phase	Category	Quantity	Hours/Day	Miles/Hour	Miles/Day	ROG	CO	NOx	PM10	PM2.5	SOx
Survey	MDV	1	8	15	120	0.03	0.51	0.06	0.01	0.005	0.001
Vegetation Removal and Trimming	MDV	2	10	15	150	0.08	1.27	0.16	0.03	0.013	0.004
Site Improvements and Reestablishment	MDV	1	8	15	120	0.03	0.51	0.06	0.01	0.005	0.001
Drainage Crossings	MDV	1	4	15	60	0.02	0.25	0.03	0.01	0.003	0.001
Auger LDS Pole Holes	MDV	1	6	15	90	0.02	0.38	0.05	0.01	0.004	0.001
Guard Structure Install	MDV	3	6	15	90	0.07	1.14	0.15	0.03	0.012	0.003
LDS Pole Install - Aerial	MDV	1	4	15	60	0.02	0.25	0.03	0.01	0.003	0.001
LDS Pole Install - Ground	MDV	1	6	15	90	0.02	0.38	0.05	0.01	0.004	0.001
TSP Concrete Foundation Removal	MDV	2	6	15	90	0.05	0.76	0.10	0.02	0.008	0.002
TSP Installation with Micropile	MDV	2	2	15	30	0.02	0.25	0.03	0.01	0.003	0.001
TSP Installation with Concrete	MDV	8	2	15	30	0.06	1.01	0.13	0.02	0.010	0.003
Conductor Installation	MDV	4	10	15	150	0.16	2.53	0.32	0.06	0.026	0.007
Right-of-Way Restoration and Cleanup	MDV	1	6	15	90	0.02	0.38	0.05	0.01	0.004	0.001
Road Subgrade Prep	MDV	3	10	15	150	0.02	0.38	0.05	0.01	0.004	0.001
Asphalt Road Paving	MDV	3	10	15	150	0.02	0.38	0.05	0.01	0.004	0.001

Notes

Assumes one engine start/stop per hour, rounded up.

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Air District
Region: Bay Area AQMD
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Calendar Year: **2018**

Region	CalYr	VehClass	MdlYr	Speed	Fuel	ROG_RUN	ROG_STRE	ROG_HOT:	ROG_RUN	ROG_REST	ROG_DIUR	CO_RUNEX	CO_STREX	NOx_RUNI	NOx_STRE	PM10_RUI	PM10_STR	PM10_PM	PM10_PM	PM2_5_RU	PM2_5_ST	PM2_5_PM	PM2_5_PM	SOx_RUNE	SOx_STREX
Bay Area A	2018	MDV	Aggregate	Aggregate	GAS	0.043894	0.350651	0.190122	0.606893	0.365543	0.386159	1.626779	4.324828	0.218427	0.405203	0.001818	0.00272	0.008	0.03675	0.001674	0.002505	0.002	0.01575	0.00522	0.001243

Calendar Year: **2019**

Region	CalYr	VehClass	MdlYr	Speed	Fuel	ROG_RUN	ROG_STRE	ROG_HOT:	ROG_RUN	ROG_REST	ROG_DIUR	CO_RUNEX	CO_STREX	NOx_RUNI	NOx_STRE	PM10_RUI	PM10_STR	PM10_PM	PM10_PM	PM2_5_RU	PM2_5_ST	PM2_5_PM	PM2_5_PM	SOx_RUNE	SOx_STREX
Bay Area A	2019	MDV	Aggregate	Aggregate	GAS	0.039772	0.318334	0.186388	0.592685	0.36674	0.381231	1.50524	3.979181	0.196963	0.366874	0.001838	0.002696	0.008	0.03675	0.001692	0.002483	0.002	0.01575	0.005099	0.001216

Calendar Year: **2020**

Region	CalYr	VehClass	MdlYr	Speed	Fuel	ROG_RUN	ROG_STRE	ROG_HOT:	ROG_RUN	ROG_REST	ROG_DIUR	CO_RUNEX	CO_STREX	NOx_RUNI	NOx_STRE	PM10_RUI	PM10_STR	PM10_PM	PM10_PM	PM2_5_RU	PM2_5_ST	PM2_5_PM	PM2_5_PM	SOx_RUNE	SOx_STREX
Bay Area A	2020	MDV	Aggregate	Aggregate	GAS	0.036036	0.288349	0.182199	0.578969	0.36667	0.375963	1.39572	3.658991	0.177861	0.331162	0.001837	0.002667	0.008	0.03675	0.001691	0.002456	0.002	0.01575	0.004974	0.001188

Total Project Emissions w/o Mitigation Measures

Activity	Qty.	Equip.	Mode	Days/ Week	LTO/ Day	Duration (weeks)	PM10 (tons)	Average PM10 (lbs/day)	Maximum PM10 (lbs/day)	PM2.5 (tons)	Average PM2.5 (lbs/day)	Maximum PM2.5 (lbs/day)
Pole Installation	2	light duty - Hughes 500	LTO	7	3	17	1.18	6.06	19.9	0.12	0.61	1.99
Pole Installation	1	heavy duty - Bell 214B	LTO	7	3	9	0.31	1.60	9.93	0.03	0.16	0.99
Pole Installation	1	light duty - Hughes 500	LTO	6	50	2	0.99	5.09	166	0.10	0.51	16.6
Total							**1.49**	**7.66**	**29.8**	**0.15**	**0.77**	**2.98**

Total Project Emissions w/ Mitigation Measures AIR-1 and AIR-2

Activity	Qty.	Equip.	Mode	Days/ Week	LTO/ Day	Duration (weeks)	PM10 (tons)	Average PM10 (lbs/day)	Maximum PM10 (lbs/day)	PM2.5 (tons)	Average PM2.5 (lbs/day)	Maximum PM2.5 (lbs/day)
Pole Installation	2	light duty - Hughes 500	LTO	7	3	17	0.53	2.73	8.94	0.05	0.27	0.89
Pole Installation	1	heavy duty - Bell 214B	LTO	7	3	9	0.14	0.72	4.47	0.01	0.07	0.45
Pole Installation	1	light duty - Hughes 500	LTO	6	50	2	0.45	2.29	74.5	0.04	0.23	7.45
Total							**0.67**	**3.45**	**13.4**	**0.07**	**0.34**	**1.34**

Notes:

Average lbs/day is based on a 13-month construction schedule at 30 days per month

Emission Factor Source: Dr. J. A. Gillies et. al. December 31, 2007. *Particulate Matter Emissions for Dust from Unique Military Activities* .
Measurements indicated approximately 0.5 kg of PM10 during takeoff and 1 kg during landing.
Measurements were conducted in dry, unpaved, desert in Arizona.
The model used in testing was a UH-1H Huey, more similar to the Bell 214B above.
It is assumed the light duty Hughes 500 would produce less fugitive dust emissions.
The 0.5 kg takeoff and 1 kg landing emission factor is conservatively assumed for both helicopters.
The landing and takeoff surface is assumed to be watered, reducing fugitive dust emissions 55%.

PM2.5/PM10 Factor: Western Governors' Association. September 7, 2006. *WRAP Fugitive Dust Handbook.*
The emission factor for PM2.5 for unpaved roads is 0.1 x PM10 emissions.

Total Project Emissions w/o Mitigation Measures

Activity	Qty.	Equip.	Mode	LTO/ Day	Minutes /LTO	Days/ Week	Hours/ Day	Duration (weeks)	Power (shp)	Fuel Consumption (lb/hr)	Emission Factors (lb/hr) HC	Nox	CO	SOx	PM10	Emissions total (tons) HC	Nox	CO	SOx	PM10	Emissions Peak daily (lbs/day) HC	Nox	CO	SOx	PM10	GHG Emissions Fuel Consumption (lb/day)	Fuel Consumption (gal/day)	Fuel Consumption (gal)	CO2 (metric tons)
Pole Installation		2 light duty - Hughes 500	LTO	3	13.5	7	0.68	17	317	36	4.37	0.59	5.70	0.04	0.02	0.35	0.05	0.46	0.00	0.00	5.90	0.79	7.70	0.05	0.03	49	8	973	8
Pole Installation		2 light duty - Hughes 500	Operation			7	9.33	17	317	218	2.12	1.06	2.65	0.24	0.04	2.35	1.17	2.94	0.26	0.04	39.5	19.7	49.3	4.43	0.66	4,071	682	81,151	676
Pole Installation		1 heavy duty - Bell 214B	LTO	3	13.5	7	0.68	9	1850	87	2.74	3.24	3.46	0.09	0.10	0.06	0.07	0.07	0.00	0.00	1.85	2.19	2.34	0.06	0.06	59	10	621	5.2
Pole Installation		1 heavy duty - Bell 214B	Operation			7	9.33	9	1850	613	1.20	6.96	1.44	0.67	0.19	0.35	2.04	4.23	0.20	0.06	11.2	64.9	13.4	6.22	1.78	5,716	958	60,324	502
Pole Installation		1 light duty - Hughes 500	LTO	50	6	6	5.00	2	317	36	9.83	1.32	12.8	0.0	0.04	0.29	0.04	0.38	0.00	0.00	49.2	6.61	64.2	0.2	0.22	181	30	363	3
Pole Installation		1 light duty - Hughes 500	Operation			6	1.00	2	317	218	2.12	1.06	2.65	0.24	0.04	0.01	0.01	0.02	0.00	0.00	2.12	1.06	2.65	0.24	0.04	218	37	439	4
Total																**3.42**	**3.38**	**8.10**	**0.47**	**0.10**	**110**	**95.3**	**140**	**11.2**	**2.78**	**10,294**	**1,724**	**143,872**	**1,198**

Total Project Emissions w/ Mitigation Measures AIR-1 and AIR-2

Activity	Qty.	Equip.	Mode	LTO/ Day	Minutes /LTO	Days/ Week	Hours/ Day	Duration (weeks)	Power (shp)	Fuel Consumption (lb/hr)	Emission Factors (lb/hr) HC	Nox	CO	SOx	PM10	Emissions total (tons) HC	Nox	CO	SOx	PM10	Emissions Peak daily (lbs/day) HC	Nox	CO	SOx	PM10	GHG Emissions Fuel Consumption (lb/day)	Fuel Consumption (gal/day)	Fuel Consumption (gal)	CO2 (metric tons)
Pole Installation		2 light duty - Hughes 500	LTO	3	13.5	7	0.68	17	317	36	4.37	0.59	5.70	0.04	0.02	0.35	0.05	0.46	0.00	0.00	5.90	0.79	7.70	0.05	0.03	49	8	973	8
Pole Installation		2 light duty - Hughes 500	Operation			7	9.33	17	317	218	2.12	1.06	2.65	0.24	0.04	2.35	1.17	2.94	0.26	0.04	39.5	19.7	49.3	4.43	0.66	4,071	682	81,151	676
Pole Installation		1 heavy duty - Bell 214B	LTO	3	13.5	7	0.68	9	1850	87	2.74	3.24	3.46	0.09	0.10	0.06	0.07	0.07	0.00	0.00	1.85	2.19	2.34	0.06	0.06	59	10	621	5.2
Pole Installation		1 heavy duty - Bell 214B	Operation			7	9.33	9	1850	613	1.20	6.96	1.44	0.67	0.19	0.35	2.04	4.23	0.20	0.06	11.2	64.9	13.4	6.22	1.78	5,716	958	60,324	502
Pole Installation		1 light duty - Hughes 500	LTO	50	6	6	5.00	2	317	36	9.83	1.32	12.8	0.0	0.04	0.29	0.04	0.38	0.00	0.00	49.2	6.61	64.2	0.20	0.22	181	30	363	3
Pole Installation		1 light duty - Hughes 500	Operation			6	1.00	2	317	218	2.12	1.06	2.65	0.24	0.04	0.01	0.01	0.02	0.00	0.00	2.12	1.06	2.65	0.24	0.04	218	37	439	4
Total																**3.42**	**3.38**	**8.10**	**0.47**	**0.10**	**110**	**95.3**	**140**	**11.2**	**2.78**	**10,294**	**1,724**	**143,872**	**1,198**

Emission factors were obtained from the *FOCA Guidance on Determination of Helicopter Emissions, Edition 2, December 2015*
Emission factors for Bell 214B (singe engine @ 1,850 shp) were derived from the emission factors for the Bell 412 (twin engines @ 1,800 shp each)
LTO = Landing and take-off cycle
For the Northern Segment, each day of 10-hour helicopter operations assumes 3 LTOs at 13.5 minutes each. The remaining time is assumed to be operational (no idle time has been assumed).
For the Southern Segment, each day of 7-hour helicopter operations assumes 50LTOs at 6 minutes each. The remaining time is assumed to be operational (no idle time has been assumed).
Jet Fuel assumed to contain an average 0.054% wt. sulfur per the FAA's Aviation Emissions, Impacts & Mitigation: a Primer, dated January 2015

SF6 Insulated Breaker Emissions - Greenhouse Gas

Emissions Scenario	Quantity	Equipment	SF6 Capacity (lbs/breaker)	Leak Rate	Emissions (MT/year) SF6	CO2e
Without APM	2	Circuit Breaker	175	1%	0.0016	36.2
With APM	2	Circuit Breaker	175	1%	0.0008	18.1

Notes:
Circuit breakers were conservatively assumed to contain 175 pounds of SF6 consistant with the PG&E: Embarcadero-Potrero 230 KV Transmission Line Project PEA.
The Global Warming Potential of SF6 is 22,800 (CFR Title 40 Part 98 Subpart A).

Attachment B

CalEEMod Input Assumptions

- Estimated Project Construction Schedule
- Estimated Project Construction Equipment Usage
- Construction Trips and Trip Lengths
- Estimated Helicopter Operations

PG&E proposes to reinforce the electric transmission system in Sonoma County by replacing the conductor on a 9.9-mile-long section of the Fulton-Hopland 60 kV Power Line (Fulton-Hopland Line) between the communities of Fulton and Healdsburg. Construction would involve fourteen (generally sequential) phases: Survey, Vegetation Removal and Trimming, Site Improvements and Reestablishment, Drainage Crossings, Auger LDS Pole Holes, Pole Delivery, Material, Equipment, Supply Haul, Guard Structure Install, LDS Pole Install – Ground, Conductor Installation, Auger TSP Holes, Restoration and Cleanup, TSP Concrete Foundation Removal, TSP Installation with Concrete, TSP Installation with Micropile, Circuit Breaker Installation, Road Subgrade Preparation, and Asphalt Road Paving, and LDS Pole Install – Aerial.

Project construction would generate short-term emissions of air pollutants, including fugitive dust and equipment exhaust emissions. CalEEMod (California Emissions Estimator Model Version 2013.2.2)[1] emissions model estimates emissions due to construction activities. Air quality calculations were performed for combustion sources such as on-road vehicles from employees and haul trucks as well as onsite construction equipment such as loaders and excavators. Fugitive dust from grading, loading/unloading, and vehicle movement on unpaved surfaces was also calculated.

Construction activities commenced in mid-2018 with project site surveys, followed by additional site preparation and construction tasks. Construction activities are expected to be completed by the end of June of 2020 with aerial pole installation.[2] During the 24 month period there may be some periods in which construction activity could be dormant (i.e., to avoid wildlife migration, rainy season, etc.) such that the construction activities would occur over a 17 month period.[3]

Table 1 provides the estimated construction schedule for each phase. The project construction site work area, including staging areas, access areas, access roads, and temporary easement during construction is 30.4 acres.

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[1] California Emissions Estimator Model User's Guide, July 2013. http://www.caleemod.com/

[2] The construction period has been delayed for approximately one year; these delays would not change the emission calculations substantially.

[3] The anticipated construction period in the Southern Segment would increase from 4 to 8 months, and the total anticipated construction period for the project would increase from approximately 12 to 24 months which includes delays encountered in 2018 and 2019 and periods of construction inactivity in 2019.

Table 1: Estimated Project Construction Schedule

Phase	Description	Phase Type	Start	End	Days per Week	Working Days
1	Survey	Site Preparation	7/2/2018	8/5/2018	5	25
2	Vegetation Removal and Trimming	Site Preparation	8/6/2018	9/16/2018	6	36
3	Site Improvements and Reestablishment	Site Preparation	8/6/2018	9/21/2018	5	35
4	Drainage Crossings	Site Preparation	9/3/2018	9/28/2018	5	20
5	Auger LDS Pole Holes	Construction	9/3/2018	10/14/2018	5	30
6	Pole Delivery	Construction	9/3/2018	9/28/2018	5	20
7	Material, Equipment, Supply Haul	Construction	9/3/2018	11/11/2018	7	70
8	Guard Structure Install	Construction	9/3/2018	9/16/2018	5	10
9	LDS Pole Install - Ground	Construction	9/17/2018	12/30/2018	7	105
10	Conductor Installation	Construction	9/17/2018	1/20/2019	7	126
11	Auger TSP Holes	Construction	10/14/2018	12/7/2018	5	40
12	Restoration and Cleanup	Site Preparation	12/3/2018	1/25/2019	5	40
13	TSP Concrete Foundation Removal	Site Preparation	12/8/2018	2/10/2019	5	45
14	TSP Installation with Concrete Pier	Construction	12/8/2018	3/29/2019	5	80
15	TSP Installation with Micropile	Construction	12/8/2018	1/18/2019	7	42
16	Circuit Breaker Installation	Construction	2/4/2019	4/26/2019	5	60
17	Road Subgrade Preparation	Site Preparation	4/27/2019	5/10/2019	5	10
18	Asphalt Road Paving	Paving	5/11/2019	5/17/2019	5	5
19	LDS Pole Install - Aerial	Construction	9/30/2019	1/26/2020	7	119

SOURCE: CalEEMod Version 2013.2.2.

The estimated construction equipment associated with the proposed project along with the number of pieces of equipment, daily hours of operation, horsepower (hp), and load factor (i.e., percent of full throttle) are shown in **Table 2**.

Table 2: Estimated Project Construction Equipment Usage

Phase	Equipment Type	Amount	Daily Hours	HP	Load Factor
Vegetation Removal and Trimming	Off-Highway Trucks	2	8.0	400	0.38
Vegetation Removal and Trimming	Skid Steer Loaders	1	1.3	64	0.37
Site Improvements and Reestablishment	Excavators	2	6.4	162	0.38
Site Improvements and Reestablishment	Off-Highway Trucks	4	5.7	400	0.38
Site Improvements and Reestablishment	Off-Highway Trucks	1	2.7	400	0.38
Site Improvements and Reestablishment	Plate Compactors	1	6.4	8	0.43
Site Improvements and Reestablishment	Rubber Tired Dozers	1	6.4	255	0.40
Drainage Crossings	Cranes	1	0.8	226	0.29
Drainage Crossings	Crawler Tractors	1	3.2	208	0.43
Auger LDS Pole Holes	Bore/Drill Rigs	1	2.0	205	0.50
Auger LDS Pole Holes	Skid Steer Loaders	1	6.0	64	0.37
Pole Delivery	Cranes	2	8.0	226	0.29

Pole Delivery	Forklifts	2	8.0	89	0.20
Pole Delivery	Off-Highway Trucks	1	2.4	400	0.38
Pole Delivery	Off-Highway Trucks	3	8.0	400	0.38
Material, Equipment, Supply Haul	Off-Highway Trucks	1	1.4	400	0.38
Material, Equipment, Supply Haul	Off-Highway Trucks	1	4.0	400	0.38
Guard Structure Install	Off-Highway Trucks	1	1.2	400	0.38
LDS Pole Install - Ground	Air Compressors	1	2.9	78	0.48
LDS Pole Install - Ground	Generator Sets	6	8.0	84	0.74
LDS Pole Install - Ground	Off-Highway Trucks	1	0.8	400	0.38
LDS Pole Install - Ground	Skid Steer Loaders	1	1.1	64	0.37
LDS Pole Install - Ground	Skid Steer Loaders	1	2.7	64	0.37
LDS Pole Install - Ground	Tractor/Loaders/Backhoes	1	4.3	97	0.37
Conductor Installation	Cranes	4	8.9	226	0.29
Conductor Installation	Generator Sets	1	1.2	84	0.74
Conductor Installation	Off-Highway Trucks	1	7.0	400	0.38
Conductor Installation	Off-Highway Trucks	1	7.0	400	0.38
Conductor Installation	Off-Highway Trucks	1	7.0	400	0.38
Auger TSP Holes	Crawler Tractors	1	3.8	208	0.43
Auger TSP Holes	Excavators	1	6.0	162	0.38
Auger TSP Holes	Off-Highway Trucks	1	7.0	400	0.38
Auger TSP Holes	Off-Highway Trucks	1	8.0	400	0.38
Auger TSP Holes	Off-Highway Trucks	1	8.0	400	0.38
TSP Concrete Foundation Removal	Air Compressors	1	6.0	78	0.48
TSP Concrete Foundation Removal	Tractor/Loaders/Backhoes	2	6.0	97	0.37
TSP Installation with Concrete Pier	Cranes	4	6.0	226	0.29
TSP Installation with Concrete Pier	Off-Highway Trucks	4	7.0	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	2	2.0	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	6	2.5	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	1	4.0	400	0.38
TSP Installation with Micropile	Air Compressors	2	6.0	78	0.48
TSP Installation with Micropile	Cranes	1	4.3	226	0.29
TSP Installation with Micropile	Off-Highway Trucks	2	4.3	400	0.38
TSP Installation with Micropile	Pumps	1	6.0	84	0.74
Restoration and Cleanup	Cranes	1	0.2	226	0.29
Restoration and Cleanup	Graders	1	4.0	174	0.41
Restoration and Cleanup	Off-Highway Trucks	1	2.0	400	0.38
Restoration and Cleanup	Rubber Tired Dozers	1	1.5	255	0.40
Circuit Breaker Installation	Aerial Lifts	1	8.0	62	0.31
Circuit Breaker Installation	Bore/Drill Rig	1	0.7	205	0.50
Circuit Breaker Installation	Cranes	1	8.0	226	0.29
Circuit Breaker Installation	Excavators	1	8.0	162	0.38
Circuit Breaker Installation	Forklifts	1	8.0	89	0.20
Circuit Breaker Installation	Generator Sets	1	1.6	84	0.74

Circuit Breaker Installation	Off-Highway Trucks	1	8.0	400	0.38
Circuit Breaker Installation	Skid Steer Loaders	1	8.0	64	0.37
Road Subgrade Preparation	Skid Steer Loaders	2	10.0	64	0.37
Asphalt Road Paving	Paver	1	10.0	125	0.42
Asphalt Road Paving	Skid Steer Loaders	2	10.0	64	0.37

SOURCE: CalEEMod Version 2013.2.2.

A total of approximately 2,132 haul truck trips were estimated during site improvements and a total of approximately 1,103 haul trucks were estimated during pole delivery, LDS pole installation and TSP installation, and 90 haul trucks were estimated during the Fitch Substation pavement installation.[4] An average daily construction crew of 15 employees, with a maximum crew size of up to 50 employees, would be present. **Table 3** provides a list of the expected trips and trip lengths by construction phase of haul trucks, vendors, and construction workers. Truck trip emissions were based on EMFAC[5] emissions factors, the number of trips, and the hours of operations (at a rate of 15 miles per hour). Chainsaw and leaf blower emissions were based on the USEPA's Exhaust Emission Factors for Nonroad Engines Modeling - Spark-Ignition.[6] There are expected to be two chainsaws and two leaf blower usage during construction activities.

Table 3: Construction Trips and Trip Lengths

Phase	Equipment Count	Worker Trips	Vendor Trips	Haul Truck Trips	Worker Trip Length (mile)	Vendor Trip Length (mile)	Haul Trip Length (mile)
Vegetation Removal and Trimming	3	20	0	0	12.4	7.3	20
Site Improvements and Reestablishment	9	12	0	2,132	12.4	7.3	20
Drainage Crossings	2	12	0	0	12.4	7.3	20
Auger LDS Pole Holes	2	14	0	0	12.4	7.3	20
Pole Delivery	8	2	0	400	12.4	7.3	20
Material, Equipment, Supply Haul	2	4	0	0	12.4	7.3	20
Guard Structure Install	1	0	0	0	12.4	7.3	20
LDS Pole Install - Ground	11	14	0	300	12.4	7.3	20
Conductor Installation	9	14	0	0	12.4	7.3	20
Auger TSP Holes	5	14	0	0	12.4	7.3	20
Restoration and Cleanup	4	12	0	0	12.4	7.3	20
TSP Concrete Foundation Removal	3	8	0	0	12.4	7.3	20
TSP Installation with Concrete Pier	17	14	0	403	12.4	7.3	20
TSP Installation with Micropile	6	0	0	0	12.4	7.3	20

[4] An additional 2,450 cubic yards of cut and fill materials is required in association with the TSP installation for concrete piers when compared to the estimations within the Final MND. This additional material would require 303 additional trucks trips when compared to the estimations within the Final MND.

[5] CARB EMFAC User's Guide, December 20, 2012, http://www.arb.ca.gov/msei/modeling.htm

[6] United States Environmental Protection Agency, Exhaust Emission Factors for Nonroad Engines Modeling - Spark-Ignition, July 2010, https://www3.epa.gov/otaq/models/nonrdmdl/nonrdmdl2010/420r10019.pdf

Circuit Breaker Installation	8	16	0	0	12.4	7.3	20
Road Subgrade Preparation	2	6	0	60	12.4	7.3	20
Asphalt Road Paving	3	6	0	30	12.4	7.3	20

SOURCE: CalEEMod Version 2013.2.2

Helicopters will be used to remove and deliver poles, materials, equipment, concrete, and workers, and to set poles. Two small helicopters (Hughes 500D or similar) will be used to carry humans and materials. A large helicopter (Bell 214B or similar) will be used for flying in new poles and removing old poles. Helicopters will fly directly from the landing zone to the alignment, and will follow the alignment to pole sites. Helicopters may also touch down at locations along the alignment other than landing zones when transporting workers and equipment. At the end of each day, helicopters will return to Santa Rosa Airport or another appropriately equipped facility. Approximately six landing zones will be used, including two located within project staging areas. Each landing zone requires an area of approximately one acre. Any site used as a helicopter landing zone will be maintained with necessary fueling and support equipment for helicopters.

Helicopter operations are assumed to occur daily (up to 10 hours per day and 7 days per week) and involve a Hughes 500D or similar (small helicopter) and/or Bel1 214B or similar (large helicopter) depending on the duties required. The Hughes 500D is rated at 317 hp and the Bell 214B is rated at 1850 hp; both helicopters are single engine powered. Helicopter activities would include landing and takeoffs (LTO) and cruise operations. **Table 4** provides a summary of the helicopter operations.

Helicopter activities would include landing and takeoffs (LTO) and cruise operations. Helicopter activity would involve a total of 313 days of operations; which is approximately 238 days of operations (17 weeks of operations and seven days per week) for the Hughes 500D, approximately 63 days of operations (9 weeks of operations and 7 days per week) for the Bell 214B, and approximately 12 days of operations (2 weeks of operations and 6 days per week) for the Bell 214B.

One Bell 214B helicopter would be used for up to 9 weeks and two Hughes 500D helicopters would be used for up to 17 weeks during construction in the Northern Segment (throughout the 12-month period) and. A single Hughes 500D helicopter would be used during construction in the Southern Segment six days a week for up to two weeks. At any one time, up to four helicopters (three Hughes 500D and one Bell 214B) may be used simultaneously.[7]

[7] Since the Final MND it was determined that a single Hughes 500D helicopter may be used in the Southern Segment for 6 hours a day for approximately 12 days. The light helicopter would fly workers approximately 8 trips/day and materials approximately 42 trips/day, for a total of approximately 50 trips/day. Each trip would take about 3 minutes from landing zone to the pole, typically under a minute at the pole, and 3 minutes back to the landing zone. For the Northern Segment, the light and heavy helicopters would be used about 10 hours per day with about 3 trips per day for each helicopter. Each trip would take a total of 13.5 minutes.

Table 4: Estimated Helicopter Operations

Phase	Quantity	Helicopter Type	Mode	Hours per Day	Maximum Duration (weeks)	HP
Pole Installation	2	light duty - Hughes 500D	LTO	0.68	17	317
Pole Installation	2	light duty - Hughes 500D	Operation	9.33	17	317
Pole Installation	1	heavy duty - Bell 214B	LTO	0.68	9	1850
Pole Installation	1	heavy duty - Bell 214B	Operation	9.33	9	1850
Pole Installation	1	light duty - Hughes 500D	LTO	5.00	2	317
Pole Installation	1	light duty - Hughes 500D	Operation	1.00	2	317

Helicopter fugitive dust emissions were based on the emission factors developed by the Desert Research Institute; which found measurements indicating approximately 0.5 kilograms of PM10 emissions during takeoff and 1 kilograms of PM10 emissions during landing.[8] Approximately 10 percent of the PM10 emissions were considered PM2.5.[9] Helicopter combustion emissions were based on the *Guidance on Determination of Helicopter Emissions*.[10] The helicopter combustion emission calculations were reviewed per the FAA's *Aviation Emissions and Air Quality Handbook*[11] and the FAA's Aviation Environmental Design Tool.[12]

A few changes were made since the publication of the Final MND to the assumptions associated with the helicopter operations:

- The Air Quality analysis within Final MND assumed 2 Hughes 500D helicopters at 7 days per week, 3 LTOs per day for 52 weeks; and 1 Bell 214B helicopter at 7 days per week, 3 LTOs per day for 2 weeks.
- In July of 2018 PGE provided information which assumed 2 Hughes 500D helicopters at 7 days per week, 3 LTOs per day for 17 weeks (a decrease from the Final MND); and 1 Bell 214B helicopter at 7 days per week, 3 LTOs per day, and 9 weeks (an increase from the Final MND). These operations were assumed to be associated with the northern segment. Secondly, another 2 Hughes 500D helicopters at 5 days per week, 3 LTOs per day for 2 weeks (new operations compared to the Final MND). These operations were assumed to be associated with the southern segment.

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[8] Desert Research Institute, Particulate Matter Emissions for Dust from Unique Military Activities, December 31, 2009, http://www.dtic.mil/dtic/tr/fulltext/u2/a478503.pdf

[9] Western Governors' Association, WRAP Fugitive Dust Handbook, September 7, 2006, http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf

[10] FOCA Guidance on Determination of Helicopter Emissions, Edition 2, December 2015, https://www.bazl.admin.ch/bazl/en/home/specialists/regulations-and-guidelines/environment/pollutant-emissions/triebwerkemissionen/guidance-on-the-determination-of-helicopter-emissions.html

[11] Federal Aviation Administration, Aviation Emissions and Air Quality Handbook, Version 3, Update 1, January, 2015, https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/

[12] Federal Aviation Administration, Aviation Environmental Design Tool, https://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aedt/

- In September of 2018, PGE provided information which adjusted the operations associated with the southern segment to 1 Hughes 500D at 6 days per week, 50 LTOs per day for 2 weeks (represents revisions to data associated with the new operations compared to the Final MND).

Secondly, an error was corrected. Each helicopter was assumed to complete 3 LTO cycles per operating day. Each cycle is 13.5 minutes for a total of 40.5 minutes, or 0.68 hours. The total LTO time/day in the calculation is set to 0.68 hours to represent 3 cycles. However, the emission calculation had multiplied the 0.68 hour LTO time by 3 LTOs, effectively tripling the emission calculation.

Lastly, the helicopter factors within the FOCA *Guidance on Determination of Helicopter Emissions* for emissions and fuel usage was updated and made available to the public after the publication of the Final MND. **Table 5** shows the March 2009 guidance used for the Final MND and **Table 6** shows the updated guidance (dated December 2015). As shown, the reported VOC and CO Bell 214B helicopter emission factors decreased within the latest publication while the reported NOx and PM 214B helicopter emission factors increased within the latest publication. Emission factors for the Hughes 500D helicopter did not change or only slightly changed.

Table 5: Helicopter Emission Factors from March 2009 FOCA Guidance (kg)

Helicopter Type	Condition	VOC	NOx	CO	PM	Fuel
Hughes 500D	LTO	438.2	59.5	571.2	2.3 g	16.4
	Operation	0.96	0.48	1.20	0.016	99
Bell 214B	LTO	797.4	419.5	873	12.7 g	77
	Operation	1.76	4.10	1.12	0.112	541

SOURCE: FOCA Guidance on the Determination of Helicopter Emissions, Edition 1, March 2009.

Table 6: Helicopter Emission Factors from December 2015 FOCA Guidance (kg)

Helicopter Type	Condition	VOC	NOx	CO	PM	Fuel
Hughes 500D	LTO	446	60	582	2 g	16.4
	Operation	0.96	0.48	1.20	0.016	99
Bell 214B	LTO	544	644	688	19 g	77
	Operation	1.06	6.14	1.27	0.168	541

SOURCE: FOCA Guidance on the Determination of Helicopter Emissions, Edition 2, December 2015.

Attachment C

CalEEMod Output Files

- Annual
- Maximum Daily

PG&E Fulton-Fitch

Sonoma-San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	30.40	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	75
Climate Zone	4			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land Use - The project construction site work area, including staging areas, access areas, access roads, and temporary easement during construction is 30.4 acres.

Construction Phase - Non-default phases enterd.

Off-road Equipment - Project specific equipment list.

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment.

Off-road Equipment - Project specific equipment

Off-road Equipment - Non-default equipment used.

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment used.

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project-specific equipment list.

Off-road Equipment - Project specific equipment

Off-road Equipment - Non-default equipment entered: pickup truck

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Plant specific equipment

Off-road Equipment - Project-specific equipment

Trips and VMT - Non-default number of workers used based on information provided by PG&E. Includes imported gravel, new poles hauled on site, and old poles hauled off site.

Grading - Graded acres based on cut work area information provided by LAV Pinnacle Engineering.

Vechicle Emission Factors -

Vechicle Emission Factors -

Vechicle Emission Factors -

Construction Off-road Equipment Mitigation - Non-default equipment used.

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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tblConstructionPhase	NumDays	500.00	105.00
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tblConstructionPhase	NumDays	20.00	40.00

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tblConstructionPhase	PhaseEndDate	4/12/2019	4/26/2019
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tblConstructionPhase	PhaseEndDate	3/29/2019	2/10/2019
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tblConstructionPhase	PhaseEndDate	11/2/2018	9/21/2018
tblConstructionPhase	PhaseEndDate	10/19/2018	9/28/2018
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tblConstructionPhase	PhaseStartDate	1/19/2019	2/4/2019
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tblConstructionPhase	PhaseStartDate	9/29/2018	9/3/2018
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tblConstructionPhase	PhaseStartDate	9/29/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	11/12/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	12/8/2018	12/3/2018
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tblTripsAndVMT	WorkerTripNumber	0.00	14.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.7677	7.9072	4.8841	0.0117	0.1698	0.3449	0.5146	0.0744	0.3249	0.3993			1,040.6161	0.2411	0.0000	1,045.6782
2019	0.3322	3.4697	2.0368	5.5600e-003	0.0386	0.1401	0.1788	0.0167	0.1295	0.1462			494.9609	0.1460	0.0000	498.0263
2020					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**1.0999**	**11.3770**	**6.9209**	**0.0172**	**0.2084**	**0.4850**	**0.6934**	**0.0911**	**0.4544**	**0.5455**			**1,535.5770**	**0.3870**	**0.0000**	**1,543.7045**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.3335	8.5293	6.2956	0.0117	0.1063	0.2297	0.3360	0.0415	0.2293	0.2708			1,040.6150	0.2411	0.0000	1,045.6771
2019	0.1498	4.2629	3.0245	5.5600e-003	0.0262	0.1055	0.1317	9.8700e-003	0.1054	0.1153			494.9603	0.1460	0.0000	498.0257
2020					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.4833**	**12.7922**	**9.3201**	**0.0172**	**0.1325**	**0.3352**	**0.4677**	**0.0514**	**0.3347**	**0.3861**			**1,535.5754**	**0.3870**	**0.0000**	**1,543.7028**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**56.06**	**-12.44**	**-34.67**	**0.00**	**36.41**	**30.88**	**32.55**	**43.58**	**26.34**	**29.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Survey	Site Preparation	7/2/2018	8/5/2018	5	25	
2	Vegetation Removal and Trimming	Site Preparation	8/6/2018	9/16/2018	6	36	
3	Site Improvements and Reestablishment	Site Preparation	8/6/2018	9/21/2018	5	35	
4	Drainage Crossings	Site Preparation	9/3/2018	9/28/2018	5	20	
5	Auger LDS Pole Holes	Building Construction	9/3/2018	10/14/2018	5	30	
6	Pole Delivery	Building Construction	9/3/2018	9/28/2018	5	20	
7	Material, Equipment, Supply Haul	Building Construction	9/3/2018	11/11/2018	7	70	
8	Guard Structure Install	Building Construction	9/3/2018	9/16/2018	5	10	
9	LDS Pole Install - Ground	Building Construction	9/17/2018	12/30/2018	7	105	
10	Conductor Installation	Building Construction	9/17/2018	1/20/2019	7	126	
11	Auger TSP Holes	Building Construction	10/14/2018	12/7/2018	5	40	
12	Restoration and Cleanup	Site Preparation	12/3/2018	1/25/2019	5	40	
13	TSP Concrete Foundation Removal	Site Preparation	12/8/2018	2/10/2019	5	45	
14	TSP Installation with Concrete Pier	Building Construction	12/8/2018	3/29/2019	5	80	
15	TSp Installation with Micropile	Building Construction	12/8/2018	1/18/2019	7	42	
16	Circuit Breaker Installation	Building Construction	2/4/2019	4/26/2019	5	60	
17	Road Subgrade Prep	Site Preparation	4/27/2019	5/10/2019	5	10	
18	Asphalt Road Paving	Paving	5/11/2019	5/17/2019	5	5	
19	LDS Pole Install - Aerial	Building Construction	9/30/2019	1/26/2020	7	119	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vegetation Removal and Trimming	Off-Highway Trucks	2	8.00	400	0.38
Vegetation Removal and Trimming	Skid Steer Loaders	1	1.30	64	0.37
Site Improvements and Reestablishment	Excavators	2	6.40	162	0.38
Site Improvements and Reestablishment	Off-Highway Trucks	4	5.70	400	0.38
Site Improvements and Reestablishment	Off-Highway Trucks	1	2.70	400	0.38
Site Improvements and Reestablishment	Plate Compactors	1	6.40	8	0.43
Site Improvements and Reestablishment	Rubber Tired Dozers	1	6.40	255	0.40
Drainage Crossings	Cranes	1	0.80	226	0.29
Drainage Crossings	Crawler Tractors	1	3.20	208	0.43
Auger LDS Pole Holes	Bore/Drill Rigs	1	2.00	205	0.50
Auger LDS Pole Holes	Skid Steer Loaders	1	6.00	64	0.37
Pole Delivery	Cranes	2	8.00	226	0.29
Pole Delivery	Forklifts	2	8.00	89	0.20
Pole Delivery	Off-Highway Trucks	1	2.40	400	0.38
Pole Delivery	Off-Highway Trucks	3	8.00	400	0.38
Material, Equipment, Supply Haul	Off-Highway Trucks	1	1.40	400	0.38
Material, Equipment, Supply Haul	Off-Highway Trucks	1	4.00	400	0.38
Guard Structure Install	Off-Highway Trucks	1	1.20	400	0.38
LDS Pole Install - Ground	Air Compressors	1	2.90	78	0.48
LDS Pole Install - Ground	Generator Sets	6	8.00	84	0.74
LDS Pole Install - Ground	Off-Highway Trucks	1	0.80	400	0.38
LDS Pole Install - Ground	Skid Steer Loaders	1	1.10	64	0.37
LDS Pole Install - Ground	Skid Steer Loaders	1	2.70	64	0.37
LDS Pole Install - Ground	Tractors/Loaders/Backhoes	1	4.30	97	0.37
Conductor Installation	Cranes	4	8.90	226	0.29
Conductor Installation	Generator Sets	1	1.20	84	0.74
Conductor Installation	Off-Highway Trucks	1	7.00	400	0.38
Conductor Installation	Off-Highway Trucks	1	7.00	400	0.38

Conductor Installation	Off-Highway Trucks	1	7.00	400	0.38
Auger TSP Holes	Crawler Tractors	1	3.80	208	0.43
Auger TSP Holes	Excavators	1	6.00	162	0.38
Auger TSP Holes	Off-Highway Trucks	1	7.00	400	0.38
Auger TSP Holes	Off-Highway Trucks	1	8.00	400	0.38
Auger TSP Holes	Off-Highway Trucks	1	8.00	400	0.38
Restoration and Cleanup	Cranes	1	0.20	226	0.29
Restoration and Cleanup	Graders	1	4.00	174	0.41
Restoration and Cleanup	Off-Highway Trucks	1	2.00	400	0.38
Restoration and Cleanup	Rubber Tired Dozers	1	1.50	255	0.40
TSP Concrete Foundation Removal	Air Compressors	1	6.00	78	0.48
TSP Concrete Foundation Removal	Tractors/Loaders/Backhoes	2	6.00	97	0.37
TSP Installation with Concrete Pier	Cranes	4	6.00	226	0.29
TSP Installation with Concrete Pier	Off-Highway Trucks	4	7.00	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	2	2.00	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	6	2.50	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	1	4.00	400	0.38
TSp Installation with Micropile	Air Compressors	2	6.00	78	0.48
TSp Installation with Micropile	Cranes	1	4.30	226	0.29
TSp Installation with Micropile	Off-Highway Trucks	2	4.30	400	0.38
TSp Installation with Micropile	Pumps	1	6.00	84	0.74
Circuit Breaker Installation	Aerial Lifts	1	8.00	62	0.31
Circuit Breaker Installation	Bore/Drill Rigs	1	0.70	205	0.50
Circuit Breaker Installation	Cranes	1	8.00	226	0.29
Circuit Breaker Installation	Excavators	1	8.00	162	0.38
Circuit Breaker Installation	Forklifts	1	8.00	89	0.20
Circuit Breaker Installation	Generator Sets	1	1.60	84	0.74
Circuit Breaker Installation	Off-Highway Trucks	1	8.00	400	0.38
Circuit Breaker Installation	Skid Steer Loaders	1	8.00	64	0.37
Road Subgrade Prep	Skid Steer Loaders	2	10.00	64	0.37
Asphalt Road Paving	Pavers	1	10.00	125	0.42
Asphalt Road Paving	Skid Steer Loaders	2	10.00	64	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
LDS Pole Install - Aerial				0.00	12.40	7.30				
Vegetation Removal and Trimming	3	20.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Improvements and Reestablishment	9	12.00	0.00	2,132.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Drainage Crossings	2	12.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Auger LDS Pole Holes	2	14.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pole Delivery	8	2.00	0.00	400.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Material, Equipment, Supply Haul	2	4.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Guard Structure Install	1	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
LDS Pole Install - Ground	11	14.00	0.00	300.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Conductor Installation	8	14.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Auger TSP Holes	5	14.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Restoration and Cleanup	4	12.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
TSP Concrete Foundation Removal	3	8.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
TSP Installation with Concrete Pier	17	14.00	0.00	403.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
TSp Installation with Micropile	6	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Circuit Breaker Installation	8	16.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Road Subgrade Prep	2	6.00	0.00	60.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Asphalt Road Paving	3	6.00	0.00	30.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Survey				0.00	12.40	7.30				

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Survey - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Vegetation Removal and Trimming - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.3017	0.1545	4.8000e-004		0.0111	0.0111		0.0102	0.0102			43.7506	0.0136	0.0000	44.0366
Total	**0.0280**	**0.3017**	**0.1545**	**4.8000e-004**	**0.0000**	**0.0111**	**0.0111**	**0.0000**	**0.0102**	**0.0102**			**43.7506**	**0.0136**	**0.0000**	**44.0366**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.1800e-003	1.6700e-003	0.0160	4.0000e-005	3.2400e-003	3.0000e-005	3.2700e-003	8.6000e-004	2.0000e-005	8.9000e-004			2.7277	1.4000e-004	0.0000	2.7306
Total	**1.1800e-003**	**1.6700e-003**	**0.0160**	**4.0000e-005**	**3.2400e-003**	**3.0000e-005**	**3.2700e-003**	**8.6000e-004**	**2.0000e-005**	**8.9000e-004**			**2.7277**	**1.4000e-004**	**0.0000**	**2.7306**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0119	0.3716	0.2554	4.8000e-004		8.7300e-003	8.7300e-003		8.7300e-003	8.7300e-003			43.7505	0.0136	0.0000	44.0365
Total	**0.0119**	**0.3716**	**0.2554**	**4.8000e-004**	**0.0000**	**8.7300e-003**	**8.7300e-003**	**0.0000**	**8.7300e-003**	**8.7300e-003**			**43.7505**	**0.0136**	**0.0000**	**44.0365**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.1800e-003	1.6700e-003	0.0160	4.0000e-005	3.2400e-003	3.0000e-005	3.2700e-003	8.6000e-004	2.0000e-005	8.9000e-004			2.7277	1.4000e-004	0.0000	2.7306
Total	**1.1800e-003**	**1.6700e-003**	**0.0160**	**4.0000e-005**	**3.2400e-003**	**3.0000e-005**	**3.2700e-003**	**8.6000e-004**	**2.0000e-005**	**8.9000e-004**			**2.7277**	**1.4000e-004**	**0.0000**	**2.7306**

3.4 Site Improvements and Reestablishment - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0928	0.0000	0.0928	0.0473	0.0000	0.0473			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0669	0.7182	0.4557	1.0100e-003		0.0289	0.0289		0.0266	0.0266			92.3017	0.0286	0.0000	92.9032
Total	**0.0669**	**0.7182**	**0.4557**	**1.0100e-003**	**0.0928**	**0.0289**	**0.1217**	**0.0473**	**0.0266**	**0.0739**			**92.3017**	**0.0286**	**0.0000**	**92.9032**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0208	0.2578	0.3002	7.8000e-004	0.0178	3.4900e-003	0.0213	4.8800e-003	3.2100e-003	8.0900e-003			68.9913	5.1000e-004	0.0000	69.0020
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	9.7000e-004	9.3500e-003	2.0000e-005	1.8900e-003	2.0000e-005	1.9100e-003	5.0000e-004	1.0000e-005	5.2000e-004			1.5911	8.0000e-005	0.0000	1.5928
Total	**0.0215**	**0.2588**	**0.3095**	**8.0000e-004**	**0.0197**	**3.5100e-003**	**0.0232**	**5.3800e-003**	**3.2200e-003**	**8.6100e-003**			**70.5824**	**5.9000e-004**	**0.0000**	**70.5948**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0418	0.0000	0.0418	0.0213	0.0000	0.0213			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.7980	0.5668	1.0100e-003		0.0193	0.0193		0.0193	0.0193			92.3016	0.0286	0.0000	92.9031
Total	**0.0267**	**0.7980**	**0.5668**	**1.0100e-003**	**0.0418**	**0.0193**	**0.0610**	**0.0213**	**0.0193**	**0.0406**			**92.3016**	**0.0286**	**0.0000**	**92.9031**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0208	0.2578	0.3002	7.8000e-004	0.0178	3.4900e-003	0.0213	4.8800e-003	3.2100e-003	8.0900e-003			68.9913	5.1000e-004	0.0000	69.0020
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	9.7000e-004	9.3500e-003	2.0000e-005	1.8900e-003	2.0000e-005	1.9100e-003	5.0000e-004	1.0000e-005	5.2000e-004			1.5911	8.0000e-005	0.0000	1.5928
Total	**0.0215**	**0.2588**	**0.3095**	**8.0000e-004**	**0.0197**	**3.5100e-003**	**0.0232**	**5.3800e-003**	**3.2200e-003**	**8.6100e-003**			**70.5824**	**5.9000e-004**	**0.0000**	**70.5948**

3.5 Drainage Crossings - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Off-Road	3.0700e-003	0.0401	0.0129	4.0000e-005		1.5500e-003	1.5500e-003		1.4300e-003	1.4300e-003			3.3293	1.0400e-003	0.0000	3.3511
Total	**3.0700e-003**	**0.0401**	**0.0129**	**4.0000e-005**	**0.0000**	**1.5500e-003**	**1.5500e-003**	**0.0000**	**1.4300e-003**	**1.4300e-003**			**3.3293**	**1.0400e-003**	**0.0000**	**3.3511**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	5.6000e-004	5.3400e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	3.0000e-004			0.9092	5.0000e-005	0.0000	0.9102
Total	**3.9000e-004**	**5.6000e-004**	**5.3400e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**			**0.9092**	**5.0000e-005**	**0.0000**	**0.9102**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	0.0310	0.0194	4.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004			3.3293	1.0400e-003	0.0000	3.3511
Total	**9.0000e-004**	**0.0310**	**0.0194**	**4.0000e-005**	**0.0000**	**6.6000e-004**	**6.6000e-004**	**0.0000**	**6.6000e-004**	**6.6000e-004**			**3.3293**	**1.0400e-003**	**0.0000**	**3.3511**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	5.6000e-004	5.3400e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	3.0000e-004			0.9092	5.0000e-005	0.0000	0.9102
Total	**3.9000e-004**	**5.6000e-004**	**5.3400e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**			**0.9092**	**5.0000e-005**	**0.0000**	**0.9102**

3.6 Auger LDS Pole Holes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0600e-003	0.0280	0.0227	6.0000e-005		1.0700e-003	1.0700e-003		9.8000e-004	9.8000e-004			5.0690	1.5800e-003	0.0000	5.1022
Total	**2.0600e-003**	**0.0280**	**0.0227**	**6.0000e-005**		**1.0700e-003**	**1.0700e-003**		**9.8000e-004**	**9.8000e-004**			**5.0690**	**1.5800e-003**	**0.0000**	**5.1022**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	9.7000e-004	9.3500e-003	2.0000e-005	1.8900e-003	2.0000e-005	1.9100e-003	5.0000e-004	1.0000e-005	5.2000e-004			1.5911	8.0000e-005	0.0000	1.5928
Total	**6.9000e-004**	**9.7000e-004**	**9.3500e-003**	**2.0000e-005**	**1.8900e-003**	**2.0000e-005**	**1.9100e-003**	**5.0000e-004**	**1.0000e-005**	**5.2000e-004**			**1.5911**	**8.0000e-005**	**0.0000**	**1.5928**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8900e-003	0.0505	0.0350	6.0000e-005		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003			5.0690	1.5800e-003	0.0000	5.1022
Total	**1.8900e-003**	**0.0505**	**0.0350**	**6.0000e-005**		**1.5000e-003**	**1.5000e-003**		**1.5000e-003**	**1.5000e-003**			**5.0690**	**1.5800e-003**	**0.0000**	**5.1022**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	9.7000e-004	9.3500e-003	2.0000e-005	1.8900e-003	2.0000e-005	1.9100e-003	5.0000e-004	1.0000e-005	5.2000e-004			1.5911	8.0000e-005	0.0000	1.5928
Total	**6.9000e-004**	**9.7000e-004**	**9.3500e-003**	**2.0000e-005**	**1.8900e-003**	**2.0000e-005**	**1.9100e-003**	**5.0000e-004**	**1.0000e-005**	**5.2000e-004**			**1.5911**	**8.0000e-005**	**0.0000**	**1.5928**

3.7 Pole Delivery - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0401	0.4383	0.2115	5.8000e-004		0.0183	0.0183		0.0168	0.0168			52.7033	0.0164	0.0000	53.0478
Total	**0.0401**	**0.4383**	**0.2115**	**5.8000e-004**		**0.0183**	**0.0183**		**0.0168**	**0.0168**			**52.7033**	**0.0164**	**0.0000**	**53.0478**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.8900e-003	0.0484	0.0563	1.5000e-004	3.3300e-003	6.6000e-004	3.9900e-003	9.2000e-004	6.0000e-004	1.5200e-003			12.9440	1.0000e-004	0.0000	12.9460
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	9.0000e-005	8.9000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005			0.1515	1.0000e-005	0.0000	0.1517
Total	**3.9600e-003**	**0.0485**	**0.0572**	**1.5000e-004**	**3.5100e-003**	**6.6000e-004**	**4.1700e-003**	**9.7000e-004**	**6.0000e-004**	**1.5700e-003**			**13.0955**	**1.1000e-004**	**0.0000**	**13.0977**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0148	0.4611	0.3134	5.8000e-004		0.0110	0.0110		0.0110	0.0110			52.7032	0.0164	0.0000	53.0478

Total	**0.0148**	**0.4611**	**0.3134**	**5.8000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**			**52.7032**	**0.0164**	**0.0000**	**53.0478**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.8900e-003	0.0484	0.0563	1.5000e-004	3.3300e-003	6.6000e-004	3.9900e-003	9.2000e-004	6.0000e-004	1.5200e-003			12.9440	1.0000e-004	0.0000	12.9460
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	9.0000e-005	8.9000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005			0.1515	1.0000e-005	0.0000	0.1517
Total	**3.9600e-003**	**0.0485**	**0.0572**	**1.5000e-004**	**3.5100e-003**	**6.6000e-004**	**4.1700e-003**	**9.7000e-004**	**6.0000e-004**	**1.5700e-003**			**13.0955**	**1.1000e-004**	**0.0000**	**13.0977**

3.8 Material, Equipment, Supply Haul - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0182	0.1957	0.0988	3.1000e-004		7.1400e-003	7.1400e-003		6.5700e-003	6.5700e-003			28.3549	8.8300e-003	0.0000	28.5403
Total	**0.0182**	**0.1957**	**0.0988**	**3.1000e-004**		**7.1400e-003**	**7.1400e-003**		**6.5700e-003**	**6.5700e-003**			**28.3549**	**8.8300e-003**	**0.0000**	**28.5403**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	6.5000e-004	6.2300e-003	2.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.5000e-004			1.0608	5.0000e-005	0.0000	1.0619
Total	**4.6000e-004**	**6.5000e-004**	**6.2300e-003**	**2.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2700e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**			**1.0608**	**5.0000e-005**	**0.0000**	**1.0619**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.6000e-003	0.2400	0.1647	3.1000e-004		5.5700e-003	5.5700e-003		5.5700e-003	5.5700e-003			28.3548	8.8300e-003	0.0000	28.5402
Total	**7.6000e-003**	**0.2400**	**0.1647**	**3.1000e-004**		**5.5700e-003**	**5.5700e-003**		**5.5700e-003**	**5.5700e-003**			**28.3548**	**8.8300e-003**	**0.0000**	**28.5402**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	6.5000e-004	6.2300e-003	2.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.5000e-004			1.0608	5.0000e-005	0.0000	1.0619
Total	**4.6000e-004**	**6.5000e-004**	**6.2300e-003**	**2.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2700e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**			**1.0608**	**5.0000e-005**	**0.0000**	**1.0619**

3.9 Guard Structure Install - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.8000e-004	6.2100e-003	3.1400e-003	1.0000e-005		2.3000e-004	2.3000e-004		2.1000e-004	2.1000e-004			0.9002	2.8000e-004	0.0000	0.9060
Total	**5.8000e-004**	**6.2100e-003**	**3.1400e-003**	**1.0000e-005**		**2.3000e-004**	**2.3000e-004**		**2.1000e-004**	**2.1000e-004**			**0.9002**	**2.8000e-004**	**0.0000**	**0.9060**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.4000e-004	7.6200e-003	5.2300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004			0.9002	2.8000e-004	0.0000	0.9060
Total	**2.4000e-004**	**7.6200e-003**	**5.2300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**			**0.9002**	**2.8000e-004**	**0.0000**	**0.9060**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.10 LDS Pole Install - Ground - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1806	1.4941	1.3495	2.3500e-003		0.0947	0.0947		0.0940	0.0940			203.4578	0.0194	0.0000	203.8643

Total	**0.1806**	**1.4941**	**1.3495**	**2.3500e-003**		**0.0947**	**0.0947**		**0.0940**	**0.0940**			**203.4578**	**0.0194**	**0.0000**	**203.8643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9200e-003	0.0363	0.0422	1.1000e-004	2.5000e-003	4.9000e-004	2.9900e-003	6.9000e-004	4.5000e-004	1.1400e-003			9.7080	7.0000e-005	0.0000	9.7095
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-003	3.4100e-003	0.0327	8.0000e-005	6.6200e-003	5.0000e-005	6.6800e-003	1.7600e-003	5.0000e-005	1.8100e-003			5.5690	2.9000e-004	0.0000	5.5750
Total	**5.3200e-003**	**0.0397**	**0.0749**	**1.9000e-004**	**9.1200e-003**	**5.4000e-004**	**9.6700e-003**	**2.4500e-003**	**5.0000e-004**	**2.9500e-003**			**15.2769**	**3.6000e-004**	**0.0000**	**15.2844**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0905	1.8877	1.4655	2.3500e-003		0.0754	0.0754		0.0754	0.0754			203.4576	0.0194	0.0000	203.8641
Total	**0.0905**	**1.8877**	**1.4655**	**2.3500e-003**		**0.0754**	**0.0754**		**0.0754**	**0.0754**			**203.4576**	**0.0194**	**0.0000**	**203.8641**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9200e-003	0.0363	0.0422	1.1000e-004	2.5000e-003	4.9000e-004	2.9900e-003	6.9000e-004	4.5000e-004	1.1400e-003			9.7080	7.0000e-005	0.0000	9.7095
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-003	3.4100e-003	0.0327	8.0000e-005	6.6200e-003	5.0000e-005	6.6800e-003	1.7600e-003	5.0000e-005	1.8100e-003			5.5690	2.9000e-004	0.0000	5.5750
Total	**5.3200e-003**	**0.0397**	**0.0749**	**1.9000e-004**	**9.1200e-003**	**5.4000e-004**	**9.6700e-003**	**2.4500e-003**	**5.0000e-004**	**2.9500e-003**			**15.2769**	**3.6000e-004**	**0.0000**	**15.2844**

3.11 Conductor Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2428	2.7590	1.1933	3.2100e-003		0.1123	0.1123		0.1035	0.1035			293.0077	0.0901	0.0000	294.9007
Total	**0.2428**	**2.7590**	**1.1933**	**3.2100e-003**		**0.1123**	**0.1123**		**0.1035**	**0.1035**			**293.0077**	**0.0901**	**0.0000**	**294.9007**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.4200e-003	3.4400e-003	0.0330	8.0000e-005	6.6800e-003	6.0000e-005	6.7400e-003	1.7800e-003	5.0000e-005	1.8300e-003			5.6220	2.9000e-004	0.0000	5.6280
Total	**2.4200e-003**	**3.4400e-003**	**0.0330**	**8.0000e-005**	**6.6800e-003**	**6.0000e-005**	**6.7400e-003**	**1.7800e-003**	**5.0000e-005**	**1.8300e-003**			**5.6220**	**2.9000e-004**	**0.0000**	**5.6280**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0795	2.5864	1.7108	3.2100e-003		0.0585	0.0585		0.0585	0.0585			293.0074	0.0901	0.0000	294.9004
Total	**0.0795**	**2.5864**	**1.7108**	**3.2100e-003**		**0.0585**	**0.0585**		**0.0585**	**0.0585**			**293.0074**	**0.0901**	**0.0000**	**294.9004**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.4200e-003	3.4400e-003	0.0330	8.0000e-005	6.6800e-003	6.0000e-005	6.7400e-003	1.7800e-003	5.0000e-005	1.8300e-003			5.6220	2.9000e-004	0.0000	5.6280
Total	**2.4200e-003**	**3.4400e-003**	**0.0330**	**8.0000e-005**	**6.6800e-003**	**6.0000e-005**	**6.7400e-003**	**1.7800e-003**	**5.0000e-005**	**1.8300e-003**			**5.6220**	**2.9000e-004**	**0.0000**	**5.6280**

3.11 Conductor Installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0412	0.4550	0.2098	6.1000e-004		0.0183	0.0183		0.0168	0.0168			54.3952	0.0170	0.0000	54.7521
Total	**0.0412**	**0.4550**	**0.2098**	**6.1000e-004**		**0.0183**	**0.0183**		**0.0168**	**0.0168**			**54.3952**	**0.0170**	**0.0000**	**54.7521**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	5.9000e-004	5.6000e-003	2.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.5000e-004			1.0228	5.0000e-005	0.0000	1.0239
Total	**4.1000e-004**	**5.9000e-004**	**5.6000e-003**	**2.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2700e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**			**1.0228**	**5.0000e-005**	**0.0000**	**1.0239**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0150	0.4880	0.3228	6.1000e-004		0.0110	0.0110		0.0110	0.0110			54.3951	0.0170	0.0000	54.7520

Total	**0.0150**	**0.4880**	**0.3228**	**6.1000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**			**54.3951**	**0.0170**	**0.0000**	**54.7520**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	5.9000e-004	5.6000e-003	2.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.5000e-004			1.0228	5.0000e-005	0.0000	1.0239
Total	**4.1000e-004**	**5.9000e-004**	**5.6000e-003**	**2.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2700e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**			**1.0228**	**5.0000e-005**	**0.0000**	**1.0239**

3.12 Auger TSP Holes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0547	0.6032	0.3156	9.1000e-004		0.0227	0.0227		0.0209	0.0209			82.9446	0.0258	0.0000	83.4868
Total	**0.0547**	**0.6032**	**0.3156**	**9.1000e-004**		**0.0227**	**0.0227**		**0.0209**	**0.0209**			**82.9446**	**0.0258**	**0.0000**	**83.4868**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	1.3000e-003	0.0125	3.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004			2.1215	1.1000e-004	0.0000	2.1238
Total	**9.1000e-004**	**1.3000e-003**	**0.0125**	**3.0000e-005**	**2.5200e-003**	**2.0000e-005**	**2.5400e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**			**2.1215**	**1.1000e-004**	**0.0000**	**2.1238**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0234	0.7143	0.5000	9.1000e-004		0.0170	0.0170		0.0170	0.0170			82.9445	0.0258	0.0000	83.4867
Total	**0.0234**	**0.7143**	**0.5000**	**9.1000e-004**		**0.0170**	**0.0170**		**0.0170**	**0.0170**			**82.9445**	**0.0258**	**0.0000**	**83.4867**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	1.3000e-003	0.0125	3.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004			2.1215	1.1000e-004	0.0000	2.1238
Total	**9.1000e-004**	**1.3000e-003**	**0.0125**	**3.0000e-005**	**2.5200e-003**	**2.0000e-005**	**2.5400e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**			**2.1215**	**1.1000e-004**	**0.0000**	**2.1238**

3.13 Restoration and Cleanup - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0226	0.0000	0.0226	0.0124	0.0000	0.0124			0.0000	0.0000	0.0000	0.0000
Off-Road	8.6500e-003	0.0902	0.0538	9.0000e-005		4.3900e-003	4.3900e-003		4.0300e-003	4.0300e-003			7.8670	2.4500e-003	0.0000	7.9185
Total	**8.6500e-003**	**0.0902**	**0.0538**	**9.0000e-005**	**0.0226**	**4.3900e-003**	**0.0270**	**0.0124**	**4.0300e-003**	**0.0164**			**7.8670**	**2.4500e-003**	**0.0000**	**7.9185**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	5.8000e-004	5.6100e-003	1.0000e-005	1.1400e-003	1.0000e-005	1.1400e-003	3.0000e-004	1.0000e-005	3.1000e-004			0.9547	5.0000e-005	0.0000	0.9557
Total	**4.1000e-004**	**5.8000e-004**	**5.6100e-003**	**1.0000e-005**	**1.1400e-003**	**1.0000e-005**	**1.1400e-003**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**			**0.9547**	**5.0000e-005**	**0.0000**	**0.9557**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0102	0.0000	0.0102	5.5900e-003	0.0000	5.5900e-003			0.0000	0.0000	0.0000	0.0000
Off-Road	2.5600e-003	0.0702	0.0527	9.0000e-005		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003			7.8670	2.4500e-003	0.0000	7.9185
Total	**2.5600e-003**	**0.0702**	**0.0527**	**9.0000e-005**	**0.0102**	**1.8000e-003**	**0.0120**	**5.5900e-003**	**1.8000e-003**	**7.3900e-003**			**7.8670**	**2.4500e-003**	**0.0000**	**7.9185**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	5.8000e-004	5.6100e-003	1.0000e-005	1.1400e-003	1.0000e-005	1.1400e-003	3.0000e-004	1.0000e-005	3.1000e-004			0.9547	5.0000e-005	0.0000	0.9557
Total	**4.1000e-004**	**5.8000e-004**	**5.6100e-003**	**1.0000e-005**	**1.1400e-003**	**1.0000e-005**	**1.1400e-003**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**			**0.9547**	**5.0000e-005**	**0.0000**	**0.9557**

3.13 Restoration and Cleanup - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0226	0.0000	0.0226	0.0124	0.0000	0.0124			0.0000	0.0000	0.0000	0.0000

Off-Road	7.2700e-003	0.0740	0.0470	8.0000e-005		3.5900e-003	3.5900e-003		3.3100e-003	3.3100e-003			7.0010	2.2200e-003	0.0000	7.0476
Total	**7.2700e-003**	**0.0740**	**0.0470**	**8.0000e-005**	**0.0226**	**3.5900e-003**	**0.0262**	**0.0124**	**3.3100e-003**	**0.0157**			**7.0010**	**2.2200e-003**	**0.0000**	**7.0476**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	4.8000e-004	4.5600e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004			0.8328	4.0000e-005	0.0000	0.8337
Total	**3.4000e-004**	**4.8000e-004**	**4.5600e-003**	**1.0000e-005**	**1.0300e-003**	**1.0000e-005**	**1.0400e-003**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**			**0.8328**	**4.0000e-005**	**0.0000**	**0.8337**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0102	0.0000	0.0102	5.5900e-003	0.0000	5.5900e-003			0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0635	0.0477	8.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003			7.0010	2.2200e-003	0.0000	7.0475
Total	**2.3200e-003**	**0.0635**	**0.0477**	**8.0000e-005**	**0.0102**	**1.6300e-003**	**0.0118**	**5.5900e-003**	**1.6300e-003**	**7.2200e-003**			**7.0010**	**2.2200e-003**	**0.0000**	**7.0475**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	4.8000e-004	4.5600e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004			0.8328	4.0000e-005	0.0000	0.8337
Total	**3.4000e-004**	**4.8000e-004**	**4.5600e-003**	**1.0000e-005**	**1.0300e-003**	**1.0000e-005**	**1.0400e-003**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**			**0.8328**	**4.0000e-005**	**0.0000**	**0.8337**

3.14 TSP Concrete Foundation Removal - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	5.5800e-003	0.0476	0.0429	6.0000e-005		3.4400e-003	3.4400e-003		3.2600e-003	3.2600e-003			5.4476	1.2500e-003	0.0000	5.4739
Total	**5.5800e-003**	**0.0476**	**0.0429**	**6.0000e-005**	**0.0000**	**3.4400e-003**	**3.4400e-003**	**0.0000**	**3.2600e-003**	**3.2600e-003**			**5.4476**	**1.2500e-003**	**0.0000**	**5.4739**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	3.0000e-004	2.8500e-003	1.0000e-005	5.8000e-004	0.0000	5.8000e-004	1.5000e-004	0.0000	1.6000e-004			0.4849	2.0000e-005	0.0000	0.4854
Total	**2.1000e-004**	**3.0000e-004**	**2.8500e-003**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.5000e-004**	**0.0000**	**1.6000e-004**			**0.4849**	**2.0000e-005**	**0.0000**	**0.4854**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0549	0.0428	6.0000e-005		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003			5.4476	1.2500e-003	0.0000	5.4739
Total	**2.6600e-003**	**0.0549**	**0.0428**	**6.0000e-005**	**0.0000**	**2.2200e-003**	**2.2200e-003**	**0.0000**	**2.2200e-003**	**2.2200e-003**			**5.4476**	**1.2500e-003**	**0.0000**	**5.4739**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	3.0000e-004	2.8500e-003	1.0000e-005	5.8000e-004	0.0000	5.8000e-004	1.5000e-004	0.0000	1.6000e-004			0.4849	2.0000e-005	0.0000	0.4854
Total	**2.1000e-004**	**3.0000e-004**	**2.8500e-003**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.5000e-004**	**0.0000**	**1.6000e-004**			**0.4849**	**2.0000e-005**	**0.0000**	**0.4854**

3.14 TSP Concrete Foundation Removal - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	8.9300e-003	0.0775	0.0768	1.1000e-004		5.2600e-003	5.2600e-003		4.9900e-003	4.9900e-003			9.7704	2.2300e-003	0.0000	9.8173
Total	**8.9300e-003**	**0.0775**	**0.0768**	**1.1000e-004**	**0.0000**	**5.2600e-003**	**5.2600e-003**	**0.0000**	**4.9900e-003**	**4.9900e-003**			**9.7704**	**2.2300e-003**	**0.0000**	**9.8173**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	4.9000e-004	4.6400e-003	1.0000e-005	1.0500e-003	1.0000e-005	1.0500e-003	2.8000e-004	1.0000e-005	2.9000e-004			0.8475	4.0000e-005	0.0000	0.8483
Total	**3.4000e-004**	**4.9000e-004**	**4.6400e-003**	**1.0000e-005**	**1.0500e-003**	**1.0000e-005**	**1.0500e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**			**0.8475**	**4.0000e-005**	**0.0000**	**0.8483**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Off-Road	4.8200e-003	0.0995	0.0775	1.1000e-004		4.0200e-003	4.0200e-003		4.0200e-003	4.0200e-003			9.7704	2.2300e-003	0.0000	9.8173
Total	**4.8200e-003**	**0.0995**	**0.0775**	**1.1000e-004**	**0.0000**	**4.0200e-003**	**4.0200e-003**	**0.0000**	**4.0200e-003**	**4.0200e-003**			**9.7704**	**2.2300e-003**	**0.0000**	**9.8173**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	4.9000e-004	4.6400e-003	1.0000e-005	1.0500e-003	1.0000e-005	1.0500e-003	2.8000e-004	1.0000e-005	2.9000e-004			0.8475	4.0000e-005	0.0000	0.8483
Total	**3.4000e-004**	**4.9000e-004**	**4.6400e-003**	**1.0000e-005**	**1.0500e-003**	**1.0000e-005**	**1.0500e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**			**0.8475**	**4.0000e-005**	**0.0000**	**0.8483**

3.15 TSP Installation with Concrete Pier - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0526	0.5826	0.2724	8.1000e-004		0.0224	0.0224		0.0206	0.0206			73.5779	0.0229	0.0000	74.0590
Total	**0.0526**	**0.5826**	**0.2724**	**8.1000e-004**		**0.0224**	**0.0224**		**0.0206**	**0.0206**			**73.5779**	**0.0229**	**0.0000**	**74.0590**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.8000e-004	9.7500e-003	0.0114	3.0000e-005	2.6900e-003	1.3000e-004	2.8300e-003	6.8000e-004	1.2000e-004	8.0000e-004			2.6082	2.0000e-005	0.0000	2.6086
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	5.2000e-004	4.9800e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.8000e-004			0.8486	4.0000e-005	0.0000	0.8495
Total	**1.1500e-003**	**0.0103**	**0.0163**	**4.0000e-005**	**3.7000e-003**	**1.4000e-004**	**3.8500e-003**	**9.5000e-004**	**1.3000e-004**	**1.0800e-003**			**3.4568**	**6.0000e-005**	**0.0000**	**3.4581**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0197	0.6333	0.4276	8.1000e-004		0.0145	0.0145		0.0145	0.0145			73.5779	0.0229	0.0000	74.0589
Total	**0.0197**	**0.6333**	**0.4276**	**8.1000e-004**		**0.0145**	**0.0145**		**0.0145**	**0.0145**			**73.5779**	**0.0229**	**0.0000**	**74.0589**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.8000e-004	9.7500e-003	0.0114	3.0000e-005	2.6900e-003	1.3000e-004	2.8300e-003	6.8000e-004	1.2000e-004	8.0000e-004			2.6082	2.0000e-005	0.0000	2.6086

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	5.2000e-004	4.9800e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.8000e-004			0.8486	4.0000e-005	0.0000	0.8495
Total	**1.1500e-003**	**0.0103**	**0.0163**	**4.0000e-005**	**3.7000e-003**	**1.4000e-004**	**3.8500e-003**	**9.5000e-004**	**1.3000e-004**	**1.0800e-003**			**3.4568**	**6.0000e-005**	**0.0000**	**3.4581**

3.15 TSP Installation with Concrete Pier - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1914	2.0236	1.0267	3.2200e-003		0.0770	0.0770		0.0708	0.0708			289.4820	0.0916	0.0000	291.4054
Total	**0.1914**	**2.0236**	**1.0267**	**3.2200e-003**		**0.0770**	**0.0770**		**0.0708**	**0.0708**			**289.4820**	**0.0916**	**0.0000**	**291.4054**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0800e-003	0.0360	0.0445	1.2000e-004	3.1900e-003	5.2000e-004	3.7200e-003	8.6000e-004	4.8000e-004	1.3400e-003			10.2740	8.0000e-005	0.0000	10.2756
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	1.8800e-003	0.0179	5.0000e-005	4.0400e-003	3.0000e-005	4.0700e-003	1.0700e-003	3.0000e-005	1.1000e-003			3.2729	1.6000e-004	0.0000	3.2763
Total	**4.4000e-003**	**0.0379**	**0.0624**	**1.7000e-004**	**7.2300e-003**	**5.5000e-004**	**7.7900e-003**	**1.9300e-003**	**5.1000e-004**	**2.4400e-003**			**13.5469**	**2.4000e-004**	**0.0000**	**13.5519**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0789	2.5332	1.7104	3.2200e-003		0.0579	0.0579		0.0579	0.0579			289.4816	0.0916	0.0000	291.4050
Total	**0.0789**	**2.5332**	**1.7104**	**3.2200e-003**		**0.0579**	**0.0579**		**0.0579**	**0.0579**			**289.4816**	**0.0916**	**0.0000**	**291.4050**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0800e-003	0.0360	0.0445	1.2000e-004	3.1900e-003	5.2000e-004	3.7200e-003	8.6000e-004	4.8000e-004	1.3400e-003			10.2740	8.0000e-005	0.0000	10.2756
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	1.8800e-003	0.0179	5.0000e-005	4.0400e-003	3.0000e-005	4.0700e-003	1.0700e-003	3.0000e-005	1.1000e-003			3.2729	1.6000e-004	0.0000	3.2763
Total	**4.4000e-003**	**0.0379**	**0.0624**	**1.7000e-004**	**7.2300e-003**	**5.5000e-004**	**7.7900e-003**	**1.9300e-003**	**5.1000e-004**	**2.4400e-003**			**13.5469**	**2.4000e-004**	**0.0000**	**13.5519**

3.16 TSp Installation with Micropile - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0255	0.2356	0.1486	3.4000e-004		0.0119	0.0119		0.0114	0.0114			30.0211	6.8200e-003	0.0000	30.1644

Total	**0.0255**	**0.2356**	**0.1486**	**3.4000e-004**		**0.0119**	**0.0119**		**0.0114**	**0.0114**			**30.0211**	**6.8200e-003**	**0.0000**	**30.1644**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.2560	0.1875	3.4000e-004		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003			30.0211	6.8200e-003	0.0000	30.1643
Total	**0.0126**	**0.2560**	**0.1875**	**3.4000e-004**		**8.4700e-003**	**8.4700e-003**		**8.4700e-003**	**8.4700e-003**			**30.0211**	**6.8200e-003**	**0.0000**	**30.1643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.16 TSp Installation with Micropile - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0172	0.1566	0.1080	2.5000e-004		7.6500e-003	7.6500e-003		7.3500e-003	7.3500e-003			22.2844	5.0300e-003	0.0000	22.3901
Total	**0.0172**	**0.1566**	**0.1080**	**2.5000e-004**		**7.6500e-003**	**7.6500e-003**		**7.3500e-003**	**7.3500e-003**			**22.2844**	**5.0300e-003**	**0.0000**	**22.3901**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.0100e-003	0.1897	0.1405	2.5000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003			22.2844	5.0300e-003	0.0000	22.3900
Total	**9.0100e-003**	**0.1897**	**0.1405**	**2.5000e-004**		**6.0900e-003**	**6.0900e-003**		**6.0900e-003**	**6.0900e-003**			**22.2844**	**5.0300e-003**	**0.0000**	**22.3900**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.17 Circuit Breaker Installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0559	0.6013	0.4235	9.4000e-004		0.0262	0.0262		0.0242	0.0242			84.3787	0.0258	0.0000	84.9213
Total	**0.0559**	**0.6013**	**0.4235**	**9.4000e-004**		**0.0262**	**0.0262**		**0.0242**	**0.0242**			**84.3787**	**0.0258**	**0.0000**	**84.9213**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.4100e-003	2.0100e-003	0.0192	5.0000e-005	4.3200e-003	3.0000e-005	4.3600e-003	1.1500e-003	3.0000e-005	1.1800e-003			3.5067	1.7000e-004	0.0000	3.5103
Total	**1.4100e-003**	**2.0100e-003**	**0.0192**	**5.0000e-005**	**4.3200e-003**	**3.0000e-005**	**4.3600e-003**	**1.1500e-003**	**3.0000e-005**	**1.1800e-003**			**3.5067**	**1.7000e-004**	**0.0000**	**3.5103**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0295	0.7880	0.5753	9.4000e-004		0.0222	0.0222		0.0222	0.0222			84.3786	0.0258	0.0000	84.9212

Total	**0.0295**	**0.7880**	**0.5753**	**9.4000e-004**		**0.0222**	**0.0222**		**0.0222**	**0.0222**			**84.3786**	**0.0258**	**0.0000**	**84.9212**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	1.4100e-003	2.0100e-003	0.0192	5.0000e-005	4.3200e-003	3.0000e-005	4.3600e-003	1.1500e-003	3.0000e-005	1.1800e-003			3.5067	1.7000e-004	0.0000	3.5103
Total	**1.4100e-003**	**2.0100e-003**	**0.0192**	**5.0000e-005**	**4.3200e-003**	**3.0000e-005**	**4.3600e-003**	**1.1500e-003**	**3.0000e-005**	**1.1800e-003**			**3.5067**	**1.7000e-004**	**0.0000**	**3.5103**

3.18 Road Subgrade Prep - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	1.0400e-003	0.0139	0.0171	3.0000e-005		6.4000e-004	6.4000e-004		5.8000e-004	5.8000e-004			2.2846	7.2000e-004	0.0000	2.2998
Total	**1.0400e-003**	**0.0139**	**0.0171**	**3.0000e-005**	**0.0000**	**6.4000e-004**	**6.4000e-004**	**0.0000**	**5.8000e-004**	**5.8000e-004**			**2.2846**	**7.2000e-004**	**0.0000**	**2.2998**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.7000e-004	6.7000e-003	8.2800e-003	2.0000e-005	5.0000e-004	1.0000e-004	6.0000e-004	1.4000e-004	9.0000e-005	2.3000e-004			1.9120	1.0000e-005	0.0000	1.9123
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	1.3000e-004	1.2000e-003	0.0000	2.7000e-004	0.0000	2.7000e-004	7.0000e-005	0.0000	7.0000e-005			0.2192	1.0000e-005	0.0000	0.2194
Total	**6.6000e-004**	**6.8300e-003**	**9.4800e-003**	**2.0000e-005**	**7.7000e-004**	**1.0000e-004**	**8.7000e-004**	**2.1000e-004**	**9.0000e-005**	**3.0000e-004**			**2.1312**	**2.0000e-005**	**0.0000**	**2.1317**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	1.2000e-003	0.0248	0.0193	3.0000e-005		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003			2.2846	7.2000e-004	0.0000	2.2998
Total	**1.2000e-003**	**0.0248**	**0.0193**	**3.0000e-005**	**0.0000**	**1.0000e-003**	**1.0000e-003**	**0.0000**	**1.0000e-003**	**1.0000e-003**			**2.2846**	**7.2000e-004**	**0.0000**	**2.2998**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.7000e-004	6.7000e-003	8.2800e-003	2.0000e-005	5.0000e-004	1.0000e-004	6.0000e-004	1.4000e-004	9.0000e-005	2.3000e-004			1.9120	1.0000e-005	0.0000	1.9123

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	1.3000e-004	1.2000e-003	0.0000	2.7000e-004	0.0000	2.7000e-004	7.0000e-005	0.0000	7.0000e-005			0.2192	1.0000e-005	0.0000	0.2194
Total	**6.6000e-004**	**6.8300e-003**	**9.4800e-003**	**2.0000e-005**	**7.7000e-004**	**1.0000e-004**	**8.7000e-004**	**2.1000e-004**	**9.0000e-005**	**3.0000e-004**			**2.1312**	**2.0000e-005**	**0.0000**	**2.1317**

3.19 Asphalt Road Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3900e-003	0.0163	0.0173	3.0000e-005		7.8000e-004	7.8000e-004		7.2000e-004	7.2000e-004			2.4112	7.6000e-004	0.0000	2.4272
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**1.3900e-003**	**0.0163**	**0.0173**	**3.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.2000e-004**	**7.2000e-004**			**2.4112**	**7.6000e-004**	**0.0000**	**2.4272**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-004	3.3500e-003	4.1400e-003	1.0000e-005	2.5000e-004	5.0000e-005	3.0000e-004	7.0000e-005	4.0000e-005	1.1000e-004			0.9560	1.0000e-005	0.0000	0.9562
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005			0.1096	1.0000e-005	0.0000	0.1097
Total	**3.3000e-004**	**3.4100e-003**	**4.7400e-003**	**1.0000e-005**	**3.9000e-004**	**5.0000e-005**	**4.4000e-004**	**1.1000e-004**	**4.0000e-005**	**1.5000e-004**			**1.0656**	**2.0000e-005**	**0.0000**	**1.0659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1500e-003	0.0245	0.0204	3.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004			2.4112	7.6000e-004	0.0000	2.4272
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**1.1500e-003**	**0.0245**	**0.0204**	**3.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**			**2.4112**	**7.6000e-004**	**0.0000**	**2.4272**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9000e-004	3.3500e-003	4.1400e-003	1.0000e-005	2.5000e-004	5.0000e-005	3.0000e-004	7.0000e-005	4.0000e-005	1.1000e-004			0.9560	1.0000e-005	0.0000	0.9562
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005			0.1096	1.0000e-005	0.0000	0.1097
Total	**3.3000e-004**	**3.4100e-003**	**4.7400e-003**	**1.0000e-005**	**3.9000e-004**	**5.0000e-005**	**4.4000e-004**	**1.1000e-004**	**4.0000e-005**	**1.5000e-004**			**1.0656**	**2.0000e-005**	**0.0000**	**1.0659**

3.20 LDS Pole Install - Aerial - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.20 LDS Pole Install - Aerial - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		

Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.471814	0.077320	0.181313	0.151940	0.061685	0.009120	0.019075	0.010399	0.002651	0.002510	0.008802	0.000509	0.002861

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

PG&E Fulton-Fitch

Sonoma-San Francisco County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	30.40	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	75
Climate Zone	4			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land Use - The project construction site work area, including staging areas, access areas, access roads, and temporary easement during construction is 30.4 acres.

Construction Phase - Non-default phases enterd.

Off-road Equipment - Project specific equipment list.

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment.

Off-road Equipment - Project specific equipment

Off-road Equipment - Non-default equipment used.

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment used.

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Project-specific equipment list.

Off-road Equipment - Project specific equipment

Off-road Equipment - Non-default equipment entered: pickup truck

Off-road Equipment - Project specific equipment

Off-road Equipment - Project specific equipment

Off-road Equipment - Plant specific equipment

Off-road Equipment - Project-specific equipment

Trips and VMT - Non-default number of workers used based on information provided by PG&E. Includes imported gravel, new poles hauled on site, and old poles hauled off site.

Grading - Graded acres based on cut work area information provided by LAV Pinnacle Engineering.

Vechicle Emission Factors -

Vechicle Emission Factors -

Vechicle Emission Factors -

Construction Off-road Equipment Mitigation - Non-default equipment used.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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tblConstructionPhase	NumDays	500.00	80.00
tblConstructionPhase	NumDays	500.00	42.00
tblConstructionPhase	NumDays	500.00	60.00
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tblConstructionPhase	NumDays	500.00	20.00
tblConstructionPhase	NumDays	500.00	70.00
tblConstructionPhase	NumDays	500.00	10.00
tblConstructionPhase	NumDays	500.00	105.00
tblConstructionPhase	NumDays	35.00	5.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	20.00	40.00

tblConstructionPhase	NumDays	20.00	45.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	36.00
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tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
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tblConstructionPhase	PhaseEndDate	3/15/2019	12/7/2018
tblConstructionPhase	PhaseEndDate	5/31/2019	3/29/2019
tblConstructionPhase	PhaseEndDate	5/10/2019	1/18/2019
tblConstructionPhase	PhaseEndDate	4/12/2019	4/26/2019
tblConstructionPhase	PhaseEndDate	9/13/2019	1/26/2020
tblConstructionPhase	PhaseEndDate	11/9/2018	10/14/2018
tblConstructionPhase	PhaseEndDate	11/9/2018	9/28/2018
tblConstructionPhase	PhaseEndDate	12/7/2018	11/11/2018
tblConstructionPhase	PhaseEndDate	11/23/2018	9/16/2018
tblConstructionPhase	PhaseEndDate	8/3/2018	8/5/2018
tblConstructionPhase	PhaseEndDate	2/1/2019	1/25/2019
tblConstructionPhase	PhaseEndDate	3/29/2019	2/10/2019
tblConstructionPhase	PhaseEndDate	9/15/2018	9/16/2018
tblConstructionPhase	PhaseEndDate	11/2/2018	9/21/2018
tblConstructionPhase	PhaseEndDate	10/19/2018	9/28/2018
tblConstructionPhase	PhaseStartDate	12/31/2018	9/17/2018
tblConstructionPhase	PhaseStartDate	1/21/2019	10/14/2018
tblConstructionPhase	PhaseStartDate	2/11/2019	12/8/2018
tblConstructionPhase	PhaseStartDate	3/30/2019	12/8/2018
tblConstructionPhase	PhaseStartDate	1/19/2019	2/4/2019
tblConstructionPhase	PhaseStartDate	5/18/2019	9/30/2019

tblConstructionPhase	PhaseStartDate	9/29/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	10/15/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	9/29/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	11/12/2018	9/3/2018
tblConstructionPhase	PhaseStartDate	12/8/2018	12/3/2018
tblConstructionPhase	PhaseStartDate	1/26/2019	12/8/2018
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tblGrading	MaterialExported	0.00	240.00
tblGrading	MaterialExported	0.00	345.00
tblGrading	MaterialImported	0.00	240.00
tblGrading	MaterialImported	0.00	17,413.00
tblLandUse	LotAcreage	0.00	30.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
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tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	8.00	1.20
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	1.50
tblOffRoadEquipment	UsageHours	8.00	6.40
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tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2020
tblTripsAndVMT	HaulingTripNumber	47.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	403.00
tblTripsAndVMT	HaulingTripNumber	0.00	60.00
tblTripsAndVMT	HaulingTripNumber	0.00	30.00
tblTripsAndVMT	HaulingTripNumber	2,220.00	2,132.00
tblTripsAndVMT	HaulingTripNumber	0.00	400.00
tblTripsAndVMT	HaulingTripNumber	0.00	300.00
tblTripsAndVMT	WorkerTripNumber	0.00	14.00
tblTripsAndVMT	WorkerTripNumber	0.00	14.00
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tblTripsAndVMT	WorkerTripNumber	0.00	14.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00
tblTripsAndVMT	WorkerTripNumber	8.00	6.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	23.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	14.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	14.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	18.6075	196.6213	123.3528	0.3070	7.4343	8.5818	15.5421	3.2805	8.0828	10.8751			30,248.3709	6.5246	0.0000	30,385.3884
2019	13.6316	140.5202	78.4793	0.2144	1.6859	5.8416	7.5275	0.7687	5.4222	6.1909			21,020.6021	6.0932	0.0000	21,148.5592
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**32.2391**	**337.1415**	**201.8320**	**0.5214**	**9.1201**	**14.4235**	**23.0696**	**4.0493**	**13.5049**	**17.0660**			**51,268.9730**	**12.6178**	**0.0000**	**51,533.9476**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.4307	209.5515	155.2103	0.3070	4.5180	5.5338	9.8653	1.7939	5.5313	7.1188			30,248.3709	6.5246	0.0000	30,385.3884
2019	5.7870	163.8473	114.8772	0.2144	1.0648	4.0584	5.1232	0.4274	4.0568	4.4842			21,020.6020	6.0932	0.0000	21,148.5592
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**14.2177**	**373.3988**	**270.0875**	**0.5214**	**5.5828**	**9.5921**	**14.9885**	**2.2212**	**9.5881**	**11.6030**			**51,268.9729**	**12.6178**	**0.0000**	**51,533.9476**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**55.90**	**-10.75**	**-33.82**	**0.00**	**38.79**	**33.50**	**35.03**	**45.14**	**29.00**	**32.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Survey	Site Preparation	7/2/2018	8/5/2018	5	25	
2	Vegetation Removal and Trimming	Site Preparation	8/6/2018	9/16/2018	6	36	
3	Site Improvements and Reestablishment	Site Preparation	8/6/2018	9/21/2018	5	35	
4	Drainage Crossings	Site Preparation	9/3/2018	9/28/2018	5	20	
5	Auger LDS Pole Holes	Building Construction	9/3/2018	10/14/2018	5	30	
6	Pole Delivery	Building Construction	9/3/2018	9/28/2018	5	20	
7	Material, Equipment, Supply Haul	Building Construction	9/3/2018	11/11/2018	7	70	
8	Guard Structure Install	Building Construction	9/3/2018	9/16/2018	5	10	
9	LDS Pole Install - Ground	Building Construction	9/17/2018	12/30/2018	7	105	
10	Conductor Installation	Building Construction	9/17/2018	1/20/2019	7	126	
11	Auger TSP Holes	Building Construction	10/14/2018	12/7/2018	5	40	
12	Restoration and Cleanup	Site Preparation	12/3/2018	1/25/2019	5	40	
13	TSP Concrete Foundation Removal	Site Preparation	12/8/2018	2/10/2019	5	45	
14	TSP Installation with Concrete Pier	Building Construction	12/8/2018	3/29/2019	5	80	
15	TSp Installation with Micropile	Building Construction	12/8/2018	1/18/2019	7	42	
16	Circuit Breaker Installation	Building Construction	2/4/2019	4/26/2019	5	60	
17	Road Subgrade Prep	Site Preparation	4/27/2019	5/10/2019	5	10	
18	Asphalt Road Paving	Paving	5/11/2019	5/17/2019	5	5	
19	LDS Pole Install - Aerial	Building Construction	9/30/2019	1/26/2020	7	119	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vegetation Removal and Trimming	Off-Highway Trucks	2	8.00	400	0.38
Vegetation Removal and Trimming	Skid Steer Loaders	1	1.30	64	0.37

Site Improvements and Reestablishment	Excavators	2	6.40	162	0.38
Site Improvements and Reestablishment	Off-Highway Trucks	4	5.70	400	0.38
Site Improvements and Reestablishment	Off-Highway Trucks	1	2.70	400	0.38
Site Improvements and Reestablishment	Plate Compactors	1	6.40	8	0.43
Site Improvements and Reestablishment	Rubber Tired Dozers	1	6.40	255	0.40
Drainage Crossings	Cranes	1	0.80	226	0.29
Drainage Crossings	Crawler Tractors	1	3.20	208	0.43
Auger LDS Pole Holes	Bore/Drill Rigs	1	2.00	205	0.50
Auger LDS Pole Holes	Skid Steer Loaders	1	6.00	64	0.37
Pole Delivery	Cranes	2	8.00	226	0.29
Pole Delivery	Forklifts	2	8.00	89	0.20
Pole Delivery	Off-Highway Trucks	1	2.40	400	0.38
Pole Delivery	Off-Highway Trucks	3	8.00	400	0.38
Material, Equipment, Supply Haul	Off-Highway Trucks	1	1.40	400	0.38
Material, Equipment, Supply Haul	Off-Highway Trucks	1	4.00	400	0.38
Guard Structure Install	Off-Highway Trucks	1	1.20	400	0.38
LDS Pole Install - Ground	Air Compressors	1	2.90	78	0.48
LDS Pole Install - Ground	Generator Sets	6	8.00	84	0.74
LDS Pole Install - Ground	Off-Highway Trucks	1	0.80	400	0.38
LDS Pole Install - Ground	Skid Steer Loaders	1	1.10	64	0.37
LDS Pole Install - Ground	Skid Steer Loaders	1	2.70	64	0.37
LDS Pole Install - Ground	Tractors/Loaders/Backhoes	1	4.30	97	0.37
Conductor Installation	Cranes	4	8.90	226	0.29
Conductor Installation	Generator Sets	1	1.20	84	0.74
Conductor Installation	Off-Highway Trucks	1	7.00	400	0.38
Conductor Installation	Off-Highway Trucks	1	7.00	400	0.38
Conductor Installation	Off-Highway Trucks	1	7.00	400	0.38
Auger TSP Holes	Crawler Tractors	1	3.80	208	0.43
Auger TSP Holes	Excavators	1	6.00	162	0.38
Auger TSP Holes	Off-Highway Trucks	1	7.00	400	0.38
Auger TSP Holes	Off-Highway Trucks	1	8.00	400	0.38
Auger TSP Holes	Off-Highway Trucks	1	8.00	400	0.38

Restoration and Cleanup	Cranes	1	0.20	226	0.29
Restoration and Cleanup	Graders	1	4.00	174	0.41
Restoration and Cleanup	Off-Highway Trucks	1	2.00	400	0.38
Restoration and Cleanup	Rubber Tired Dozers	1	1.50	255	0.40
TSP Concrete Foundation Removal	Air Compressors	1	6.00	78	0.48
TSP Concrete Foundation Removal	Tractors/Loaders/Backhoes	2	6.00	97	0.37
TSP Installation with Concrete Pier	Cranes	4	6.00	226	0.29
TSP Installation with Concrete Pier	Off-Highway Trucks	4	7.00	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	2	2.00	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	6	2.50	400	0.38
TSP Installation with Concrete Pier	Off-Highway Trucks	1	4.00	400	0.38
TSp Installation with Micropile	Air Compressors	2	6.00	78	0.48
TSp Installation with Micropile	Cranes	1	4.30	226	0.29
TSp Installation with Micropile	Off-Highway Trucks	2	4.30	400	0.38
TSp Installation with Micropile	Pumps	1	6.00	84	0.74
Circuit Breaker Installation	Aerial Lifts	1	8.00	62	0.31
Circuit Breaker Installation	Bore/Drill Rigs	1	0.70	205	0.50
Circuit Breaker Installation	Cranes	1	8.00	226	0.29
Circuit Breaker Installation	Excavators	1	8.00	162	0.38
Circuit Breaker Installation	Forklifts	1	8.00	89	0.20
Circuit Breaker Installation	Generator Sets	1	1.60	84	0.74
Circuit Breaker Installation	Off-Highway Trucks	1	8.00	400	0.38
Circuit Breaker Installation	Skid Steer Loaders	1	8.00	64	0.37
Road Subgrade Prep	Skid Steer Loaders	2	10.00	64	0.37
Asphalt Road Paving	Pavers	1	10.00	125	0.42
Asphalt Road Paving	Skid Steer Loaders	2	10.00	64	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
LDS Pole Install - Aerial				0.00	12.40	7.30				

Vegetation Removal and Trimming	3	20.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Improvements and Reestablishment	9	12.00	0.00	2,132.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Drainage Crossings	2	12.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Auger LDS Pole Holes	2	14.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pole Delivery	8	2.00	0.00	400.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Material, Equipment, Supply Haul	2	4.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Guard Structure Install	1	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
LDS Pole Install - Ground	11	14.00	0.00	300.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Conductor Installation	8	14.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Auger TSP Holes	5	14.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Restoration and Cleanup	4	12.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
TSP Concrete Foundation Removal	3	8.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
TSP Installation with Concrete Pier	17	14.00	0.00	403.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
TSp Installation with Micropile	6	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Circuit Breaker Installation	8	16.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Road Subgrade Prep	2	6.00	0.00	60.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Asphalt Road Paving	3	6.00	0.00	30.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Survey				0.00	12.40	7.30				

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Survey - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

3.3 Vegetation Removal and Trimming - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.5536	16.7613	8.5842	0.0266		0.6142	0.6142		0.5651	0.5651			2,679.2634	0.8341		2,696.7793
Total	**1.5536**	**16.7613**	**8.5842**	**0.0266**	**0.0000**	**0.6142**	**0.6142**	**0.0000**	**0.5651**	**0.5651**			**2,679.2634**	**0.8341**		**2,696.7793**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0708	0.0816	0.9492	2.3100e-003	0.1886	1.4800e-003	0.1901	0.0500	1.3700e-003	0.0514			178.8736	8.5700e-003		179.0535
Total	**0.0708**	**0.0816**	**0.9492**	**2.3100e-003**	**0.1886**	**1.4800e-003**	**0.1901**	**0.0500**	**1.3700e-003**	**0.0514**			**178.8736**	**8.5700e-003**		**179.0535**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6590	20.6430	14.1914	0.0266		0.4849	0.4849		0.4849	0.4849			2,679.2634	0.8341		2,696.7793
Total	**0.6590**	**20.6430**	**14.1914**	**0.0266**	**0.0000**	**0.4849**	**0.4849**	**0.0000**	**0.4849**	**0.4849**			**2,679.2634**	**0.8341**		**2,696.7793**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0708	0.0816	0.9492	2.3100e-003	0.1886	1.4800e-003	0.1901	0.0500	1.3700e-003	0.0514			178.8736	8.5700e-003		179.0535
Total	**0.0708**	**0.0816**	**0.9492**	**2.3100e-003**	**0.1886**	**1.4800e-003**	**0.1901**	**0.0500**	**1.3700e-003**	**0.0514**			**178.8736**	**8.5700e-003**		**179.0535**

3.4 Site Improvements and Reestablishment - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3023	0.0000	5.3023	2.7030	0.0000	2.7030			0.0000			0.0000
Off-Road	3.8199	41.0411	26.0384	0.0579		1.6499	1.6499		1.5186	1.5186			5,814.0106	1.8043		5,851.9000
Total	**3.8199**	**41.0411**	**26.0384**	**0.0579**	**5.3023**	**1.6499**	**6.9522**	**2.7030**	**1.5186**	**4.2216**			**5,814.0106**	**1.8043**		**5,851.9000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0962	14.1605	13.7417	0.0446	1.0566	0.1994	1.2559	0.2890	0.1834	0.4724			4,350.0867	0.0318		4,350.7554
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0425	0.0490	0.5695	1.3800e-003	0.1132	8.9000e-004	0.1141	0.0300	8.2000e-004	0.0308			107.3241	5.1400e-003		107.4321
Total	**1.1387**	**14.2095**	**14.3113**	**0.0460**	**1.1697**	**0.2003**	**1.3700**	**0.3190**	**0.1842**	**0.5032**			**4,457.4109**	**0.0370**		**4,458.1875**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Fugitive Dust					2.3860	0.0000	2.3860	1.2164	0.0000	1.2164			0.0000			0.0000
Off-Road	1.5282	45.6026	32.3867	0.0579		1.1010	1.1010		1.1010	1.1010			5,814.0106	1.8043		5,851.9000
Total	**1.5282**	**45.6026**	**32.3867**	**0.0579**	**2.3860**	**1.1010**	**3.4870**	**1.2164**	**1.1010**	**2.3173**			**5,814.0106**	**1.8043**		**5,851.9000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0962	14.1605	13.7417	0.0446	1.0566	0.1994	1.2559	0.2890	0.1834	0.4724			4,350.0867	0.0318		4,350.7554
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0425	0.0490	0.5695	1.3800e-003	0.1132	8.9000e-004	0.1141	0.0300	8.2000e-004	0.0308			107.3241	5.1400e-003		107.4321
Total	**1.1387**	**14.2095**	**14.3113**	**0.0460**	**1.1697**	**0.2003**	**1.3700**	**0.3190**	**0.1842**	**0.5032**			**4,457.4109**	**0.0370**		**4,458.1875**

3.5 Drainage Crossings - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3072	4.0049	1.2901	3.6500e-003		0.1552	0.1552		0.1427	0.1427			366.9970	0.1143		369.3963
Total	**0.3072**	**4.0049**	**1.2901**	**3.6500e-003**	**0.0000**	**0.1552**	**0.1552**	**0.0000**	**0.1427**	**0.1427**			**366.9970**	**0.1143**		**369.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0425	0.0490	0.5695	1.3800e-003	0.1132	8.9000e-004	0.1141	0.0300	8.2000e-004	0.0308			107.3241	5.1400e-003		107.4321
Total	**0.0425**	**0.0490**	**0.5695**	**1.3800e-003**	**0.1132**	**8.9000e-004**	**0.1141**	**0.0300**	**8.2000e-004**	**0.0308**			**107.3241**	**5.1400e-003**		**107.4321**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0896	3.0983	1.9411	3.6500e-003		0.0657	0.0657		0.0657	0.0657			366.9970	0.1143		369.3963
Total	**0.0896**	**3.0983**	**1.9411**	**3.6500e-003**	**0.0000**	**0.0657**	**0.0657**	**0.0000**	**0.0657**	**0.0657**			**366.9970**	**0.1143**		**369.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0425	0.0490	0.5695	1.3800e-003	0.1132	8.9000e-004	0.1141	0.0300	8.2000e-004	0.0308			107.3241	5.1400e-003		107.4321
Total	**0.0425**	**0.0490**	**0.5695**	**1.3800e-003**	**0.1132**	**8.9000e-004**	**0.1141**	**0.0300**	**8.2000e-004**	**0.0308**			**107.3241**	**5.1400e-003**		**107.4321**

3.6 Auger LDS Pole Holes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1375	1.8689	1.5131	3.7000e-003		0.0713	0.0713		0.0656	0.0656			372.5093	0.1160		374.9446
Total	**0.1375**	**1.8689**	**1.5131**	**3.7000e-003**		**0.0713**	**0.0713**		**0.0656**	**0.0656**			**372.5093**	**0.1160**		**374.9446**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374

Total	**0.0496**	**0.0571**	**0.6645**	**1.6200e-003**	**0.1320**	**1.0400e-003**	**0.1331**	**0.0350**	**9.6000e-004**	**0.0360**			**125.2115**	**6.0000e-003**		**125.3374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1263	3.3634	2.3340	3.7000e-003		0.0999	0.0999		0.0999	0.0999			372.5093	0.1160		374.9446
Total	**0.1263**	**3.3634**	**2.3340**	**3.7000e-003**		**0.0999**	**0.0999**		**0.0999**	**0.0999**			**372.5093**	**0.1160**		**374.9446**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.0496**	**0.0571**	**0.6645**	**1.6200e-003**	**0.1320**	**1.0400e-003**	**0.1331**	**0.0350**	**9.6000e-004**	**0.0360**			**125.2115**	**6.0000e-003**		**125.3374**

3.7 Pole Delivery - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0123	43.8312	21.1535	0.0577		1.8267	1.8267		1.6806	1.6806			5,809.5405	1.8086		5,847.5209
Total	**4.0123**	**43.8312**	**21.1535**	**0.0577**		**1.8267**	**1.8267**		**1.6806**	**1.6806**			**5,809.5405**	**1.8086**		**5,847.5209**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3599	4.6493	4.5118	0.0146	0.3469	0.0655	0.4124	0.0949	0.0602	0.1551			1,428.2649	0.0105		1,428.4844
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	7.0800e-003	8.1600e-003	0.0949	2.3000e-004	0.0189	1.5000e-004	0.0190	5.0000e-003	1.4000e-004	5.1400e-003			17.8874	8.6000e-004		17.9054
Total	**0.3670**	**4.6575**	**4.6068**	**0.0149**	**0.3658**	**0.0656**	**0.4314**	**0.0999**	**0.0604**	**0.1602**			**1,446.1522**	**0.0113**		**1,446.3898**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4834	46.1056	31.3354	0.0577		1.1025	1.1025		1.1025	1.1025			5,809.5405	1.8086		5,847.5209
Total	**1.4834**	**46.1056**	**31.3354**	**0.0577**		**1.1025**	**1.1025**		**1.1025**	**1.1025**			**5,809.5405**	**1.8086**		**5,847.5209**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3599	4.6493	4.5118	0.0146	0.3469	0.0655	0.4124	0.0949	0.0602	0.1551			1,428.2649	0.0105		1,428.4844
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	7.0800e-003	8.1600e-003	0.0949	2.3000e-004	0.0189	1.5000e-004	0.0190	5.0000e-003	1.4000e-004	5.1400e-003			17.8874	8.6000e-004		17.9054
Total	**0.3670**	**4.6575**	**4.6068**	**0.0149**	**0.3658**	**0.0656**	**0.4314**	**0.0999**	**0.0604**	**0.1602**			**1,446.1522**	**0.0113**		**1,446.3898**

3.8 Material, Equipment, Supply Haul - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5194	5.5914	2.8220	8.8800e-003		0.2041	0.2041		0.1878	0.1878			893.0257	0.2780		898.8640
Total	**0.5194**	**5.5914**	**2.8220**	**8.8800e-003**		**0.2041**	**0.2041**		**0.1878**	**0.1878**			**893.0257**	**0.2780**		**898.8640**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0142	0.0163	0.1898	4.6000e-004	0.0377	3.0000e-004	0.0380	0.0100	2.7000e-004	0.0103			35.7747	1.7100e-003		35.8107
Total	**0.0142**	**0.0163**	**0.1898**	**4.6000e-004**	**0.0377**	**3.0000e-004**	**0.0380**	**0.0100**	**2.7000e-004**	**0.0103**			**35.7747**	**1.7100e-003**		**35.8107**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2172	6.8582	4.7048	8.8800e-003		0.1592	0.1592		0.1592	0.1592			893.0257	0.2780		898.8640
Total	**0.2172**	**6.8582**	**4.7048**	**8.8800e-003**		**0.1592**	**0.1592**		**0.1592**	**0.1592**			**893.0257**	**0.2780**		**898.8640**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000

Worker	0.0142	0.0163	0.1898	4.6000e-004	0.0377	3.0000e-004	0.0380	0.0100	2.7000e-004	0.0103			35.7747	1.7100e-003		35.8107
Total	**0.0142**	**0.0163**	**0.1898**	**4.6000e-004**	**0.0377**	**3.0000e-004**	**0.0380**	**0.0100**	**2.7000e-004**	**0.0103**			**35.7747**	**1.7100e-003**		**35.8107**

3.9 Guard Structure Install - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1154	1.2425	0.6271	1.9700e-003		0.0454	0.0454		0.0417	0.0417			198.4502	0.0618		199.7476
Total	**0.1154**	**1.2425**	**0.6271**	**1.9700e-003**		**0.0454**	**0.0454**		**0.0417**	**0.0417**			**198.4502**	**0.0618**		**199.7476**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0483	1.5241	1.0455	1.9700e-003		0.0354	0.0354		0.0354	0.0354			198.4502	0.0618		199.7476
Total	**0.0483**	**1.5241**	**1.0455**	**1.9700e-003**		**0.0354**	**0.0354**		**0.0354**	**0.0354**			**198.4502**	**0.0618**		**199.7476**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**		**0.0000**

3.10 LDS Pole Install - Ground - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4395	28.4589	25.7046	0.0449		1.8030	1.8030		1.7903	1.7903			4,271.8832	0.4064		4,280.4178

Total	**3.4395**	**28.4589**	**25.7046**	**0.0449**		**1.8030**	**1.8030**		**1.7903**	**1.7903**			**4,271.8832**	**0.4064**		**4,280.4178**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0514	0.6642	0.6446	2.0900e-003	0.0496	9.3500e-003	0.0589	0.0136	8.6000e-003	0.0222			204.0378	1.4900e-003		204.0692
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.1010**	**0.7213**	**1.3090**	**3.7100e-003**	**0.1816**	**0.0104**	**0.1920**	**0.0486**	**9.5600e-003**	**0.0581**			**329.2493**	**7.4900e-003**		**329.4066**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7240	35.9564	27.9137	0.0449		1.4359	1.4359		1.4359	1.4359			4,271.8832	0.4064		4,280.4178
Total	**1.7240**	**35.9564**	**27.9137**	**0.0449**		**1.4359**	**1.4359**		**1.4359**	**1.4359**			**4,271.8832**	**0.4064**		**4,280.4178**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0514	0.6642	0.6446	2.0900e-003	0.0496	9.3500e-003	0.0589	0.0136	8.6000e-003	0.0222			204.0378	1.4900e-003		204.0692
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.1010**	**0.7213**	**1.3090**	**3.7100e-003**	**0.1816**	**0.0104**	**0.1920**	**0.0486**	**9.5600e-003**	**0.0581**			**329.2493**	**7.4900e-003**		**329.4066**

3.11 Conductor Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5805	52.0570	22.5159	0.0606		2.1182	2.1182		1.9519	1.9519			6,094.0704	1.8748		6,133.4415
Total	**4.5805**	**52.0570**	**22.5159**	**0.0606**		**2.1182**	**2.1182**		**1.9519**	**1.9519**			**6,094.0704**	**1.8748**		**6,133.4415**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.0496**	**0.0571**	**0.6645**	**1.6200e-003**	**0.1320**	**1.0400e-003**	**0.1331**	**0.0350**	**9.6000e-004**	**0.0360**			**125.2115**	**6.0000e-003**		**125.3374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4996	48.7990	32.2791	0.0606		1.1035	1.1035		1.1035	1.1035			6,094.0704	1.8748		6,133.4415
Total	**1.4996**	**48.7990**	**32.2791**	**0.0606**		**1.1035**	**1.1035**		**1.1035**	**1.1035**			**6,094.0704**	**1.8748**		**6,133.4415**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.0496**	**0.0571**	**0.6645**	**1.6200e-003**	**0.1320**	**1.0400e-003**	**0.1331**	**0.0350**	**9.6000e-004**	**0.0360**			**125.2115**	**6.0000e-003**		**125.3374**

3.11 Conductor Installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.1152	45.4980	20.9810	0.0606		1.8254	1.8254		1.6820	1.6820			5,996.0398	1.8734		6,035.3819
Total	**4.1152**	**45.4980**	**20.9810**	**0.0606**		**1.8254**	**1.8254**		**1.6820**	**1.6820**			**5,996.0398**	**1.8734**		**6,035.3819**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0449	0.0517	0.6003	1.6100e-003	0.1320	1.0100e-003	0.1330	0.0350	9.3000e-004	0.0360			120.7399	5.5400e-003		120.8563
Total	**0.0449**	**0.0517**	**0.6003**	**1.6100e-003**	**0.1320**	**1.0100e-003**	**0.1330**	**0.0350**	**9.3000e-004**	**0.0360**			**120.7399**	**5.5400e-003**		**120.8563**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4996	48.7990	32.2791	0.0606		1.1035	1.1035		1.1035	1.1035			5,996.0397	1.8734		6,035.3819

Total	**1.4996**	**48.7990**	**32.2791**	**0.0606**		**1.1035**	**1.1035**		**1.1035**	**1.1035**			**5,996.0397**	**1.8734**		**6,035.3819**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0449	0.0517	0.6003	1.6100e-003	0.1320	1.0100e-003	0.1330	0.0350	9.3000e-004	0.0360			120.7399	5.5400e-003		120.8563
Total	**0.0449**	**0.0517**	**0.6003**	**1.6100e-003**	**0.1320**	**1.0100e-003**	**0.1330**	**0.0350**	**9.3000e-004**	**0.0360**			**120.7399**	**5.5400e-003**		**120.8563**

3.12 Auger TSP Holes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7330	30.1595	15.7776	0.0454		1.1347	1.1347		1.0439	1.0439			4,571.5377	1.4232		4,601.4245
Total	**2.7330**	**30.1595**	**15.7776**	**0.0454**		**1.1347**	**1.1347**		**1.0439**	**1.0439**			**4,571.5377**	**1.4232**		**4,601.4245**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.0496**	**0.0571**	**0.6645**	**1.6200e-003**	**0.1320**	**1.0400e-003**	**0.1331**	**0.0350**	**9.6000e-004**	**0.0360**			**125.2115**	**6.0000e-003**		**125.3374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1695	35.7161	25.0002	0.0454		0.8484	0.8484		0.8484	0.8484			4,571.5377	1.4232		4,601.4245
Total	**1.1695**	**35.7161**	**25.0002**	**0.0454**		**0.8484**	**0.8484**		**0.8484**	**0.8484**			**4,571.5377**	**1.4232**		**4,601.4245**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.0496**	**0.0571**	**0.6645**	**1.6200e-003**	**0.1320**	**1.0400e-003**	**0.1331**	**0.0350**	**9.6000e-004**	**0.0360**			**125.2115**	**6.0000e-003**		**125.3374**

3.13 Restoration and Cleanup - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1291	0.0000	1.1291	0.6207	0.0000	0.6207			0.0000			0.0000
Off-Road	0.8241	8.5859	5.1211	8.2000e-003		0.4177	0.4177		0.3842	0.3842			825.8981	0.2571		831.2975
Total	**0.8241**	**8.5859**	**5.1211**	**8.2000e-003**	**1.1291**	**0.4177**	**1.5468**	**0.6207**	**0.3842**	**1.0049**			**825.8981**	**0.2571**		**831.2975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0425	0.0490	0.5695	1.3800e-003	0.1132	8.9000e-004	0.1141	0.0300	8.2000e-004	0.0308			107.3241	5.1400e-003		107.4321
Total	**0.0425**	**0.0490**	**0.5695**	**1.3800e-003**	**0.1132**	**8.9000e-004**	**0.1141**	**0.0300**	**8.2000e-004**	**0.0308**			**107.3241**	**5.1400e-003**		**107.4321**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5081	0.0000	0.5081	0.2793	0.0000	0.2793			0.0000			0.0000
Off-Road	0.2439	6.6832	5.0224	8.2000e-003		0.1717	0.1717		0.1717	0.1717			825.8981	0.2571		831.2975
Total	**0.2439**	**6.6832**	**5.0224**	**8.2000e-003**	**0.5081**	**0.1717**	**0.6798**	**0.2793**	**0.1717**	**0.4510**			**825.8981**	**0.2571**		**831.2975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0425	0.0490	0.5695	1.3800e-003	0.1132	8.9000e-004	0.1141	0.0300	8.2000e-004	0.0308			107.3241	5.1400e-003		107.4321
Total	**0.0425**	**0.0490**	**0.5695**	**1.3800e-003**	**0.1132**	**8.9000e-004**	**0.1141**	**0.0300**	**8.2000e-004**	**0.0308**			**107.3241**	**5.1400e-003**		**107.4321**

3.13 Restoration and Cleanup - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1291	0.0000	1.1291	0.6207	0.0000	0.6207			0.0000			0.0000

Off-Road	0.7649	7.7908	4.9501	8.2000e-003		0.3784	0.3784		0.3481	0.3481			812.3490	0.2570		817.7464
Total	**0.7649**	**7.7908**	**4.9501**	**8.2000e-003**	**1.1291**	**0.3784**	**1.5075**	**0.6207**	**0.3481**	**0.9688**			**812.3490**	**0.2570**		**817.7464**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0385	0.0443	0.5145	1.3800e-003	0.1132	8.6000e-004	0.1140	0.0300	8.0000e-004	0.0308			103.4913	4.7500e-003		103.5911
Total	**0.0385**	**0.0443**	**0.5145**	**1.3800e-003**	**0.1132**	**8.6000e-004**	**0.1140**	**0.0300**	**8.0000e-004**	**0.0308**			**103.4913**	**4.7500e-003**		**103.5911**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5081	0.0000	0.5081	0.2793	0.0000	0.2793			0.0000			0.0000
Off-Road	0.2439	6.6832	5.0224	8.2000e-003		0.1717	0.1717		0.1717	0.1717			812.3490	0.2570		817.7464
Total	**0.2439**	**6.6832**	**5.0224**	**8.2000e-003**	**0.5081**	**0.1717**	**0.6798**	**0.2793**	**0.1717**	**0.4510**			**812.3490**	**0.2570**		**817.7464**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0385	0.0443	0.5145	1.3800e-003	0.1132	8.6000e-004	0.1140	0.0300	8.0000e-004	0.0308			103.4913	4.7500e-003		103.5911
Total	**0.0385**	**0.0443**	**0.5145**	**1.3800e-003**	**0.1132**	**8.6000e-004**	**0.1140**	**0.0300**	**8.0000e-004**	**0.0308**			**103.4913**	**4.7500e-003**		**103.5911**

3.14 TSP Concrete Foundation Removal - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6978	5.9503	5.3593	7.6300e-003		0.4300	0.4300		0.4077	0.4077			750.6125	0.1728		754.2413
Total	**0.6978**	**5.9503**	**5.3593**	**7.6300e-003**	**0.0000**	**0.4300**	**0.4300**	**0.0000**	**0.4077**	**0.4077**			**750.6125**	**0.1728**		**754.2413**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0283	0.0327	0.3797	9.2000e-004	0.0754	5.9000e-004	0.0760	0.0200	5.5000e-004	0.0206			71.5494	3.4300e-003		71.6214
Total	**0.0283**	**0.0327**	**0.3797**	**9.2000e-004**	**0.0754**	**5.9000e-004**	**0.0760**	**0.0200**	**5.5000e-004**	**0.0206**			**71.5494**	**3.4300e-003**		**71.6214**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	6.8625	5.3455	7.6300e-003		0.2774	0.2774		0.2774	0.2774			750.6125	0.1728		754.2413
Total	**0.3323**	**6.8625**	**5.3455**	**7.6300e-003**	**0.0000**	**0.2774**	**0.2774**	**0.0000**	**0.2774**	**0.2774**			**750.6125**	**0.1728**		**754.2413**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0283	0.0327	0.3797	9.2000e-004	0.0754	5.9000e-004	0.0760	0.0200	5.5000e-004	0.0206			71.5494	3.4300e-003		71.6214
Total	**0.0283**	**0.0327**	**0.3797**	**9.2000e-004**	**0.0754**	**5.9000e-004**	**0.0760**	**0.0200**	**5.5000e-004**	**0.0206**			**71.5494**	**3.4300e-003**		**71.6214**

3.14 TSP Concrete Foundation Removal - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6157	5.3414	5.2953	7.6300e-003		0.3628	0.3628		0.3441	0.3441			742.7608	0.1697		746.3251
Total	**0.6157**	**5.3414**	**5.2953**	**7.6300e-003**	**0.0000**	**0.3628**	**0.3628**	**0.0000**	**0.3441**	**0.3441**			**742.7608**	**0.1697**		**746.3251**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0257	0.0295	0.3430	9.2000e-004	0.0754	5.8000e-004	0.0760	0.0200	5.3000e-004	0.0205			68.9942	3.1700e-003		69.0607
Total	**0.0257**	**0.0295**	**0.3430**	**9.2000e-004**	**0.0754**	**5.8000e-004**	**0.0760**	**0.0200**	**5.3000e-004**	**0.0205**			**68.9942**	**3.1700e-003**		**69.0607**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000

Off-Road	0.3323	6.8625	5.3455	7.6300e-003		0.2774	0.2774		0.2774	0.2774			742.7608	0.1697		746.3251
Total	**0.3323**	**6.8625**	**5.3455**	**7.6300e-003**	**0.0000**	**0.2774**	**0.2774**	**0.0000**	**0.2774**	**0.2774**			**742.7608**	**0.1697**		**746.3251**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0257	0.0295	0.3430	9.2000e-004	0.0754	5.8000e-004	0.0760	0.0200	5.3000e-004	0.0205			68.9942	3.1700e-003		69.0607
Total	**0.0257**	**0.0295**	**0.3430**	**9.2000e-004**	**0.0754**	**5.8000e-004**	**0.0760**	**0.0200**	**5.3000e-004**	**0.0205**			**68.9942**	**3.1700e-003**		**69.0607**

3.15 TSP Installation with Concrete Pier - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	6.5805	72.8274	34.0541	0.1008		2.7939	2.7939		2.5704	2.5704			10,138.2245	3.1562		10,204.5041
Total	**6.5805**	**72.8274**	**34.0541**	**0.1008**		**2.7939**	**2.7939**		**2.5704**	**2.5704**			**10,138.2245**	**3.1562**		**10,204.5041**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0907	1.1711	1.1364	3.6900e-003	0.3538	0.0165	0.3703	0.0893	0.0152	0.1045			359.7442	2.6300e-003		359.7995
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.1402**	**1.2282**	**1.8009**	**5.3100e-003**	**0.4858**	**0.0175**	**0.5033**	**0.1243**	**0.0161**	**0.1404**			**484.9557**	**8.6300e-003**		**485.1369**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4670	79.1633	53.4509	0.1008		1.8091	1.8091		1.8091	1.8091			10,138.2245	3.1562		10,204.5041
Total	**2.4670**	**79.1633**	**53.4509**	**0.1008**		**1.8091**	**1.8091**		**1.8091**	**1.8091**			**10,138.2245**	**3.1562**		**10,204.5041**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0907	1.1711	1.1364	3.6900e-003	0.3538	0.0165	0.3703	0.0893	0.0152	0.1045			359.7442	2.6300e-003		359.7995

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0496	0.0571	0.6645	1.6200e-003	0.1320	1.0400e-003	0.1331	0.0350	9.6000e-004	0.0360			125.2115	6.0000e-003		125.3374
Total	**0.1402**	**1.2282**	**1.8009**	**5.3100e-003**	**0.4858**	**0.0175**	**0.5033**	**0.1243**	**0.0161**	**0.1404**			**484.9557**	**8.6300e-003**		**485.1369**

3.15 TSP Installation with Concrete Pier - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.9825	63.2364	32.0830	0.1007		2.4058	2.4058		2.2133	2.2133			9,971.8521	3.1550		10,038.1068
Total	**5.9825**	**63.2364**	**32.0830**	**0.1007**		**2.4058**	**2.4058**		**2.2133**	**2.2133**			**9,971.8521**	**3.1550**		**10,038.1068**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0893	1.0811	1.1122	3.6900e-003	0.1041	0.0163	0.1204	0.0280	0.0150	0.0430			354.2658	2.6300e-003		354.3210
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0449	0.0517	0.6003	1.6100e-003	0.1320	1.0100e-003	0.1330	0.0350	9.3000e-004	0.0360			120.7399	5.5400e-003		120.8563
Total	**0.1342**	**1.1328**	**1.7125**	**5.3000e-003**	**0.2361**	**0.0173**	**0.2534**	**0.0630**	**0.0159**	**0.0790**			**475.0056**	**8.1700e-003**		**475.1772**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4670	79.1633	53.4509	0.1007		1.8091	1.8091		1.8091	1.8091			9,971.8521	3.1550		10,038.1068
Total	**2.4670**	**79.1633**	**53.4509**	**0.1007**		**1.8091**	**1.8091**		**1.8091**	**1.8091**			**9,971.8521**	**3.1550**		**10,038.1068**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0893	1.0811	1.1122	3.6900e-003	0.1041	0.0163	0.1204	0.0280	0.0150	0.0430			354.2658	2.6300e-003		354.3210
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0449	0.0517	0.6003	1.6100e-003	0.1320	1.0100e-003	0.1330	0.0350	9.3000e-004	0.0360			120.7399	5.5400e-003		120.8563
Total	**0.1342**	**1.1328**	**1.7125**	**5.3000e-003**	**0.2361**	**0.0173**	**0.2534**	**0.0630**	**0.0159**	**0.0790**			**475.0056**	**8.1700e-003**		**475.1772**

3.16 TSp Installation with Micropile - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1234	19.6343	12.3829	0.0281		0.9886	0.9886		0.9502	0.9502			2,757.7158	0.6267		2,770.8754

Total	**2.1234**	**19.6343**	**12.3829**	**0.0281**		**0.9886**	**0.9886**		**0.9502**	**0.9502**			**2,757.7158**	**0.6267**		**2,770.8754**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0470	21.3367	15.6271	0.0281		0.7057	0.7057		0.7057	0.7057			2,757.7158	0.6267		2,770.8754
Total	**1.0470**	**21.3367**	**15.6271**	**0.0281**		**0.7057**	**0.7057**		**0.7057**	**0.7057**			**2,757.7158**	**0.6267**		**2,770.8754**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**		**0.0000**

3.16 TSp Installation with Micropile - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9100	17.3953	11.9995	0.0280		0.8495	0.8495		0.8164	0.8164			2,729.3694	0.6164		2,742.3138
Total	**1.9100**	**17.3953**	**11.9995**	**0.0280**		**0.8495**	**0.8495**		**0.8164**	**0.8164**			**2,729.3694**	**0.6164**		**2,742.3138**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0009	21.0810	15.6090	0.0280		0.6769	0.6769		0.6769	0.6769			2,729.3694	0.6164		2,742.3138
Total	**1.0009**	**21.0810**	**15.6090**	**0.0280**		**0.6769**	**0.6769**		**0.6769**	**0.6769**			**2,729.3694**	**0.6164**		**2,742.3138**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**	**0.0000**		**0.0000**

3.17 Circuit Breaker Installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8616	20.0433	14.1169	0.0314		0.8735	0.8735		0.8072	0.8072			3,100.3859	0.9494		3,120.3233
Total	**1.8616**	**20.0433**	**14.1169**	**0.0314**		**0.8735**	**0.8735**		**0.8072**	**0.8072**			**3,100.3859**	**0.9494**		**3,120.3233**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0514	0.0591	0.6860	1.8500e-003	0.1509	1.1500e-003	0.1520	0.0400	1.0700e-003	0.0411			137.9884	6.3300e-003		138.1214
Total	**0.0514**	**0.0591**	**0.6860**	**1.8500e-003**	**0.1509**	**1.1500e-003**	**0.1520**	**0.0400**	**1.0700e-003**	**0.0411**			**137.9884**	**6.3300e-003**		**138.1214**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9823	26.2681	19.1764	0.0314		0.7382	0.7382		0.7382	0.7382			3,100.3859	0.9494		3,120.3232

Total	**0.9823**	**26.2681**	**19.1764**	**0.0314**		**0.7382**	**0.7382**		**0.7382**	**0.7382**			**3,100.3859**	**0.9494**		**3,120.3232**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0514	0.0591	0.6860	1.8500e-003	0.1509	1.1500e-003	0.1520	0.0400	1.0700e-003	0.0411			137.9884	6.3300e-003		138.1214
Total	**0.0514**	**0.0591**	**0.6860**	**1.8500e-003**	**0.1509**	**1.1500e-003**	**0.1520**	**0.0400**	**1.0700e-003**	**0.0411**			**137.9884**	**6.3300e-003**		**138.1214**

3.18 Road Subgrade Prep - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2082	2.7730	3.4219	5.0900e-003		0.1271	0.1271		0.1169	0.1169			503.6620	0.1594		507.0084
Total	**0.2082**	**2.7730**	**3.4219**	**5.0900e-003**	**0.0000**	**0.1271**	**0.1271**	**0.0000**	**0.1169**	**0.1169**			**503.6620**	**0.1594**		**507.0084**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1063	1.2876	1.3247	4.4000e-003	0.1041	0.0194	0.1236	0.0285	0.0179	0.0464			421.9542	3.1300e-003		422.0200
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0193	0.0222	0.2573	6.9000e-004	0.0566	4.3000e-004	0.0570	0.0150	4.0000e-004	0.0154			51.7457	2.3800e-003		51.7955
Total	**0.1256**	**1.3098**	**1.5820**	**5.0900e-003**	**0.1607**	**0.0199**	**0.1806**	**0.0435**	**0.0183**	**0.0618**			**473.6999**	**5.5100e-003**		**473.8155**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2402	4.9595	3.8632	5.0900e-003		0.2005	0.2005		0.2005	0.2005			503.6620	0.1594		507.0084
Total	**0.2402**	**4.9595**	**3.8632**	**5.0900e-003**	**0.0000**	**0.2005**	**0.2005**	**0.0000**	**0.2005**	**0.2005**			**503.6620**	**0.1594**		**507.0084**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1063	1.2876	1.3247	4.4000e-003	0.1041	0.0194	0.1236	0.0285	0.0179	0.0464			421.9542	3.1300e-003		422.0200

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0193	0.0222	0.2573	6.9000e-004	0.0566	4.3000e-004	0.0570	0.0150	4.0000e-004	0.0154			51.7457	2.3800e-003		51.7955
Total	**0.1256**	**1.3098**	**1.5820**	**5.0900e-003**	**0.1607**	**0.0199**	**0.1806**	**0.0435**	**0.0183**	**0.0618**			**473.6999**	**5.5100e-003**		**473.8155**

3.19 Asphalt Road Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5540	6.5286	6.9095	0.0107		0.3110	0.3110		0.2861	0.2861			1,063.1550	0.3364		1,070.2188
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5540**	**6.5286**	**6.9095**	**0.0107**		**0.3110**	**0.3110**		**0.2861**	**0.2861**			**1,063.1550**	**0.3364**		**1,070.2188**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1063	1.2876	1.3247	4.4000e-003	0.1041	0.0194	0.1236	0.0285	0.0179	0.0464			421.9542	3.1300e-003		422.0200
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0193	0.0222	0.2573	6.9000e-004	0.0566	4.3000e-004	0.0570	0.0150	4.0000e-004	0.0154			51.7457	2.3800e-003		51.7955
Total	**0.1256**	**1.3098**	**1.5820**	**5.0900e-003**	**0.1607**	**0.0199**	**0.1806**	**0.0435**	**0.0183**	**0.0618**			**473.6999**	**5.5100e-003**		**473.8155**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4601	9.7860	8.1457	0.0107		0.3486	0.3486		0.3486	0.3486			1,063.1550	0.3364		1,070.2188
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4601**	**9.7860**	**8.1457**	**0.0107**		**0.3486**	**0.3486**		**0.3486**	**0.3486**			**1,063.1550**	**0.3364**		**1,070.2188**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1063	1.2876	1.3247	4.4000e-003	0.1041	0.0194	0.1236	0.0285	0.0179	0.0464			421.9542	3.1300e-003		422.0200
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Worker	0.0193	0.0222	0.2573	6.9000e-004	0.0566	4.3000e-004	0.0570	0.0150	4.0000e-004	0.0154			51.7457	2.3800e-003		51.7955
Total	**0.1256**	**1.3098**	**1.5820**	**5.0900e-003**	**0.1607**	**0.0199**	**0.1806**	**0.0435**	**0.0183**	**0.0618**			**473.6999**	**5.5100e-003**		**473.8155**

3.20 LDS Pole Install - Aerial - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000

Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

3.20 LDS Pole Install - Aerial - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		

Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.471814	0.077320	0.181313	0.151940	0.061685	0.009120	0.019075	0.010399	0.002651	0.002510	0.008802	0.000509	0.002861

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**	**0.0000**		**0.0000**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000			0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**	**0.0000**		**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX D REVISED MITIGATION MONITORING AND REPORTING PROGRAM

1 REVISED MITIGATION MONITORING AND REPORTING PROGRAM

1.1 OVERVIEW

Pursuant to Public Resources Code (PRC) § 21081.6 and § 15097 of the California Environmental Quality Act (CEQA) Guidelines, when an agency finds that mitigation measures (MMs) have been required in, or incorporated into, a project to avoid or substantially lessen its significant environmental effects, the agency must adopt a program for monitoring or reporting on such measures. The California Public Utilities Commission (CPUC) prepared and adopted a Mitigation Monitoring and Reporting Program (MMRP) for the approved project pursuant to PRC § 21081.6 and § 15097. The purpose of the MMRP is to ensure compliance with and effective implementation of the applicant proposed measures (APMs) and MMs required to avoid or reduce significant impacts of the project. This revised version of the MMRP includes APMs and MMs from the 2017 Initial Study (IS)/Mitigated Negative Declaration (MND) (2017 Final MND) and the changes to MM Traffic-1 identified in the 2019 Supplemental IS/MND (2019 Supplemental MND). Pacific Gas and Electric Company (PG&E) has agreed to implement these APMs and MMs as conditions of approval.

Required APMs and MMs from the 2017 Final MND and the 2019 Supplemental MND are provided in Table D-1, which includes information on the applicable locations, performance standards, and timing of implementation. APMs from PG&E's PEA that were excluded or superseded by MMs are not included.

The MMRP also includes a description of the following procedures that would be implemented by CPUC and PG&E before, during, and after project construction, as applicable:

- Mitigation monitoring
- Reporting
- Minor project refinements
- Dispute resolution

The MMRP will be revised, if necessary, following public review of the Supplemental MND and after further consideration by the CPUC during the formal decision-making process. The CPUC would adopt this revised version of the MMRP upon approval of PG&E's Petition for Modification, the subject of the 2019 Supplemental MND.

The CPUC prepared a Mitigation Monitoring, Compliance, and Reporting Plan (MMCRP) for the approved project (February 2018), which detailed specific requirements to ensure compliance with the adopted MMRP. The MMCRP serves as a guide for CPUC and PG&E staff working on the project and describes roles, responsibilities, communication procedures, and

expectations. Applicable revisions to the MMRP will be incorporated into the MMCRP as necessary.

1.2 MITIGATION MONITORING

The CPUC's designated Project Manager and environmental monitor (or monitors) would conduct mitigation monitoring for the project to verify full compliance with each APM and MM identified Table D-1, as well as any other permit and approval conditions subject to CPUC oversight. The designated environmental monitor would regularly visit the project site to verify compliance. The frequency and timing of site visits would be determined by the CPUC Project Manager depending on the project activities that are occurring. Mitigation monitoring would continue until PG&E has completed all field-based requirements, or until the CPUC project Manager determines that no further monitoring is necessary.

1.3 REPORTING

The results of mitigation monitoring would be documented in regular reports and submitted to the CPUC Project Manager.

PG&E would be responsible for submitting the specific reports identified for APMs and MMs in Table D-1. In addition, the CPUC would require PG&E to submit regular compliance reports that document compliance efforts before, during, and after project construction, including regular updates on the project schedule. The frequency of reports would be determined by the CPUC Project Manager depending on the project activities that are occurring. Compliance reporting would continue until PG&E has fulfilled the requirements of each APM and MM identified Table D-1, as well as any other permit and approval conditions subject to CPUC oversight, to the satisfaction of the CPUC Project Manager.

1.4 MINOR PROJECT REFINEMENTS

Circumstances may arise that require minor deviations from the CPUC-approved project to account for final engineering and design specifications, and to address any unforeseeable land use or environmental changes that could occur. Factors that may require project refinements include:

- Changes in land use (i.e., agricultural operations or property development)
- Avoidance of sensitive resources identified during pre-construction surveys or an inadvertent discovery
- Avoidance of unnecessary vegetation or ground disturbance
- Avoidance of hazards or other safety considerations

The CPUC, along with the CPUC's designated Project Manager and environmental monitor, would evaluate any proposed deviations from the CPUC-approved project to ensure they are consistent with CEQA requirements. Depending on the nature and extent, a proposed deviation

would be processed as a Minor Project Refinement or be the subject of a Petition for Modification that PG&E would submit to the CPUC. Minor Project Refinements would be strictly limited to minor deviations that do not trigger additional permit requirements, do not increase the severity of a significant impact, or create a new significant impact, and are within the geographic scope evaluated in the IS/MND.

If a project refinement would create or have the potential to create a new significant impact, increase the severity of a significant impact, or occur outside the geographic area evaluated in the 2017 Final MND or 2019 Supplemental MND, PG&E would be required to submit a Petition for Modification. The CPUC would evaluate the Petition for Modification under CEQA, as appropriate, to determine what form of supplemental environmental review would be required.

1.5 DISPUTE RESOLUTION

The following procedure would be observed for dispute resolution:

- **Step 1.** Disputes and complaints (including those from the public) should be directed first to the CPUC-designated Project Manager, for resolution. The Project Manager would attempt to resolve the dispute.
- **Step 2.** Should this informal process fail, the CPUC Project Manager may initiate enforcement or compliance actions to address deviations from the approved project or adopted MMRP.
- **Step 3.** If a dispute or complaint regarding the implementation or evaluation of the MMRP cannot be resolved informally or through enforcement or compliance action by the CPUC, any affected participant in the dispute or complaint may file a written "notice of dispute" with the CPUC's Executive Director or his/her designee. This notice should be filed in order to resolve the dispute in a timely manner, with copies concurrently served on other affected participants. Within 10 days of receipt, the Executive Director or designee(s) shall meet or confer with the filer and other affected participants for purposes of resolving the dispute. The Executive Director shall issue an Executive Resolution describing his/her decision, and serve it on the filer and other affected participants.
- **Step 4.** If one or more of the affected parties is not satisfied with the decision as described in the Executive Resolution, such party(ies) may appeal it to the CPUC via a procedure to be specified by the CPUC.

Parties may also seek review by the CPUC through existing procedures specified in the CPUC Rules of Practice and Procedure for formal and expedited dispute resolution, although a good faith effort should be made to use the foregoing procedure first.

APPENDIX D

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Table D-1 Mitigation Monitoring and Reporting Program

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
Agriculture and Forestry Resources		
MM Agriculture-1: Minimize Impacts on Active Agricultural Areas PG&E shall minimize disruptions to existing agriculture operations and avoid impacts on agricultural infrastructure (i.e., irrigation lines, wells, pumps, ditches, and drains). Work areas and overland access routes shall avoid active agricultural areas (i.e., farms, orchards, vineyards) and agriculture infrastructure where feasible. If necessary, and upon agreement with farmers, agricultural infrastructure shall be protected with temporary materials (i.e., steel plates, blankets, etc.) to prevent inadvertent damage during construction. Crop removal shall be avoided to the greatest extent feasible. If crops cannot be avoided, impacts shall be limited to the minimum necessary to construct the project, and PG&E shall provide the owner with fair market compensation to replace the crops and any damaged infrastructure. If grading occurs in active agricultural areas, topsoil shall be salvaged and replaced once construction is complete.	Access roads and work areas within agricultural properties	• **Before Construction:** Design access roads and work areas to avoid trees and crops where feasible • **During Construction:** Protect irrigation lines and avoid impacts to agricultural productions where feasible • **After Construction:** Replace any damaged crops
Air Quality		
APM AIR-1: Fugitive Dust Emissions Per BAAQMD CEQA guidelines, PG&E will implement the following fugitive dust control measures: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) in active construction zones shall be watered two times per day during dry conditions. • All haul trucks transporting soil, sand, or other loose material off site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers or equivalent method at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 miles-per-hour. • Post a publicly visible sign at work areas where grading/blading and helicopter activities occur near public and residential areas with the telephone number and person to contact at PG&E regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's dust complaint phone number shall also be visible to ensure compliance with applicable regulations. • Helicopter LZs shall be watered prior to takeoff and landings as needed in unvegetated areas in dry conditions.	All project areas	• **Before Construction:** Dust complaint signs are posted adequately • **During Construction:** (1) Exposed surfaces are watered two times a day during dry conditions, (2) Haul trucks are adequately covered, (3) Soil track out is adequately managed, (4) Vehicle speeds limits are maintained, and (5) Helicopter LZs are watered as needed prior to takeoff and landings • **After Construction:** N/A
APM AIR-2: Exhaust Emissions Per BAAQMD CEQA guidelines, PG&E will implement the following exhaust emission control measures: • Minimize unnecessary construction vehicle and equipment idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to use of diesel-powered vehicles and equipment. Clear signage shall be provided for construction workers at all access points. • Construction equipment will be properly maintained by a certified mechanic. All off-road construction diesel engines not registered under the CARB Statewide Portable Equipment Registration Program will meet at a minimum the Tier 1 California Emission Standards for Off-Road Compression-Ignition Engines as specified in CCR Title 13, Chapter 9, Sec. 2423(b)(1).	All project areas	• **Before Construction:** Brief crews regarding idling limitations • **During Construction:** (1) Idling of construction vehicle and equipment limited to 5 consecutive minutes to the greatest extent possible, and (2) A certified mechanic maintains construction equipment • **After Construction**: N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
Biological Resources		
APM BIO-1a: Environmental Awareness Training PG&E will prepare and implement a Worker Environmental Awareness Program (WEAP) that includes conducting training for all construction and on-site personnel prior to working on the project site. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources (e.g., APM and MM requirements), as well as the terms and conditions of any Biological Opinion or other permits that apply to the project. Training will include information on the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers shall be informed about the presence, life history, and habitat requirements of all listed and special-status species with a potential to be affected within the project area. Training will also include information on state and federal laws protecting nesting birds, wetlands, and other water resources, as applicable and appropriate to the project. A copy of the training materials shall be provided to CPUC for review and approval no less than 30 days before construction. Training logs and sign-in sheets shall be provided to CPUC monthly.	N/A	• **Before Construction:** A copy of the training materials is provided to the CPUC at least 30 days before construction • **During Construction:** (1) All project personnel are trained prior to working on the site, and (2) The CPUC is provided with training logs and sign-in sheets monthly • **After Construction:** N/A
APM BIO-1f: Litter and Trash Management All food scraps, wrappers, food containers, cans, bottles, and other trash from the project area will be deposited in trash containers with an adequate lid or cover to contain trash. All food waste shall be placed in a securely-covered bin and removed from the site on a weekly basis to avoid attracting animals.	All project areas	• **Before Construction:** N/A • **During Construction:** Litter and trash is contained and disposed of adequately • **After Construction:** N/A
APM BIO-1g: Parking Vehicles and equipment will be parked on pavement, existing roads or paved road shoulders, developed areas, or approved work areas.	All project areas	• **Before Construction:** N/A • **During Construction:** Vehicle and equipment parking is limited to appropriate areas • **After Construction:** N/A
APM BIO-1h: Access Route and Work Area Limitations Vehicles will be confined to public roadways and pre-approved access routes (e.g., private paved and unpaved roads, and overland routes), previously disturbed and unvegetated roadsides, and work areas. Access routes and construction work areas will be limited to the minimum necessary to achieve the project goals.	All project areas	• **Before Construction:** N/A • **During Construction:** Vehicle and equipment access is limited to approved areas and access routes • **After Construction:** N/A
APM BIO-1j: Pets and Firearms No pets or firearms will be permitted at the project site.	All project areas	• **Before Construction:** N/A • **During Construction:** No pets and firearms are brought to the site • **After Construction:** N/A
APM BIO-1k: Cover Excavations Pole excavations shall be thoroughly covered at the end of each work day to prevent people, wildlife, or livestock from falling in. Trench excavations greater than 2 feet deep will be sloped, or have escape ramps installed that are suitable for the escape of wildlife, or be thoroughly covered at the end of the day. All excavations in active work areas will be inspected for wildlife at the beginning of the work day and prior to backfilling. If a special-status species is discovered in an excavation area, work in the area will be redirected and the special-status species shall first be allowed to leave the area of its own accord. In the event that a special-status species is trapped in an excavation and is unable to leave on its own accord, removal will be performed or overseen by a biological monitor with the applicable permits for handling of the species.	All project areas where qualifying excavation occurs	• **Before Construction:** N/A • **During Construction:** (1) Excavations are covered, sloped, ramped, and marked appropriately, (2) Excavations are inspected for wildlife, (3) Any trapped wildlife is relocated, and (4) Any trapped special-status wildlife is relocated according to applicable USFWS and CDFW authorizations • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
APM BIO-7: California Tiger Salamander Unless otherwise authorized by USFWS and/or CDFW, PG&E shall implement the following procedures to protect CTS that may be present in designated critical habitat for CTS and in areas identified in the Santa Rosa Plain Conservation Strategy (SRPCS) as locations where CTS could be adversely affected: • A qualified biologist, who is approved by USFWS and/or CDFW if required[1], shall conduct a pre-construction clearance survey of the work areas no more than 24 hours in advance of work activities that could adversely affect CTS. • If construction activities must occur during the wet season (October 15 through April 15), a qualified biologist, who is approved by USFWS and/or CDFW if required, will determine if it is appropriate to fence the perimeter of work areas located in areas. Amphibian exclusion fencing will be used. Installation of exclusion fencing will occur under the supervision of a qualified biologist. The amphibian exclusion fencing will remain in place for the duration of construction in that area during the wet season, and will be monitored regularly by environmental inspectors or biologists. Where access is necessary, gates will be installed within the exclusion fence. • Grading and vegetation clearing shall not occur where CTS could be adversely affected during the wet season. • During wet weather or the rainy season, all open holes, pits, and trenches will be protected to ensure that CTS do not become entrapped. Qualified personnel will install protective fencing, coverings, or ramps to either prevent CTS from falling into excavations or to allow for escape. At the end of each work day, trenches will be covered and/or fenced. Excavation sites will be inspected each morning, prior to the start of construction activities, to ensure that no CTS are trapped. • During the wet season or after a rain event (with greater than 0.1 inches of rainfall), construction personnel will check underneath all vehicles (i.e., tires, tracks, etc.) for the presence of CTS. • Best management practices (BMPs) shall be implemented to minimize erosion and prevent sediment from leaving work areas and entering any aquatic habitat. Monofilament netting that could entrap CTS shall not be used for any erosion-control materials. PG&E may consult with USFWS and/or CDFW before beginning work in designated critical habitat for CTS and in areas identified in the SRPCS as locations where CTS could be adversely affected to determine the necessity of implementing the requirements listed above based on the habitat characteristics in the project area. Such considerations may include adjacent land uses and lack of connectivity to suitable habitat where project work areas are located. Any discovered CTS will be reported to the on-site biologist or to PG&E environmental staff. If a CTS is found during work activities, PG&E shall redirect work that poses a risk to the animal, as determined by a qualified biologist, and consult with USFWS and/or CDFW before resuming work in the area. CTS handling and relocation may only occur after consultation with the permitting agencies, and must be conducted by individuals with proper qualifications and agency approval. PG&E shall provide CPUC with any agency permits and determinations regarding CTS for the project.	Work areas located in designated critical habitat for CTS and in areas identified in the SRPCS as locations where CTS could be adversely affected	• **Before Construction:** (1) PG&E provides CPUC with any agency permits or determinations, (2) A pre-construction clearance survey is performed, and (3) CTS exclusion fencing is installed, if and where appropriate • **During Construction:** PG&E implements CTS protection measures in designated habitat for CTS or areas identified in the SRPCS as locations where CTS could be adversely affected, unless otherwise authorized by USFWS and/or CDFW • **After Construction:** N/A
APM BIO-8: American Badger A qualified biologist shall conduct a pre-activity survey for active American badger dens within 30 days prior to grading or vegetation clearing in work areas, or use of overland access routes. The pre-activity survey area shall be limited to potentially suitable habitat for American badger (e.g., grasslands and woodlands) located within 250 feet of work areas where grading or land vegetation clearing may occur and within or immediately adjacent to overland access routes. PG&E shall submit the survey results to CPUC prior to construction. PG&E may use cameras to determine if dens are active. If active dens are identified at any time during construction, the dens shall be flagged and avoided. A 250-foot work restriction buffer shall be established around active maternal dens. For non-maternal dens, a 50-foot work restriction buffer shall be established around active dens. Smaller buffers may be established through consultation with CDFW. If an active non-maternal den cannot be avoided, PG&E may consult with CDFW to determine if it would be appropriate to implement passive exclusion techniques, such as sealing the den after animals have vacated. A qualified biologist shall inspect construction activities near active American badger dens on a weekly basis to ensure the work restriction buffers are implemented appropriately and active dens are avoided.	Potentially suitable habitat for American badger (e.g., grasslands and woodlands) within 250 feet of work areas where grading or land vegetation clearing may occur and within or immediately adjacent to overland access routes	• **Before Construction:** Pre-construction surveys are conducted for American badger dens and survey results are submitted to the CPUC • **During Construction:** (1) Work restriction buffers are implemented, and (2) Construction activities near active dens are monitored • **After Construction:** N/A

[1] For purposes of this measure, approval "if required" means if required by USFWS or CDFW.

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
APM BIO-9: Western Pond Turtle A survey for western pond turtle shall be performed by a qualified biologist within 24 hours prior to work within 400 feet of potentially suitable habitat (e.g., ponds, lakes, slow streams, or marshes with vegetated borders, rocks, or logs). A qualified biologist shall also conduct daily sweeps during the spring nesting season of work areas and access routes within 400 feet of suitable habitat for western pond turtle prior to work activities. The daily sweeps shall consist of walking the limits of construction areas and access routes to identify any pond turtles that may be present. Individual western pond turtles, if found in the work area during spring/nesting season, shall be relocated out of harm's way and outside of the construction area in the direction of travel, or as directed by the CDFW. Similarly, if found during hibernation movements in winter, individual western pond turtles will be relocated outside of the construction area in the direction of travel, or as directed by CDFW.	All project locations within 400 feet suitable habitat for western pond turtle	• **Before Construction:** Pre-construction survey for western pond turtle is conducted within 400 feet of suitable aquatic habitat • **During Construction:** (1) Daily sweeps within 400 feet of suitable habitat are conducted during the spring nesting season, and (2) Western pond turtle are relocated out of harm's way in the direction of travel • **After Construction:** N/A
APM BIO-10: Tree Removal and Mitigation Tree removal will be minimized to what is required to implement the project. For removal of large valley oak trees greater than 20 inches dbh or small valley oaks with a cumulative dbh greater than 60 inches that occurs within the Sonoma County Valley Oak Combining District, PG&E will coordinate with landowners to either replace or pay an in-lieu fee to the County valley oak planting program. Any protected trees that are otherwise removed will be documented and replaced at a 1:1 ratio or other measure derived through coordination with Sonoma County or the Town of Windsor that provides an equal level of compensation.	All project areas where qualifying oak tree removal occurs	• **Before Construction:** PG&E identifies all qualifying oak trees that may be impacted with work areas and access routes • **During Construction:** (1) PG&E documents all qualifying oak trees that are removed, (2) PG&E coordinates with applicable landowners to replace oak trees or pay fee to County tree planting program, and (3) Protected oak trees are replaced at a 1:1 ratio or as determined through coordination with the County • **After Construction:** Ensure success of replanting if trees are replaced
MM Biology-1: General Biological Monitoring (Supersedes APM BIO-1b and APM BIO-1c) **Biologist Approval and Qualifications.** CPUC-approved qualified biologists will conduct biological surveys and monitoring for the project. Qualified biologists are defined as individuals with a bachelor's degree or above in a biological science field and demonstrated field experience. Approved and qualified biologists shall conduct required surveys and monitoring for special-status species and active nests. Qualified avian biologists are defined as individuals with demonstrated field expertise in ornithology, in particular, nesting behavior and nest detection. Monitoring biologists conducting avian nest checks shall have demonstrated experience surveying or monitoring nesting birds. Qualified botanists are defined as individuals with demonstrated field expertise in botany. Qualified herpetologists are defined as individuals with demonstrated experience with California reptile and amphibian species. Biologists qualified for construction monitoring shall hold at minimum 1 to 2 years of construction-related biological monitoring experience. Biologists qualified as a lead field monitoring biologist shall have 5 or more years of related experience. **General Monitoring Procedures.** The approved biologist shall conduct general biological monitoring during construction activities that may disturb sensitive biological resources. The general biological monitoring (as required by this measure) may be conducted concurrently with other required monitoring activities, as appropriate. The biological monitor shall be responsible for ensuring compliance with avoidance and minimization procedures, regularly attending morning tailboard meetings with workers, and administering the required biological training requirements. **Resource Delineation.** Prior to construction or access in any area containing or potentially containing sensitive habitats, the biological monitor shall mark or otherwise delineate the limits of sensitive habitats and resources (i.e., wetlands and other water features, suitable aquatic habitat) for avoidance, and where necessary, post signs at access route entrances to inform workers of special access considerations (i.e., seasonal restrictions, biological monitor escort, etc.). Resource markings and signs shall be maintained and repaired as needed and as directed by the biological monitor. A biological monitor shall be present during the initial construction access in all unpaved areas to identify and mark sensitive resources for avoidance. The biological monitor shall also be present during all grading and vegetation clearing (e.g., mowing, trimming, and removal) within 50 feet of sensitive habitats or resources unless otherwise agreed by the CPUC biologist, lead environmental monitor, and PG&E's lead biologist. The biological monitor shall have full authority to halt construction once safe to do so if a resource has or may be impacted. The biological monitor shall also visit each active work site at least once a week to inspect the work area for the presence of biological resources, verify that all avoidance measures (e.g., flagging or fencing) are in place, and document any species relocation or impacts.	All unpaved work areas within 50 feet of sensitive resources	• **Before Construction:** (1) PG&E submits qualifications for general biological monitor(s) to the CPUC for review and approval, and (2) The extent of work areas in locations with sensitive resource potential are marked • **During Construction:** (1) Biological monitoring is conducted when working in sensitive habitats and at least once a week, and (2) Signs and marking and flagging material are maintained and repaired • **After Construction:** N/A
MM Biology-2: Special-status Plants (Supersedes APM BIO-4) **Focused Surveys**. Qualified botanist(s) shall conduct protocol-level botanical surveys, employing the CNPS "Intuitive Controlled" survey method or other accepted botanical survey protocol. The surveys shall include a floristic inventory and focused search for special-status plants with potential to occur in project areas where suitable habitat is present. Special-	All project areas where suitable habitat for special-status plants is present	• **Before Construction:** (1) Special-status plant surveys are conducted during the appropriate blooming period for each species, (2) A survey report is submitted to the CPUC no less than 30 days before construction, (3) if an impact to a special-status plant cannot be

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
status plant surveys shall be conducted during the appropriate blooming period for each species and prior to construction activities. Special-status plant survey(s) shall be conducted within 2 years of mobilization. The survey results shall be summarized in a report and provided to the CPUC no less than 30 days prior to construction. The survey report shall identify the botanists' names and qualifications, and a description of the survey dates, methods, and a description of the survey efforts, including a list of the species that were searched for, results of the plant inventory evaluation, and suitable habitat that was encountered. The report shall include maps (1: 3,000 scale) that identify final project work areas and access routes, the locations of suitable habitat within the project study area as defined in the IS/MND, and the extent of focused plant surveys that cover project areas located in suitable habitat. If any special-status plant individuals or populations are encountered, the plants shall be enumerated and described in the report. Maps in the report shall identify point locations for individual plants and boundaries for plant populations. The report shall include recommendations for avoiding the plants, where feasible. If special-status plants cannot be avoided, the plant impacts shall be enumerated and described in the survey report. PG&E shall consult with USFWS and CDFW should any state- or federally-listed plants be found that cannot be avoided, to determine if permit authorizations are required. PG&E shall provide the CPUC with any permits and authorizations obtained from USFWS and CDFW. Special-status plants within and adjacent to work areas and access routes shall be marked and completely avoided, to the extent feasible, by a qualified botanist. **Salvage and Replanting Plan.** If impacts on the special-status plant species cannot be avoided and if impacts would be substantial, as determined by the CPUC taking into consideration the rarity of the species in the project area and the extent of the impact, PG&E shall prepare and implement a Salvage and Replanting Plan. The plan would specify, at a minimum, the following: • Location of the mitigation site(s) (extent of the plants within and adjacent to project areas). • Procedures for procuring plants, such as transplanting or collecting seed from plants to be impacted, including storage locations and methods to preserve the plants. • Procedures for propagating collected seed, including storage methods. • Quantity and species of plants to be planted or transplanted. • Planting procedures, including the use of soil preparation and irrigation. • Schedule and action plan to maintain and monitor the mitigation site for a minimum 3-year period. • Reporting procedures, including the contents of annual progress reports. • List of criteria (e.g., growth, plant cover, survivorship) by which to measure success of the plantings. • Contingency measures to implement if the plantings are not successful (i.e., weed removal, supplemental plantings, etc.). PG&E shall submit the plan to the CPUC for review and approval no less than 30 days prior to impacting or collecting special-status plants. At a minimum, the transplanted/created population(s) shall have approximately the same characteristics as the impacted population (within 10-percent density, total population number, and non-native/invasive). Seasonal population changes may be taken into account by identifying and documenting the characteristics of an appropriate representative reference site prior to impacting a population. Reference sites that will be used must be identified and described in the Salvage and Replanting Plan. If CPUC determines that the Salvage and Replanting Plan is not likely to be successful (due to the species' life form, habitat requirements, or other factors), then either (1) impacts on the special-status plants in questions must be avoided, or (2) a financial contribution will be made to an organization that restores/protects special-status plant populations in the project region.		avoided, a Salvage and Replanting Plan is submitted to the CPUC for approval, (4) Plant salvage and/or seed collection procedures are implemented, and (5) Special-status plant populations are flagged for avoidance. • **During Construction:** (1) Special-status plants are avoided and monitored appropriately, and (2) Salvaged plants and seed are stored and monitored appropriately • **After Construction:** Replanting procedures and monitoring are implemented until the success criteria are met, or a financial contribution is made to an organization that restores/protects special-status populations in the project region.
MM Biology-3: California Red-legged Frog (Supersedes APM BIO-1d, APM BIO-1m, and APM BIO-6) **Habitat Survey and Mapping.** A qualified biologist shall identify potentially suitable aquatic habitat for CRLF (i.e., ponds, creeks, and perennial and seasonal streams) within 500 feet of all project disturbance areas and watercourse crossings. PG&E shall submit maps (1: 3,000 scale) to the CPUC identifying the locations of potentially suitable aquatic habitat features and upland habitat within 500 feet of the project features, no less than 30 days before construction. The maps shall identify access route segments, pole locations, and work area limits that would be surveyed and fenced, monitored, or otherwise avoided as specified below.	Within 500 feet of potentially suitable aquatic habitat for CRLF	• **Before Construction:** (1) CRLF habitat mapping is submitted to the CPUC no less than 30 days prior to construction, (2) Any USFWS permit authorizations are submitted to the CPUC, (3) The names and qualifications of CRLF biologists are submitted to the CPUC for approval, (4) Pre-activity surveys are conducted, and (5) Any exclusion fencing is installed under Option 1 • **During Construction:** (1) Daily sweeps and monitoring procedures are implemented, (2) Exclusion fencing is maintained under Option 1 or an

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
Substantial barriers or topography that would prevent CRLF dispersal should be identified on the maps. Potentially suitable habitat that is fragmented or disconnected by such barriers shall not be subject to the provisions set forth in this measure, as determined in coordination with the CPUC. **Permits and Agency Authorizations.** PG&E shall consult with USFWS to obtain permit authorizations for any necessary take coverage prior to conducting work activities within aquatic or upland habitat for CRLF. PG&E shall provide the CPUC with any required permits and authorizations obtained from USFWS, including correspondence regarding habitat determinations or avoidance and minimizations procedures. CRLF may only be handled by a qualified biologist with approval and all appropriate permit authorizations from USFWS. **Avoidance, Minimization, and Monitoring.** The following procedures shall be implemented during construction within CRLF habitat, unless conflicts arise between applicable USFWS permit conditions. In such cases, USFWS permit conditions shall supersede these procedures, and CPUC shall be provided with copies of the permits and all associated reports documenting compliance with permit conditions: • The names and qualifications of biologists that would conduct the CRLF procedures described below shall be submitted to the CPUC for approval, unless USFWS has granted prior approval and a copy of the approval letter is submitted to CPUC. • No more than 24 hours prior to initial ground disturbance in mapped CRLF habitat, an approved biologist shall conduct a pre-activity survey for CRLF within the mapped habitat, as defined above. The pre-activity survey shall consist of walking the work area limits and adjacent areas to determine if any CRLF are present. All areas within the survey area shall be inspected that could be used by CRLF for feeding, breeding, sheltering, and movement, including suitable mammal burrows. • Construction activities within watercourse crossings may only occur when the feature is dry or if the crossing method fully spans the feature (refer to MM Hydrology-4). • Aquatic habitat adjacent to work areas and along access routes shall be adequately flagged for avoidance, where necessary. • Construction activities within 500 feet of mapped aquatic habitat shall be restricted to the dry season (April 15 through October 15), to the extent feasible, or when water is not present. If construction activities must occur in these areas during the wet season (October 16 through April 14), an approved biologist shall determine which of the following measures should be implemented at each work area based on the CRLF habitat characteristics and work activities that would occur: - **Option 1 – Install Exclusion Fencing.** Temporary exclusion fencing shall be installed around the limits of work areas and access routes to ensure CRLF cannot enter the area. Installation of exclusion fencing shall occur under the supervision of an approved biologist and immediately following a clearance survey of the area. The fencing shall have a minimum aboveground height of 36 inches, and the bottom of the fence should be keyed in at least 4 inches deep and backfilled with soil, sand bags, gravel, or other means to prevent CRLF from passing under the fencing. The fencing shall be installed in a manner that reduces the potential for trapping migrating wildlife. Cover boards shall be installed along the perimeter of fencing to provide protection from the sun and predators, where necessary and appropriate. Gates shall be installed in the fencing that allow project access and adequately exclude wildlife. The exclusion fencing shall remain in place and maintained for the duration of construction activities at the location during the wet season. Prior to entering and beginning work in fenced areas each day, designated personnel shall inspect the work area and both sides of the fence perimeter for CRLF and any trapped wildlife. The designated personnel must be trained by an approved biologist on CRLF identification, the laws protecting the species, and procedures to implement if the species is observed. If CRLF or trapped wildlife are observed, an approved biologist shall be notified immediately to determine the appropriate procedures to implement. - **Option 2 – Monitor Construction Activities.** In lieu of exclusion fencing, an approved biologist shall monitor the initial ground-disturbing construction activities in each work area. Following the initial activities, at a minimum, an approved biologist shall conduct morning sweeps of each work area prior the start of construction activities. An approved biologist would then conduct spot check-monitoring at each location for the remainder of the work day. Neither Options 1 or 2 would be required if a qualified CRLF biologist determines that non-ground-disturbing activities (i.e., access on established roads or overland routes) would have no potential effect on CRLF. Such exceptions shall be subject to CPUC approval and shall not apply to areas where grading or vegetation clearing would occur. • If any CRLF adults, subadults, juveniles, tadpoles, or eggs are found during the pre-activity surveys, fence installation, daily checks of fencing, or monitoring, construction shall be halted (when safe to do so) in the vicinity of the		approved biologist monitors construction, and (3) All avoidance and minimization measures are implemented • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
observation that may pose a risk to the animal, as determined by an approved biologist, and USFWS shall be contacted to determine how to proceed. Alternatively, if a Biological Opinion has been obtained from USFWS for the project that addresses CRLF, then the associated measures and relocation protocols may be implemented. CPUC shall be notified by email within 24 hours of any CRLF observations. • An approved biologist shall oversee the installation of erosion and sediment controls within mapped habitat to ensure the materials do not pose a risk to CRLF. Plastic monofilament or loosely woven erosion control netting, or any similar materials that may entangle special-status wildlife, shall not be used. • Vehicle and equipment speeds shall not exceed 5 mph while on unpaved areas within 300 feet of suitable aquatic habitat. • After a rain event (greater than 0.1 inch of rainfall), workers shall check underneath vehicles (i.e., tires, tracks, etc.) for the presence of wildlife. Any discovered wildlife shall be reported to an approved biologist for relocation assistance.		
MM Biology-4: Foothill Yellow-legged Frog (Supersedes APM BIO-1b, APM BIO-1c, and APM BIO-1m) **Habitat Survey and Mapping.** A qualified biologist shall identify potentially suitable aquatic habitat for FYLF (i.e., perennial streams with cobble or rock substrate, or seasonal streams with cobble or rock substrate and standing water, or visible moisture in the immediate vicinity) within 10 feet of all project disturbance areas and watercourse crossings. PG&E shall submit maps (1: 3,000 scale) to the CPUC identifying the locations of suitable FYLF aquatic habitat, and upland habitat within 10 feet of the feature, no less than 30 days before construction. The maps shall identify access route segments, pole locations, and work area limits that would be surveyed and monitored, as defined below. **Avoidance, Minimization, and Monitoring.** No more than 24 hours prior to initial ground disturbance in mapped FYLF habitat, an approved biologist shall conduct pre-activity surveys for FYLF. The pre-activity survey shall consist of walking the work area limits and adjacent areas to determine if any FYLF are present. All areas within the survey area that could be used by FYLF for feeding, breeding, sheltering, and movement shall be inspected. The survey shall include an adequate examination of damp areas within or in proximity to creeks. If FYLF are observed during the pre-activity surveys, an approved biologist shall conduct daily sweeps of work areas within the mapped habitat for FYLF prior to work activities to identify any FYLF that may have entered the adjacent work area. The daily sweeps shall consist of walking the limits of construction areas and access routes to identify any FYLF that may be present. If FYLF are found in work areas, the animal shall be provided with the opportunity to leave on its own accord. If necessary, and upon approval by the CDFW, the animal may be moved out of harm's way by an approved biologist in possession of all required permits and authorizations from the CDFW.	Within 10 feet of potentially suitable aquatic habitat for FYLF	• **Before Construction:** (1) FYLF habitat mapping is submitted to CPUC no less than 30 days prior to construction, and (2) Pre-activity surveys are conducted • **During Construction:** Daily sweeps of work areas are performed within mapped FYLF habitat, where applicable • **After Construction:** N/A

MM Biology-5: Special-status and Protected Migratory Birds (Supersedes APM BIO-2)

Nest Surveys. If work is scheduled during the nesting season (generally from February 1 through August 31, but may be earlier or later depending on species nesting patterns and weather conditions), nest detection surveys will occur within 7 days prior to the start of work activities at designated construction areas, staging areas, and landing zones to determine nesting status. Nest surveys will be accomplished by ground surveys within 500 feet of work areas, to the extent accessible, and/or by helicopter between 500 feet and 0.5 mile of work areas. Survey areas will generally correspond with the species-specific standard buffers set forth in *Nesting Birds: Species-Specific Buffers for PG&E Activities* located in Appendix D. Surveys will be conducted during the appropriate time of day and season for the species expected to be present. Access for ground surveys will be subject to PG&E's easement and property access permissions. Passerine survey areas will generally be 250 feet from all work areas. The non-special-status raptor survey area will generally be 500 feet from work areas where trees and other suitable nesting substrate are located. Helicopter surveys for special-status raptors will be conducted within 0.5 mile of all project work areas.

After construction begins in an area, avian biologists or approved avian monitors shall inspect suitable nesting habitat within 250 feet (passerines) and 500 feet (raptors) of active work areas on a weekly basis during the nesting season to identify and document any new active nests that may be present (see nest monitoring and reporting below – and considerations for nesting in active work areas). If special-status raptor nests cannot be observed from the ground, weekly checks for special-status raptors may occur by helicopter during periods when helicopters are in use. Helicopter flight restrictions for nest detection surveys may be in effect for densely populated residential areas, and will include observance of appropriate established buffers and avoidance of hovering in the vicinity of active nest sites.

A CPUC-approved and qualified avian biologist shall conduct surveys for nesting birds.

Active vs. Inactive Nests. When a nest of any bird species is located within the required survey/potential disturbance area, an approved avian biologist shall determine whether the nest is active. A nest shall be defined as active once it contains eggs or young, or potentially contains eggs or young if presence cannot be reasonably determined. An inactive nest is defined as a nest that has been abandoned by the adult bird or once fledglings are no longer dependent on the nest site or parental care.

Standard Nest Buffers. If active nests are found, the biologist will establish a species-specific standard nest buffer around each active nest, as listed in *Nesting Birds: Species-Specific Buffers for PG&E Activities*. For special-status raptor nests, a nest buffer shall be implemented once an approved avian biologist determines that the nest territory is occupied by adults. Construction activities would be restricted within the buffers depending on the nature and location of the activities and results of nest monitoring (see below).

Buffer Adjustments. Where feasible, standard buffers will apply, although the biologist may increase or decrease the standard buffers in accordance with the factors set forth in *Nesting Birds: Species-Specific Buffers for PG&E Activities*. For high-disturbance helicopter activities near work areas with active nests, standard buffer distances may be increased up to double the distance with agreement between the CPUC biologist, lead environmental monitor, and PG&E's lead biologist. Nest buffers shall not restrict construction-related traffic using existing roads. Nesting pair acclimation to disturbance in areas with regularly occurring human activities will be considered when establishing reduced nest buffers. Nest buffers shall be implemented until the approved avian biologist determines that the nest is no longer active. Active nests will not be impacted during tree or structure removal.

Buffer Reductions. The standard buffer distances for nests may be reduced on a case-by-case basis based on site-specific conditions set forth in *Nesting Birds: Species-Specific Buffers for PG&E Activities*, such as avian biology, nest concealment, existing conditions, habituation, environmental conditions, and level of project activity, upon agreement between the CPUC biologist, lead environmental monitor, and PG&E's lead project biologist. Buffer reduction will be included in the weekly monitoring report and will document:

- Species and listing status
- Location description
- Pre-existing conditions present on site
- Description of the work to be conducted within the reduced buffer, including equipment type, and start date
- Size and expected duration of proposed buffer reduction
- Reason for buffer reduction
- Name of the biologist(s) who observed the nest and approved the buffer reduction
- Proposed frequency of monitoring necessary for the nest given the type of bird and surrounding conditions as determined by the approved avian biologist

Within 0.5 mile (special-status raptors), 500 feet (all other raptors), and 250 feet (passerines) of all project areas	• **Before Construction:** PG&E conducts pre-construction surveys for active bird nests • **During Construction:** (1) PG&E conducts on-going monitoring of any active bird nests, (2) No-disturbance buffers are enforced, and (3) PG&E submits weekly nest information to the CPUC • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
Nesting in Active Work Areas. If birds are found building nests within the standard buffer distance after specific project activities begin and the activities are not expected to increase in duration, intensity, or distance from the nest, it shall be assumed that the birds are tolerant of those specific project activities. If the specific project activities change within the standard buffer increase in duration, intensity, or distance, the avian monitor shall observe the nest until it can be determined the birds are tolerant of the new activities. If the avian monitor determines that the nesting birds are not tolerant of project activities, the buffer shall be expanded and may be expanded beyond the standard buffer distance if necessary. **Nest Monitoring.** Active nests will be periodically monitored at a frequency and length of time necessary to ensure that nesting pairs continue to tend the nest, and until the monitoring biologist has determined that the young have fledged, or once construction ends. At minimum, nest monitoring will occur weekly. For reduced buffers, nest monitoring will initially occur daily to determine whether a larger buffer is necessary. Daily nest monitoring will occur during helicopter operations within standard buffer distances. Per the discretion of the monitoring biologist and CPUC biologist, vegetation removal by hand may be allowed within standard nest buffers or in areas of potential nesting activity. The monitoring biologist will have authority to order the cessation of nearby project activities, once safe to do so, if nesting pairs exhibit signs of disturbance. **Reporting.** Survey results shall be submitted to the CPUC on a weekly basis. Nest locations and buffers shall be mapped using a Geographic Information System (GIS). Nest information and monitoring observations shall be documented and provided to the CPUC weekly, and include the following information: • Date, time, and length of observation period • Nest status (active or inactive) • Species and listing status • Nest location, including approximate nest height • Behavioral observations • Site conditions, including construction activities • Estimated incubation start date, if possible • Estimated fledge date • Number of eggs or hatchlings, if observed • Buffer size implemented No avian reporting shall be required for construction activities outside of the nesting season unless species are observed nesting outside of the normal season or special-status bird species are observed in the project area. **Nesting Deterrents.** As appropriate, nest deterrent strategies may be used to prevent birds from nesting in construction equipment or staged materials. Nest deterrent strategies may include exclusion netting, covering equipment with tarps, or covering small holes. The monitoring biologist shall review bird netting use daily due to risk of entanglement. **Design Guidelines.** PG&E shall adhere to recommendations published by the Avian Power Line Interaction Committee, Reducing Avian Collisions with Power Lines: The State of the Art in 2012, as feasible.		

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
MM Biology-6: Special-status and Protected Bats (Supersedes APM BIO-5) **Roosting Habitat Assessment.** Prior to construction, a CPUC-approved qualified biologist with expertise in bats shall conduct a pre-construction assessment for suitable special-status or otherwise protected[2] bat roosting habitat that may be impacted within approximately 50 feet of project work areas and access routes where grading and vegetation removal may occur. The qualified biologist shall identify all suitable bat roosts that may be impacted, including man-made structures, snags, rotten stumps, mature trees with broken limbs, trees with exfoliating bark, bole cavities or hollows, and dense foliage. The qualified biologist shall document the results of the pre-construction assessment and record the location of suitable bat roosts. The potential use of these roosts (e.g., day roost, night roost, maternity roost, hibernation roost) shall also be described. The results shall be submitted to the CPUC at least 30 days prior to construction. **Avoidance and Minimization.** Where suitable special-status or otherwise protected bat roosts are identified, the following procedures shall be implemented: • Suitable bat roosts shall be marked and avoided to the extent practicable. • When possible, removal of trees identified as providing suitable bat roosting habitat should be conducted during seasonal periods of bat activity, including: - (1) Between March 1 and April 15, or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than ½ inch of rainfall within 24 hours occurs; or - (2) Between September 1 and about October 15, or before evening temperatures fall below 45 degrees Fahrenheit and/or more than ½ inch of rainfall within 24 hours occurs. • If it is determined that a special-status or otherwise protected bat maternity roost is potentially present, the roosts shall not be removed during the breeding season (April 15 to August 31) to the extent practicable. If such a potential bat maternity roost must be removed during the breeding season, then the following shall be implemented: - (1) Acoustic emergence surveys or other appropriate methods shall be conducted/implemented to further evaluate if the roost is an active maternity roost; the methods and findings of this work would both be subject to CPUC approval; - (2) If it is determined that the roost is not an active maternity roost, then the roost may be removed in accordance with the other requirements of this measure; - (3) If it is found that an active maternity roost is present, the roost shall not be physically disturbed during the breeding season and an approved bat biologist shall determine if any buffers around the roost are needed. • Potential suitable non-maternity roosts that cannot be avoided shall be removed on warm days in late morning to afternoon when any bats present are likely to be warm and able to fly. • An approved bat biologist shall oversee removal of suitable roosts. The biologist shall first inspect all crevices and cavities and attempt to expose any bats that may be present by carefully peeling away bark or cover material and opening crevices, to the extent possible. • Prior to trimming or removing suitable roosts, the approved bat biologist shall instruct workers to create noise and vibration disturbance on the roost (e.g., concussive hitting with tools and/or chainsaw cutting) for several minutes. • If a cavity cannot be thoroughly inspected on a tree, snag, or stump, clearing crews shall remove smaller limbs and sections above the cavity and carefully expose it so bats may crawl out and fly away. Clearing crews shall wait up to 10 minutes in between each cut to determine if the cavity is empty. Sections of trees and branches that may contain bats shall be set aside and away from work areas so that any remaining bats may escape.	Within 50 feet of suitable special-status or otherwise protected bat roosting habitat	• **Before Construction:** A pre-construction survey is conducted for active special-status or otherwise protected bat roosts in locations where grading or vegetation removal could occur within 50 feet of potentially suitable habitat • **During Construction:** (1) Bat avoidance measures are implemented prior to tree removal with active special-status or otherwise protected bat roosts and (2) Adequate no-disturbance buffers are established around active special-status and otherwise protected bat maternity roosts, if found within 50 feet of construction • **After Construction:** N/A

[2] For purposes of this measure, "otherwise protected" bats will include any significant local breeding population that could be adversely impacted by the project, as defined by a local bat expert, and approved by the CPUC.

MM Biology-7: Revegetation, Restoration, and Monitoring Plan (Supersedes APM BIO-1l and APM BIO-4)

PG&E shall prepare and implement a Revegetation, Restoration, and Monitoring Plan that addresses procedures for quantifying vegetation impacts from construction activities and revegetation and/or restoration requirements for applicable vegetation resources. The plan shall include appropriate revegetation and/or restoration performance standards, monitoring procedures, and reporting procedures for the following vegetation resources, as defined below, and the referenced measures:

- Special-status plant populations (refer to MM Biology-2).
- Suitable habitat for special-status plants and wildlife (specifically grassland, woodland, and forest).
- Sensitive natural plant communities (specifically riparian habitat and Oregon oak woodland) (refer to MM Biology-9).
- Large valley and small valley oaks of qualifying size (refer to APM BIO-10).

The plan shall be submitted to the CPUC for review and approval no less than 60 days before construction.

Performance Standards. All temporarily disturbed areas shall be restored to near pre-construction conditions to ensure potentially significant permanent impacts do not occur as a result of the project. Pre-construction conditions, including vegetation cover estimates and percentage of Cal-IPC list invasive weeds (plants rated as "High" and "Moderate"), shall be documented for each project work area as described below in the Pre-Construction Report. Annual performance standards and final success criteria shall be developed for each vegetation resource that demonstrates an adequate progression toward pre-construction conditions such that habitat functions and values and species composition of the restored vegetation are comparable to those of nearby comparable vegetation within 3 years.

The plan shall define annual quantitative thresholds for both vegetation resources and invasive plant species and identify corrective actions to implement if the annual thresholds are not achieved. Work sites that have been proven to meet the final success criteria shall not require further monitoring and reporting.

Monitoring Procedures. A qualified biologist or botanist shall monitor vegetation resources that are impacted. The plan shall identify appropriate post-construction monitoring procedures for each vegetation resource, including specific methods, frequencies, and timing for seasonal requirements.

Pre-Construction Report(s). Prior to construction, a qualified biologist or botanist shall survey all final work areas and overland access routes to identify the vegetation resources that may be impacted, including their location, composition, condition, and extent of planned project disturbance. Survey efforts may be conducted in conjunction with focused surveys required for special-status species, as described in applicable measures. Anticipated impacts on vegetation resources shall be quantified and documented in the report, such as special-status plant individuals or the characteristics of populations (i.e., estimated size and cover estimates); the types and numbers of tree and shrub individuals; and restoration acreages for grassland, woodland, and forest vegetation communities). The baseline conditions for adjacent and comparable vegetation resources shall also be documented in the report. Such areas may be used as a control for post-construction monitoring to determine relative restoration performance and account for seasonal fluctuations in invasive species composition, general growth rates, and overall coverage.

The report shall include maps (1: 3,000 scale) that identify the types and locations of the vegetation resources that may be impacted, the limits of the planned work areas, and project access routes. An initial report shall be submitted to the CPUC no less than 30 days before construction. Separate reports may be submitted for each project segment, if necessary. If new impacts or restoration procedures are identified, the plan shall be updated and submitted in track changes to the CPUC.

Post-Construction Reports. PG&E shall prepare and submit Post-Construction Reports to the CPUC on an annual basis until construction is complete. Post-Construction Reports shall include table summaries of actual project impacts, and maps of the areas that identify the limits of actual impacts. The summary table shall include the location name/ID for each impact area, anticipated impact acreage from the Pre-Construction Report, and actual impact acreage during construction. The report shall include a brief statement about revegetation, restoration, and monitoring procedures that would be implemented where impacts occurred, as defined in the approved plan.

Annual Monitoring Reports. Once revegetation and restoration begins, PG&E shall conduct surveys during the growing season and submit Annual Monitoring Reports to the CPUC. The reports shall summarize revegetation and restoration efforts for each applicable impact area, provide data on performance standards and success criteria, and detail any corrective actions necessary to close out sites. Monitoring results will be updated in the plan only when applicable (i.e., seasonally or annually). Once the success criteria have been achieved for each location, monitoring and reporting would no longer occur for the location.

PG&E shall provide written updates to CPUC upon request regarding seasonally dependent restoration and corrective actions prior to submission of the annual monitoring reports.

Where vegetation resources occur in project areas that could be impacted

- **Before Construction:** (1) PG&E submits a Revegetation, Restoration, and Monitoring Plan to the CPUC at least 60 days prior to construction, and (2) PG&E submits a Pre-Construction Report to the CPUC at least 30 days prior to construction
- **During Construction:** N/A
- **After Construction:** (1) PG&E implements revegetation and restoration procedures from the approved plan, (2) PG&E submits Post-Construction Report(s) to the CPUC, and (3) PG&E submits written updates upon request and annual monitoring reports to the CPUC

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
MM Biology-8: Minimize Noxious Weeds Precautions shall be taken to minimize the introduction of any invasive weeds. Construction equipment shall be cleaned of caked-on dirt and plant materials before entering unpaved project areas. Erosion control materials and planting seed mixes shall not introduce invasive weed species. Only certified weed-free straw and mulch shall be used on the site.	All work areas	• **Before Construction:** N/A • **During Construction:** Equipment and vehicles are clean prior to use on site • **After Construction:** (1) Planting seed mixes and any restoration plants shall not introduce invasive weed species, and (2) Erosion control materials, straw, and mulch are weed-free
MM Biology-9: Sensitive Natural Plant Communities Prior to construction, a qualified biologist shall survey all final work areas and identify the extent of sensitive natural plant communities, specifically riparian habitat and Oregon oak woodland, as described in MM Biology-7 in the Pre-Construction Report. If sensitive natural plant communities are found in work areas and overland access routes, work areas and overland access routes shall be repositioned where possible to avoid adverse impacts to the sensitive natural plant communities. If tree impacts cannot be avoided in sensitive natural plant communities, PG&E shall attempt to trim native trees rather than removing them. Native trees over 6-inch diameter at breast height (dbh) trimmed over 25 percent will be assessed by an arborist. Should the arborist conclude that it is likely the trees will not survive the trimming, PG&E shall ensure the trees are replaced at a 1:1 ratio. Native trees over 6-inches dbh that are removed shall be replaced at a 1:1 ratio in the closest appropriate location, by planting seed and/or container stock. Sensitive natural plant communities shall be restored at a ratio of 1:1. Sensitive natural plant communities that are impacted during construction, and any replanting sites, shall be addressed in the Annual Monitoring Reports, as described in MM Biology-7.	All project areas where sensitive natural plant communities are located	• **Before Construction:** (1) PG&E conducts a survey to identify the extent of sensitive natural plant communities and results are submitted with the Pre-Construction Report, and (2) Work areas and access routes are repositioned where possible to avoid sensitive plant communities • **During Construction:** Sensitive natural plant communities are avoided to the extent feasible • **After Construction:** (1) Qualifying trees that are trimmed more than 25 percent are assessed by an arborist and replaced, if necessary; (2) Qualifying trees that are removed are replaced at a 1:1 ratio, and (3) Impacted sensitive natural plant communities are restored and addressed in the Annual Monitoring Reports
MM Biology-10: Sudden Oak Death Procedures All workers shall be trained on requirements and BMPs for reducing the spread of the Sudden Oak Death pathogen prior to working on the site. All equipment, vehicles, and tools shall be thoroughly cleaned of plant material and soil prior to entering unpaved project areas. A qualified botanist, biologist, or arborist shall inspect all work areas and access routes for signs of vegetation infected with the Sudden Oak Death pathogen prior to construction. If any work areas are found that contain infected vegetation, PG&E shall implement the following BMPs for Sudden Oak Death recommended by California Oak Mortality Task Force, to the extent feasible: • Cleaning stations shall be set up at staging yards and all wash water shall be contained within the cleaning area. • Mud and debris shall be scraped, brushed, or hosed from vehicles, equipment, and tools within designated cleaning areas at project staging yards if working within infected areas. • A power washer shall be used, where feasible. • All personnel shall clean boots and clothing of mud and vegetation debris if working within infected areas. Work in infected areas shall be performed during the dry season (May through October), to the extent feasible, to avoid tracking out infected mud.	Areas where Sudden Oak Death-infected vegetation are observed	• **Before Construction:** PG&E surveys for infected vegetation • **During Construction:** (1) Vehicles, equipment, and tools are cleaned before showing up at the project site, and (2) Vehicles, equipment, and tools are cleaned before leaving any infected work areas • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
MM Biology-11: Wetland Mitigation Waters of the US and state shall be avoided by the project where possible, and impacts shall be minimized to the extent practicable using BMPs during construction. These practices shall include delineating wetlands and waters on project maps and flagging the extent of wetlands and waters within work areas to keep workers and equipment out of the area to be preserved, and using erosion control measures, such as straw wattles, hay bales, and drain inlet controls to keep sediment and debris from entering jurisdictional waters. Design and installation of temporary bridges, such as steel plates, shall be such that the water flow (velocity and low-flow channel width) is not impaired. During project construction, a biological monitor shall be on site to monitor the integrity of wetlands and other waters while major earth moving activities are underway. For those wetland areas that are impacted as part of the proposed project, appropriate permits shall be acquired from USACE and RWQCB prior to any impacts occurring to regulated waters of the US and/or state. Copies of applicable permits from USACE and RWQCB shall be provided to the CPUC prior to grading, and any conditions in these permits shall become a condition of project approval. Any other conditions that are stipulated for wetland impacts by USACE and/or RWQCB shall also become conditions of project approval. Impacted wetland areas shall be compensated for at a 2:1 ratio via (1) purchase of mitigation credits from a USACE- and RWQCB-approved wetland conservation bank or (2) wetland creation/habitat enhancement. • **Option 1 – Purchase of Wetland Mitigation Credits.** Prior to purchasing mitigation credits from a qualified conservation bank, approval from USACE and RWQCB shall be required. Mitigation credits shall be purchased prior to breaking ground on the project site. • **Option 2 – Wetland Creation/Enhancement.** If PG&E elects to create/enhance wetlands on site in lieu of purchasing mitigation credits from an approved mitigation bank, compensation wetlands shall be created/enhanced on site and shall resemble those wetlands affected by the project (i.e., in-kind replacement). If wetlands cannot be created in-kind and on-site, wetland creation/enhancement shall be implemented offsite. Any wetland creation/enhancement plan shall be submitted to the CPUC, USACE and RWQCB for approval. Mitigation requirements shall include that all impacted wetlands are replaced at a minimum 2:1 ratio (for each square foot of impact, one square foot of wetland would be enhanced/created) or as otherwise specified in permitting conditions imposed by USACE and/or RWQCB. Any site where wetlands are created/enhanced must be preserved in perpetuity via recordation of a perpetual restrictive deed recorded on the Title of the property. In addition, a 5-year monitoring plan shall be implemented by a qualified biologist. At the end of the 5-year monitoring period, USACE and RWQCB shall render a conclusion if the created/enhanced wetlands are successful.	Where wetland impacts occur	• **Before Construction:** Copies of any USACE and RWQCB required permits are provided to the CPUC. • **During Construction:** Wetlands and waters are identified on project maps and their extent flagged within work areas. • **After Construction:** Mitigation identified in USACE and RWQCB permits is completed.
Cultural Resources		
APM CR-1: Avoid Cultural Resources Archaeological resource CA-SON-1256 shall be avoided by restricting equipment and vehicle access to paved or graveled surfaces along the roadway. If travel off paved or graveled surface is necessary within the site boundary for any reason, PG&E shall place rubber mats across the site surface to protect against any inadvertent damage to the site by driving on the surface. PG&E shall also establish a protection zone by flagging the site boundary along the roadway with exclusion fencing to ensure that no vehicles will inadvertently enter the site boundary without the above-mentioned protection measures. A qualified archaeologist shall monitor all construction activity on unpaved surfaces within the resource site.	Confidential CA-SON-1256 site location disclosed to monitoring personnel	• **Before Construction:** N/A • **During Construction:** (1) Equipment within the site boundary is restricted to paved or gravel surfaces, or on rubber mats if work occurs on bare ground, and (2) Monitoring occurs if work occurs on bare ground within the site boundary • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
MM Cultural-1: Archaeological Monitoring and Cultural Resource Discoveries (Supersedes APM CR-2) **Archaeological Monitoring for Previously Undiscovered Cultural Resources.** A CPUC-approved cultural resources specialist/archaeologist shall be onsite to spot-check the initial 10 feet of pole hole augering greater than 3 feet in diameter (limited to TSPs) and grading in previously undisturbed areas greater than 6 inches in depth. If qualifying excavations occur simultaneously at multiple locations, the cultural resources specialist/archaeologist shall spot-check each location throughout the workday until ground-disturbing activities are complete at each location. If signs of a resource are encountered during spot-checking, monitoring shall become full time until ground-disturbing activities are complete in the work area. The cultural resources specialist/archaeologist must have experience with California/regional history and local Native American history, traditions, and customs and shall meet the US Secretary of Interior Professional Qualifications Standards as published in 36 CFR Part 61. The cultural resources specialist/archaeologist shall be responsible for evaluating any cultural resources discovered during construction for signs of prehistoric Native American culture and for coordinating outreach efforts with the NAHC and local Native American tribes if potential tribal cultural resources are found. If they request to participate, Native American tribes shall be given the opportunity to monitor construction activities within 100 feet of identified prehistoric Native American resources or tribal cultural resources. Any tribal monitoring activities should be coordinated with the cultural resources specialist/archaeologist. **Cultural Resource Discoveries.** If signs of a previously undiscovered cultural resource are encountered, all construction activities within 100 feet of the resource site shall halt, and the cultural resources specialist/archaeologist shall be contacted to implement required evaluation and treatment procedures, described below. Construction supervisors and workers shall be informed that the site is off-limits, and if necessary, the cultural resources specialist/archaeologist shall install flagging to designate the limits of the site. If the resource is located within Caltrans right-of-way, PG&E shall also immediately notify the Caltrans Office of Cultural Resources Studies, District 4 of the discovery. The cultural resources specialist/archaeologist shall evaluate the resource and determine whether it is (1) a historic resource as defined in CEQA Guidelines Section 15064.5 and thus eligible for listing in the CRHR, (2) a unique archaeological resource as defined in PRC §21083.2(g), or (3) a potential tribal cultural resource as defined in PRC §21074(a). If it is determined that the resource does not meet any of these criteria, work may resume in the area, and a summary of the discovery findings and evaluation conclusions shall be documented and provided to the CPUC with Weekly Compliance Reports. The methods and results of the evaluation shall also be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). If the resource meets any of the criteria listed above and is therefore considered a significant resource under CEQA, work shall remain halted at an appropriate distance from the find, and the cultural resources specialist/archaeologist shall consult with the CPUC regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). If the cultural resources specialist/archaeologist determines that the resource could be a tribal cultural resource, he or she shall, within 48 hours of the discovery, notify each Native American tribe identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the project site of the discovery. The responding tribes shall be given an opportunity to participate in determining the appropriate mitigation methods in consultation with the CPUC. The CPUC shall request that the tribes respond to the notifications within 3 days. Preservation in place (i.e., avoidance) is the preferred method of mitigation for cultural and tribal cultural resources and shall be required to mitigate impacts on previously undiscovered resources. Other methods of mitigation shall only be used if the cultural resources specialist/archaeologist, in coordination with the CPUC, determines that the method would provide equivalent or superior mitigation of the impacts on the resource. The alternative methods of mitigation may include data recovery and documentation of the information contained in the site to answer questions about local history and prehistory (see MM Cultural-4). Work in the area may commence upon completion of treatment, as approved by the CPUC.	All project areas	• **Before Construction:** Adequate personnel are identified for the cultural resources specialist/archaeologist • **During Construction:** (1) Work within 100 feet of discovered resources stops, (2) The required personnel and agencies are notified, (3) Adequate reporting and documentation occurs, (4) Significant resources are completely avoided or mitigated from impacts, and (5) Work only resumes near the resource after required procedures are complete, to the satisfaction of CPUC. • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
MM Cultural-2: Cultural Resource Training All project personnel shall receive adequate cultural resource training prior to working on the project. The training shall address appropriate work practices necessary to effectively implement project requirements, including APMs and mitigation measures, for historical resources, archaeological resources, tribal cultural resources, and human remains. The training shall address the potential for exposing subsurface resources, basic signs of a potential resource, and required procedures if a potential resource is identified consistent with the procedures set forth in MM Cultural-1, MM Cultural-3, MM Cultural-4, and all procedures required under Health and Safety Code § 7050.5 and PRC §§ 5097.94, 5097.98, and 5097.99 for the discovery of human remains. The training shall also identify requirements for working near archaeological resource site CA-SON-1256, as defined in APM CR-1. PG&E shall submit the cultural resource training material to the CPUC for approval no less than 30 days before construction, and it may be submitted in conjunction with the general Worker Environmental Training Program for the project.	N/A	• **Before Construction:** The cultural resource training material is submitted to the CPUC at least 30 days before construction • **During Construction:** Workers receive the CPUC-approved cultural resource training prior to working on the site • **After Construction**: N/A
MM Cultural-3: Pre-Construction Cultural and Tribal Cultural Resource Surveys Prior to construction at any project area, PG&E shall compare areas of proposed ground disturbance with the project geographic information system (GIS) layers that show cultural resource survey areas. PG&E shall verify that proposed ground disturbance areas have been surveyed for cultural resources. If the areas of proposed ground disturbance have been surveyed (and no known resources are located in the area), then no additional measures are required and construction may commence. If the areas have not been surveyed (such as due to minor relocation of a project feature or access road), no ground disturbance shall be permitted prior to completion of surveys by a CPUC-approved cultural resource specialist/archaeologist. If a resource is found, it shall be avoided. If it cannot be avoided, PG&E shall follow the procedures in MM Cultural-1.	Work areas not previously surveyed for cultural and tribal cultural resources	• **Before Construction:** Work areas not previously surveyed for cultural resources are surveyed prior to construction • **During Construction:** Any resources found during pre-construction surveys are evaluated and, if necessary, treated • **After Construction:** N/A
MM Cultural-4: Data Recovery If a CRHR-eligible, unique archaeological, or tribal cultural resource cannot be completely avoided or protected from direct project impacts, data recovery investigations shall be required to reduce adverse effects to the characteristics of each site that contribute to its significance or CRHR-eligibility. For sites eligible under Criterion (d), significant data shall be recovered through excavation and analysis. For sites eligible under Criteria (a), (b), or (c), data recovery may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation-phase studies shall guide plans and data thresholds for data recovery. Treatment shall be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery occurs, PG&E shall prepare a Research and Data Recovery Plan for each individual site where data recovery is necessary. The plans shall be submitted to the CPUC for approval, and data recovery procedures shall not occur at the sites until authorized by the CPUC. The plan shall describe the specific procedures that would be implemented during data recovery, as appropriate for the type of resource. Sampling for data recovery excavations shall follow standard statistical sampling methods, but sampling shall be confined to the direct impact area. The methods and results of evaluation and data recovery work at an archaeological find shall be documented in a professional-level technical report to be filed with CHRIS, a copy of which shall be submitted to the CPUC. Artifacts collected during data recovery shall be cataloged and permanently curated with an appropriate institution.	Any work areas where a previously undiscovered resource is identified	• **Before Construction:** N/A • **During Construction:** (1) Research and Data Recovery Plans are submitted to the CPUC for approval, (2) Data recovery methods are implemented after CPUC approval, (3) Field Closure Reports are filed with the appropriate entities, (4) Professional-level technical reports are filed with CHRIS, and (5) Recovered artifacts are cataloged and submitted to appropriate institutions • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
Geology, Soils, and Mineral Resources		
APM GS-1: Soft or Loose Soils Where soft or loose soils are encountered during project construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, these measures may include: • Locating construction facilities and operations away from areas of soft and loose soil; • Over-excavating soft or loose soils and replacing them with engineered backfill materials; • Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction; • Installing material over access roads such as aggregate rock, steel plates, or timber mats; and • Treating soft or loose soils in place with binding or cementing agents.	All project areas	• **Before Construction:** N/A • **During Construction**: Appropriate measures are implemented that adequately stabilize soft and loose soils where they cannot be feasibly avoided • **After Construction:** N/A
APM GS-3: Site-specific Geotechnical Investigation A geotechnical investigation will be conducted to evaluate the potential for surface fault rupture for poles within and adjacent to potentially active fault traces and earthquake fault zones. Where significant potential for surface fault rupture exists, pole locations will be adjusted, where possible, to minimize any potential for damage based on the conclusions in the report.	All project areas in the Northern Segment	• **Before Construction:** New poles are positioned after considering the findings in the geotechnical report • **During Construction:** N/A • **After Construction:** N/A
MM Geology-1: Geotechnical Investigation Report (Supersedes APM GS-2) PG&E shall have a professional geotechnical engineer conduct a geotechnical investigation in areas that are suspected to have unstable soils or landslide susceptibility and shall add the analysis to the Geotechnical Investigation Report required by APM GS-3. The Geotechnical Investigation Report shall provide site-specific recommendations for poles, work areas, and access routes where there is an elevated risk of geologic hazards. PG&E shall submit the Geotechnical Investigation Report to the CPUC no less than 60 days prior to construction. Where geotechnical hazards are found to occur, appropriate engineering design and construction measures from the Geotechnical Investigation Report shall be incorporated into the final project designs, as deemed appropriate by a California-licensed Geotechnical Engineer or Certified Engineering Geologist. Design measures that would mitigate seismic and landslide-related impacts shall include, but are not limited to, retaining walls, removal of unstable materials, and avoidance of highly unstable areas. Disturbed and engineered slopes shall be monitored by qualified construction personnel on an occasional basis (bi-monthly or as needed) until the slope is fully stabilized and no longer poses an increased risk of failure or erosion as compared to similar undisturbed slopes in the immediate vicinity.	All project areas that are suspected to have unstable soils or landslide susceptibility, underlain by a fault, or that could be subject to strong ground shaking and ground failure	• **Before Construction:** (1) Geotechnical Investigation Report is submitted to the CPUC no less than 60 days prior to construction, and (2) Appropriate engineering design and construction measures from the Geotechnical Investigation Report are incorporated into final project designs • **During Construction:** Disturbed and engineered slopes are adequately monitored by qualified construction personnel • **After Construction:** N/A
Greenhouse Gas Emissions		
APM GHG-2: Minimize Sulfur Hexafluoride Emissions • Incorporate Fitch Mountain Substation into PG&E's system-wide sulfur hexafluoride (SF6) emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, title 17, California Code of Regulations, which requires that company-wide SF6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF6 inputs, and inventory and monitor system-wide SF6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF6 handling and accidental releases. As an active member of USEPA's SF6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF6 emissions from its transmission and distribution operations, and has reduced the SF6 leak rate by 89 percent and absolute SF6 emissions by 83 percent. • Require that the breakers at Fitch Mountain Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF6. • Maintain substation breakers in accordance with PG&E's maintenance standards. • Comply with California Air Resources Board Early Action Measures as these policies become effective.	Fitch Mountain Substation	• **Before Construction:** Purchase circuit breakers with a guaranteed leak rate of 0.5 percent per year or less of SF6 • **During Construction:** Install circuit breakers that meet the required maximum leak rate • **After Construction:** Maintain circuit breakers according to PG&E maintenance standards

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
Hazards and Hazardous Materials		
APM HM-3: Smoking and Fire Rules Smoking will not be permitted on site, except in barren areas that measures a minimum of 20 feet in diameter and are cleared to mineral soil. Under no circumstances will smoking be permitted during the fire season (approximately July through October) while employees are operating equipment, or while walking or working in grass and woodlands.	All project areas	• **Before Construction:** N/A • **During Construction:** Smoking is restricted to appropriate areas and seasons • **After Construction:** N/A
APM HM-4: Carry Emergency Fire Suppression Equipment PG&E construction crew trucks and large equipment shall have, at a minimum, a standard round-point shovel and a fire extinguisher. If construction activities likely to cause sparks (e.g., welding, grinding, or grading in rocky terrain) are conducted, emergency fire tool boxes shall be readily available to crews. The emergency fire tool boxes shall contain fire-fighting items such as shovels, axes, and water.	All project areas	• **Before Construction:** N/A • **During Construction:** (1) A shovel and fire extinguisher are available in all worker vehicles and construction equipment, and (2) Emergency fire tool boxes are available at each active work area during higher risk activities (e.g., activities that could cause sparks) • **After Construction:** N/A
MM Hazards-1: Hazardous Materials Procedures and Worker Training (Supersedes APM HM-1, HM-2, and APM BIO-1i) PG&E shall develop and implement specific hazardous material procedures as an element of the SWPPP (MM Hydrology-1) to ensure hazardous materials are properly handled, stored, and transported, and that any inadvertent leaks or spills are adequately cleaned and reported. At a minimum, the SWPPP shall address the following procedures related to the use of hazardous materials during construction and emergency response: • Proper disposal of contaminated soils and materials (i.e., cleanup materials). • Daily inspection of vehicles and equipment for leaks, particularly in parking areas near sensitive resource areas during construction and spill containment procedures. • Emergency response and reporting procedures to address hazardous material releases. • Fueling of any vehicles, equipment, and helicopters in staging yards or on streets paved with secondary containment and away from sensitive resource areas (e.g., preserves, designated open space areas, conserved habitat). • Fuels and lubricating oils for vehicles and heavy equipment will not be stored or transferred within 100 feet of any waterbodies, unless otherwise isolated from waterbodies by secondary containment. • Emergency spill supplies and equipment shall be available to respond in a timely manner if an incident should occur. • Response materials such as oil-absorbent material, tarps, and storage drums shall be available at the project site at all times during construction and shall be used as needed to contain and control any minor releases. • The absorbent material shall be removed promptly and disposed of properly. • Placement of as needed, minor amounts of fuel, lubricants, and hydraulic fluid for equipment operation in appropriate storage tanks on the bed of fueling vehicles. • Location of bulk lubricating oil, hydraulic fluids, and other materials used for vehicle and equipment maintenance shall be stored at the main construction yard. • Use of secondary containment and spill rags when fueling. • Discourage “topping-off” fuel tanks. • Spill kits for all fuel trucks and fueling areas. All workers shall be trained on the specific procedures for hazardous materials and emergency response as an element of the required worker environmental training prior to working on the project site.	All project areas	• **Before Construction:** SWPPP containing specific hazardous material procedures is submitted to the CPUC no less than 30 days before construction • **During Construction:** (1) Appropriate measures are implemented that limit the potential for spills, and (2) Any inadvertent spills are cleaned appropriately • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
MM Hazards-2: Construction Fire Prevention Plan PG&E shall prepare a Construction Fire Prevention Plan that addresses procedures for fire prevention at active construction sites. The Construction Fire Prevention Plan shall include requirements for carrying emergency fire suppression equipment, conducting "tailgate meetings" that cover fire safety discussions, restricting smoking, idling vehicles, and restricting construction during red flag warnings. The Construction Fire Prevention Plan shall address the following fire risk reduction measures: • Training and briefing all personnel working on the project in fire prevention and suppression methods. • Conducting a fire prevention discussion at each morning's safety meeting. • Storage of prescribed fire tools and backpack pumps with water within 50 feet of work activities. • Water sources including water storage tanks or water trucks that would be used in case of a fire. • Assigning personnel to conduct a "fire watch" or "fire patrol" to ensure that risk mitigation and fire preparedness measures are implemented, immediate detection of a fire, and to coordinate with emergency response personnel in the event of a fire. The Construction Fire Prevention Plan shall be submitted to the CPUC for review and approval at least 30 days prior to construction within the Northern Segment.	Northern Segment	• **Before Construction:** Construction Fire Prevention Plan is submitted to the CPUC for review and approval at least 30 days prior to construction • **During Construction:** (1) Workers receive fire prevention training, and (2) Fire prevention tools and water are maintained on site • **After Construction:** N/A
Hydrology and Water Quality		
MM Hydrology-1: SWPPP Development and Implementation (Supersedes APM WQ-1) A Qualified Stormwater Pollution and Prevention Plan (SWPPP) Developer (QSD) shall prepare a SWPPP for the project in accordance with the State Water Resources Control Board (SWRCB) Construction General Permit (CAS-2012-006-DWQ). The SWPPP shall address adequate procedures and standards required for specific project activities including, but not limited to, BMPs for erosion and sedimentation control; dewatering; hazardous materials identification, handling, storage, and disposal; and emergency response and cleanup. The SWPPP shall include an inspection and monitoring program that conforms to the requirements included in MM Hydrology-2. A QSD shall oversee implementation of the SWPPP and monitoring program. PG&E shall submit the SWPPP to the CPUC for review and comment no less than 30 days prior to construction. PG&E shall submit all filings, revisions, and Notices of Termination to the CPUC, as well as inspection reports, rain event action plans, and annual reports upon request. BMP materials identified in the SWPPP shall be stored and available on site prior to initiating ground-disturbing activities. All necessary erosion and sediment control BMPs shall be installed prior to conducting grading or vegetation clearing activities during the wet season and before the onset of any anticipated storm events. Temporary BMPs such as silt fences or wattles, which are intended to minimize sediment transport from temporarily disturbed areas, shall remain in place until disturbed areas have stabilized.	All project areas	• **Before Construction:** (1) A draft version of the SWPPP is submitted to CPUC at least 30 days prior to construction, and (2) the SWPPP addresses BMPs for all construction activities, and includes a monitoring program • **During Construction:** The SWPPP is implemented appropriately until all project areas are sufficiently stabilized, SWPPP coverage is complete, and erosion, sedimentation, and pollution runoff from project activities is prevented • **After Construction:** N/A
MM Hydrology-2: SWPPP Monitoring Program (Supersedes APM WQ-2) SWPPP monitoring shall be completed by a Qualified SWPPP Practitioner (QSP) on a weekly basis during the construction period and at least once every 24 hours before, during, and after forecast rain events (any likely precipitation event forecast of 50 percent or greater probability). The purpose of the monitoring program shall be to ensure all BMPs described in the SWPPP are installed, maintained, and functioning adequately. Should any BMP failure be observed during monitoring, additional BMPs shall be implemented to prevent further erosion or sedimentation to downstream waters. A checklist form identified in the SWPPP shall be completed for each inspection by the QSP. The checklist forms shall be submitted to the CPUC with weekly monitoring reports. Annual reports prepared in accordance with the Construction General Permit shall also be submitted to the CPUC. The CPUC shall be notified within 24 hours of any BMP failures or discharge violations and provided with a description of corrective actions that have or will be implemented to resolve the issue. SWPPP monitoring shall occur until all project areas are sufficiently stabilized, as defined in the SWPPP. At a minimum, all disturbed areas must achieve 70 percent or greater vegetation cover and meet the Construction General Permit requirements for filing Notices of Termination to end SWPPP coverage and the associated BMP and monitoring requirements.	All disturbed areas	• **Before Construction:** N/A • **During Construction:** (1) A QSP inspects disturbed project areas and BMPs on a weekly basis, for storm events during construction, and as needed following construction, (2) BMPs are adequately installed and maintained, and any BMPs that are not functioning properly are replaced in a timely manner, and (3) Monthly SWPPP reports are submitted to the CPUC during construction, and annual reports are submitted until SWPPP coverage ends • **After Construction:** All disturbed areas are stabilized as required and Notices and Termination are filed to end SWPPP coverage

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
MM Hydrology-3: Dewatering Procedures (Supersedes APM WQ-3) Groundwater extracted during construction dewatering shall not be discharged to any surface waters or storm drains. If dewatering is necessary, the water shall either be used (1) to irrigate upland areas, (2) for dust control, or (3) for other construction process (e.g., concrete production). Any groundwater that is suspected of contamination shall be tested at a state certified laboratory and shall be stored in a Baker Tank until water quality testing has been completed. Any contaminated groundwater encountered during dewatering shall be disposed of in accordance with all applicable laws and the procedures described in the SWPPP.	Any excavations where dewatering occurs	• **Before Construction:** N/A • **During Construction:** Dewatering procedures are implemented adequately, and water is not discharged into drainages or storm drains • **After Construction:** N/A
MM Hydrology-4: Watercourse Avoidance and Crossing Plan (Supersedes APM WQ-3 and APM BIO-3) PG&E shall prepare a Seasonal Watercourse Avoidance and Crossing Plan that defines specific methods for (1) completely avoiding impacts on wetlands and streams, to the extent feasible, and (2) defining specific water quality impact minimization measures that would be implemented at each crossing location that cannot be fully avoided by construction activities. PG&E shall submit the plan to the CPUC no less than 60 days prior to use of construction of surface water crossings or work within 50 feet of surface water resources. At a minimum, the plan shall provide the following information for each location where a wetland or watercourse is crossed by an access route or is within 50 feet of a work area: • Available methods for complete avoidance (i.e., fencing, flagging, or alternative routes) or an explanation why complete avoidance is not feasible, where applicable. • Proposed crossing methods. • Anticipated impacts that cannot be avoided and anticipated permitting requirements for those impacts with an explanation why alternate crossing methods are not feasible. • Methods that would be implemented to reduce water quality impacts, avoid inadvertent impacts on aquatic resources, and avoid direct impacts on potentially suitable aquatic habitat for CRLF and FYLF (refer to MM Biology-3). Methods could include restricting crossing to dry periods; installing temporary bridges; or placing fiber-glass mats, steel plates, or wooden beams to protect the feature. PG&E shall obtain all necessary state and federal permits for impacts on waters of the state and/or US and supply copies of all permits to the CPUC prior to construction. PG&E shall comply with all applicable Nationwide Permit regional and general conditions for any impacts on waters subject to federal jurisdiction under the Clean Water Act. PG&E shall submit agency permits or verification documents and proof of compliance to the CPUC no less than 30 days prior to impacting waters of the state or US.	Water feature crossings	• **Before Construction:** (1) A draft plan is submitted to the CPUC no less than 60 days prior to construction, and (2) PG&E obtains all necessary state and federal permits for impacts on waters of the state and US that cannot be avoided and supplies copies to the CPUC no less than 30 days prior to impacts • **During Construction:** Impacts on wetlands and waters are avoided to the extent feasible and avoidance and minimization measures are implemented adequately • **After Construction:** Any post-construction permitting requirements are implemented as applicable
MM Hydrology-5: Culvert Design PG&E shall design any repaired or replaced culverts to meet the standards outlined in the Sonoma County Flood Control Design Criteria. At a minimum, all culverts shall be designed to avoid any increase in flooding or erosion on adjacent stream banks or slopes. Design features shall be avoided that decrease water flow or impede the movement of aquatic wildlife. The culvert design shall be provided to Sonoma County for review, and any approvals shall be obtained prior to construction. Any Sonoma County comments or approvals for the culvert design shall be submitted to the CPUC for record keeping.	Any repaired or replaced culverts	• **Before Construction:** N/A • **During Construction:** PG&E designs culverts to meet Sonoma County Flood Control Design Criteria • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
Noise		
MM Noise-1: General Construction Noise PG&E shall implement the following procedures for all construction activities: • **Public Notice.** Noise-sensitive receptors (e.g., residences and officials for schools, places of worship, and parks) within 500 feet of work areas shall be provided written notice at least 7 days prior to beginning construction to inform them of the scheduled construction activities and potential noise disruptions. The notice shall describe procedures for submitting any noise complaints during construction, including a phone number for submitting such complaints. • **Mufflers and Maintenance.** Construction equipment shall be properly equipped with feasible noise control devices (e.g., mufflers) and properly maintained in good working order. • **Idling.** Vehicles and equipment shall only idle when necessary. • **Stationary Equipment.** Stationary equipment (i.e., compressors and generators) shall be positioned as far away from sensitive receptors as practicable, and equipped with engine-housing enclosures. • **Sensitive Periods.** To the extent practicable, construction activities that have a high likelihood of resulting in a noise nuisance for residents in the vicinity shall not be scheduled during sensitive morning or evening periods (7:00 am to 9:00 am, and 7:00 pm to 10:00 pm), to limit the potential for noise nuisance. Nighttime work between the hours of 10:00 pm and 7:00 am shall not occur, with the exception of installing and removing guard structures at the US 101 crossing. • **Noise Complaints.** A Construction Noise Coordinator shall be designated to be responsible for responding to any local complaints about construction noise. The Construction Noise Coordinator shall determine the likely cause of the complaint and ensure that reasonable adjustments in the work activities are made to address the problem, to the extent possible. The phone number for noise complaints shall be clearly posted at key work areas in public locations, such as at the entrances to staging areas. Noise complaints shall be addressed within 1 week. PG&E shall provide monthly reports to CPUC that include a record of any complaints received with a description of the likely cause and how the complaint was resolved.	All project areas within 500 feet of noise-sensitive receptors	• **Before Construction:** (1) Receptors within 500 feet are provided adequate notice, (2) Construction Noise Coordinator is designated, and (3) Noise complaint phone number is adequately posted at key work areas • **During Construction:** (1) Equipment is equipped with mufflers and adequately maintained, (2) Stationary equipment is positioned appropriately and equipped with engine-housing enclosures, (3) Loud construction activities are scheduled outside of sensitive periods to the extent practicable, and (4) Noise complaints are adequately addressed and reported to CPUC • **After Construction:** N/A
MM Noise-2: Schools PG&E shall coordinate with school administrators for Mark West Elementary School and San Miguel Elementary School prior to helicopter activities within 500 feet to determine the schedule for noise-sensitive periods, defined as but not limited to instructional periods when school is in session. PG&E shall schedule helicopter activities, within these distances, when school is not in session (i.e., before or after instructional periods). PG&E shall provide CPUC with a summary of coordination efforts, including the names and contact information for school administrators who were consulted, the locations of noise-sensitive facilities, and the schedules used to determine the least disruptive timing for construction to occur. Helicopter activities within 500 feet of noise-sensitive school facilities shall not occur during the school day, unless school administrators agree to shorter distances in writing.	Where project helicopter activities would occur within 500 feet of a school, including flight paths	• **Before Construction:** (1) PG&E coordinates with school administrators and (2) Construction activities are scheduled to occur when school is not in session • **During Construction:** Helicopter activities within 500 feet of schools during the school day does not occur • **After Construction:** N/A
MM Noise-3: Helicopter Activities PG&E shall implement the following procedures for helicopter activities: • **Public Notice.** Residences and places of worship (e.g., The Cove) within 500 feet from any location where helicopter activities may occur, including flight paths if applicable, shall be provided written notice at least 30 days prior to beginning helicopter activities to inform them of the schedule for helicopter use and potential noise disruptions. Methods for receptors to reduce noise in structures shall be included in the notice (i.e., closing doors and windows facing the alignment). The notice shall describe procedures for submitting any noise complaints during construction and provide a phone number for submitting such complaints, as required by MM Noise-1. • **Flight Paths.** Helicopter flight paths shall be planned along routes that would result in the least noise exposure possible to receptors. If helicopter noise complaints are received, work crews will attempt to adjust the flight paths to reduce noise exposure to the complainant, without substantially increasing noise exposure to other receptors. • **Helicopter Hovering.** Light/medium lift helicopters shall not operate closer than 50 feet from any receptors. Heavy lift helicopters shall not operate closer than 400 feet from receptors, unless actively working at pole locations along the alignment. Helicopters may operate closer than these distances if all affected receptors agree in writing to a shorter distance. Prior to reducing the minimum distance from receptors, PG&E shall provide the CPUC with the names, contact information, and written agreements for all affected persons within the applicable distances. The written	Where project helicopter activities would occur within 500 feet of a receptor, including flight paths, and where heavy lift helicopters would land within 4,000 feet of a school	• **Before Construction:** (1) Receptors within 500 feet of helicopter activities are provided adequate notice, and (2) PG&E provides the CPUC with adequate documentation of notification and coordination requirements • **During Construction:** (1) Helicopter flight paths and LZs are positioned to limit noise exposure to adjacent receptors, (2) Helicopter activities in the Southern Segment do not disrupt school instruction or regularly scheduled church service, and (3) Any helicopter noise complaints are adequately addressed and reported to CPUC • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
agreements shall clearly identify the anticipated helicopter noise levels, daily schedule, and duration of helicopter activities in the vicinity. • **Helicopter LZs.** Helicopter LZs within staging areas shall be positioned as far as possible from receptors. Helicopter LZs shall not be positioned closer than 500 feet from any receptor. Helicopter LZs for heavy lift helicopters shall not be positioned closer than 4,000 feet from schools. Helicopters may land closer than these distances if all affected receptors agree in writing to allow a shorter distance. • **Helicopter Touch Down.** Helicopter touch down shall not occur in the Southern Segment or within 500 feet of receptors in the Northern Segment. Helicopter touch down may occur closer than these distances if all affected receptors agree in writing to allow a shorter distance.		
Paleontological Resources		
APM PAL-2: Worker Environmental Awareness Training PG&E shall provide environmental awareness training on the recognition and protection of paleontological resources to project personnel. Training shall be required for all personnel before construction commences and repeated for all new personnel before they begin work on the proposed project. This training may be administered by the CPUC-approved, qualified Principal Paleontologist as a stand-alone training or included as part of the overall environmental awareness training as required by the project. The training will include at minimum, the following: • Types of fossils that could occur at the project site. • Types of lithologies in which the fossils could be preserved. • Procedures that should be followed in the event of a fossil discovery. • Penalties for disturbing paleontological resources. The training materials shall be submitted to the CPUC for approval at least 30 days prior to the start of construction.	N/A	• **Before Construction:** The training program materials are submitted to the CPUC 30 days prior to construction • **During Construction:** All project personnel undergo the training • **After Construction:** N/A
MM Paleontology-1: Paleontological Monitoring (Supersedes APM PAL-3) Paleontological monitoring shall be required for all construction that involves cutting of previously undisturbed soils within geologic units with moderate to high paleontological sensitivity, as identified in Table 3.12-1. Paleontological monitoring shall be conducted by qualified paleontological monitors under the direction of a CPUC-approved, qualified paleontologist. The qualified paleontologist shall have a Master's or PhD in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques. Paleontological monitors shall have experience in the collection and salvage of fossil remains. At a minimum, spot-check monitoring shall occur during pole hole augering more than 3 feet in diameter (limited to TSPs) within qualifying geologic units until the maximum depth has been reached. The tailings from such pole hole augering shall be temporarily preserved in place until the paleontological monitor can inspect them for presence of paleontological resources. Full-time monitoring shall be required during grading activities that are greater than 6 inches in depth in previously undisturbed areas, and greater than 2 feet in depth in previously disturbed areas (i.e., historically disked areas, etc.), or beyond the known depth of disturbance, in qualifying geologic units. If no paleontological resources are found after at least 50 percent of qualifying grading is completed at a work site, then full-time monitoring shall be reduced to spot-check monitoring at the discretion of the paleontologist with notification to the proponent's specialists and the CPUC. If a potential paleontological resource is identified when the monitor is not present, the monitor shall be contacted immediately and work shall temporarily stop in the immediate area until the potential resource can be evaluated by the monitor per provisions in MM Paleontology-2. Monitoring activities shall be documented in monitoring logs and reports, which shall include the activities observed, geology encountered, description of any paleontological resources encountered, and measures taken to protect or salvage discovered resources. Photographs and other supplemental information shall be included as necessary.	Qualifying excavation within geologic units that have a moderate or high paleontological sensitivity	• **Before Construction:** N/A • **During Construction:** (1) Construction activities are monitored where qualifying excavation occurs, and (2) Monitoring activities are documented and reported adequately • **After Construction:** N/A
MM Paleontology-2: Previously Undiscovered Paleontological Resources (Supersedes APM PAL-1 and APM PAL-4) In the event that a previously undiscovered paleontological resource is uncovered during project implementation, all ground-disturbing work within 50 feet of the discovery shall be halted and the paleontological resource specialist shall be immediately notified. A CPUC-approved, qualified paleontologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, the qualified paleontologist shall evaluate the resource and determine whether it meets the definition of "unique" under CEQA, Appendix G, Part V. If the resource is determined to be unique, a determination and associated plan for protection of the resource shall be	All project areas	• **Before Construction:** N/A • **During Construction:** (1) Activities within 50 feet of a discovery halts and the qualified paleontologist is notified, (2) Resources are evaluated by the qualified paleontologist if they cannot be avoided, (3) Unique resources are preserved in place or treated appropriately, (4) Recovered fossils are curated appropriately, (5) Work does not resume within 50 feet of a discovery until authorized by CPUC, and (6) A final summary report is submitted to CPUC

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
provided to CPUC for review and approval. If the resource is determined not to be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the qualified paleontologist shall consult with PG&E staff, CPUC staff, and the landowner regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts on paleontological resources and shall be required unless there are other equally effective methods. Other methods may be used but must ensure that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of the CPUC-approved, qualified paleontologist. All recovered fossils shall be curated at an accredited and permanent scientific institution according to the 2010 Society of Vertebrate Paleontology standard guidelines, or as relevant at the time of project implementation. Work may commence upon completion of treatment, as approved by CPUC. If a unique paleontological resource is discovered, a final summary report shall be completed and submitted to the CPUC. This report shall include discussions of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils. The report shall also include an itemized inventory of all collected and catalogued fossil specimens.		• **After Construction:** N/A
Recreation		
APM REC-1: Coordination with Park Management and Signage PG&E will coordinate closely with park management for temporary public land and trail closures during project construction activities. If any park or trail closures are necessary during construction, PG&E would post signs advising recreational facility users of construction activities, including directions to alternative trails and/or bikeways at entrance gates to regional parks. Signage will be posted at least 1 week in advance of parks or trail closures.	Maddux Ranch Regional Park, Shiloh Ranch Regional Park, and Foothill Regional Park	• **Before Construction:** Coordinate with Sonoma County Regional Parks District prior to park or trail closures • **During Construction:** Post signage at least 1 week prior to park or trail closures • **After Construction:** N/A
MM Recreation-1: Trail Conditions and Repairs PG&E shall prepare a Pre-Project Trail Condition Report prior to construction that documents the condition of designated trails located within project work areas or access routes. The Pre-Project Trail Condition Report shall be submitted to the CPUC no less than 30 days before construction. PG&E shall repair all damage to trails (e.g., rutting) caused by construction vehicles and equipment by the completion of construction. PG&E shall prepare a Post-Project Trail Condition Report documenting the final state of all trails within project work areas and access routes. The Post-Project Trail Condition Report shall be submitted to the CPUC within 30 days of completing construction in each project segment. PG&E shall complete all trail repairs to the approval of the CPUC.	Shiloh Ranch Regional Park and Foothill Regional Park	• **Before Construction:** Pre-Project Trail Condition Report is submitted to the CPUC no less than 30 days prior to construction • **During Construction:** Trail damage from the project is adequately repaired by the completion of construction • **After Construction:** Post-Project Trail Conditions Report is submitted to the CPUC within 30 days of completing construction
MM Recreation-2: Trail Detours and Notifications PG&E shall provide temporary trail detours in regional parks, where feasible. Trail detours must be located on existing trails or unvegetated areas, and shall not be located where they could impact a sensitive biological and cultural resources. Trail detours may be placed along the perimeter of active work areas or through inactive work areas when it is safe to do so. Proposed trail detours within regional parks shall be agreed upon by the Sonoma County Regional Parks Department prior to implementation. Signs shall be posted at park and trail entrances to inform park users of construction activities that may be encountered, such as vehicles and equipment on trails, excavations, and helicopter activities. The signs shall include a map of trail closures, trail detours, and construction areas to avoid.	Maddux Ranch Regional Park, Shiloh Ranch Regional Park, and Foothill Regional Park	• **Before Construction:** PG&E coordinates with park officials at least 90 days prior to construction • **During Construction:** (1) PG&E installs and maintains signs directing trail users of detours or closures, and (2) any trail detours are located within disturbed areas and do not create permanent new trails • **After Construction:** N/A

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
Transportation and Traffic		
MM Traffic-1: Construction Traffic Management[3] **Construction Traffic.** ~~Construction traffic shall be routed around roadways and intersections that are currently operating below LOS standards t~~To the greatest extent possible, ~~including the intersection at Faught Road and Old Redwood Highway. C~~ construction traffic through the intersection at Faught Road and Old Redwood Highway shall be avoided by using Airport Boulevard and alternate local roads to access the project alignment. Construction traffic through the intersection shall be limited to an absolute minimum ~~and shall not exceed 10 vehicle trips during weekday peak commute periods (7:00 am to 9:00 am, and 4:00 pm to 6:00 pm)~~. **Lane and Road Closures.** Lane closures shall be limited to the minimum number necessary. Guard structures shall be installed to prevent lane closures where possible. At least one lane must remain open on all roadways unless full road closures are necessary for safety purposes or to complete a short-term construction activity. Full road closures shall not occur frequently or last for more than a few ~~minutes~~ days at a time. ~~Lane closures in the Southern Segment shall not occur during weekday peak commute periods (7:00 am to 9:00 am, and 4:00 pm to 6:00 pm). In addition, lane closures shall not occur on Lavell Road and Faught Road during pickup times at San Miguel Elementary School and Mark West Elementary School (1:00 pm to 3:45 pm Monday, Tuesday, Thursday, and Friday, and 12:15 pm to 1:45 pm Wednesdays when school is in session).~~ ~~Should a lane closure be unavoidable during peak commute hours or school commute hours, a traffic model shall be run to demonstrate that the lane closure and detour routes do not cause a significant impact to LOS, as defined in this traffic analysis. If modeling shows that significant impacts to LOS could occur, other measures shall be incorporated and remodeled to demonstrate less than significant impacts, or the closure shall be limited to off-peak and off-school-commute hours.~~ Access shall be maintained to driveways, residential communities, and parking lots. Guard structures shall be installed if overhead reconductoring activities would affect access for more than 15 minutes per day. **Detour Routes.** Detour routes shall be selected in coordination with Caltrans and Sonoma County when encroachment permits are obtained. ~~Traffic detours shall not divert existing traffic volume that would cause roadway or intersection LOS to drop below acceptable standards (LOS D for roadways and LOS F for intersections).~~ Safe detour routes shall be provided for pedestrians and cyclists along lane closures, and where traffic control occurs. Barriers shall be installed between the pathway and vehicle traffic, if necessary, to provide a safe clearance from traffic. **Encroachment Permits.** PG&E shall obtain encroachment permits from Caltrans prior to working within the US 101 ROW and from Sonoma County prior to working within the Sonoma County ROW. PG&E shall provide the CPUC with all encroachment permits obtained from Caltrans and Sonoma County prior to work in the State or County ROW. Any modified or updated encroachment permits shall also be provided to the CPUC.	All public roadways	• **Before Construction:** N/A • **During Construction:** (1) Construction traffic avoids congested intersections to the greatest extent possible ~~follows the designated routes that limit impacts to traffic circulation~~, (2) Lane and road closures are limited to the minimum number necessary ~~do not occur during peak weekday commute periods or during school pick-up and drop-off periods~~, (3) Detour routes are adequately identified and implemented, (4) Encroachment permits from Caltrans and Sonoma County are obtained and implemented adequately, and submitted to the CPUC • **After Construction:** N/A
MM Traffic-2: Overhead Construction Safety Guard structures shall be installed where necessary and feasible during reconductoring activities. Alternatively, flaggers may be positioned to maintain public access. If public access cannot safely continue during overhead activities, PG&E shall clearly mark the unsafe area with signs and flagging to keep the public from accessing the area. If access to properties must be closed during overhead activities or residences must be temporarily evacuated during helicopter activities in the Southern Segment, PG&E shall coordinate the timing of construction activities with the affected property owners and residents.	All locations where the project alignment crosses public thoroughfares	• **Before Construction:** N/A • **During Construction:** (1) Public access is maintained to the greatest extent feasible using guard structures and flaggers, (2) Areas that must be closed are flagged-off from public access, and (3) Construction activities are coordinated with any residents that may need to temporarily evacuate properties during helicopter activities in the Southern Segment • **After Construction:** N/A

[3] MM Traffic-1 was revised as described in the impact discussion for Transportation in the 2019 Supplemental MND.

Required APMs and MMs	Applicable Locations	Performance Standards and Timing
MM Traffic-3: Roadway Damage PG&E shall conduct a Pre-Construction Road Condition Assessment along public roadways where construction would occur, heavy equipment would travel frequently, and at the entrances of all staging areas to document any existing roadway damage to the asphalt or concrete curbs. PG&E shall submit photos and coordinates of any existing roadway damage to the CPUC, Caltrans, and Sonoma County no less than 30 days prior to construction. If roadways are damaged by construction activities, the damaged area(s) shall be documented and repaired no more than 60 days following construction activities. If the damage could cause a substantial traffic hazard, the location shall be marked appropriately and repaired within 48 hours. Any roadway damages shall be repaired to pre-project conditions and following applicable Caltrans and Sonoma County repair standards.	Public roadways where construction would occur	• **Before Construction:** Existing roadway damages are assessed and PG&E submits documentation to the CPUC, Caltrans, and Sonoma County no less than 30 days prior to construction • **During Construction:** Any roadway damage that could cause a substantial traffic hazard is marked and repaired within 48 hours • **After Construction:** Any roadway damage that would not cause a substantial traffic hazard is repaired no more than 60 days after construction
MM Traffic-4: Emergency Access PG&E shall notify local emergency service providers (i.e., local fire districts, law enforcement offices, hospitals, and ambulance and paramedic services) no less than 1 week before construction activities and provide the locations of roadway segments where lane closures and detour routes may occur. The notice shall also identify the approximate timing and duration of lane closures and detour routes that may affect traffic and emergency access.	All project areas	• **Before Construction:** Notify emergency service providers of lane closures and detour routes no less than 1 week before construction • **During Construction:** N/A • **After Construction:** N/A
MM Traffic-5: Public Transit PG&E shall notify Sonoma County Transit (SCT) no less than 30 days before construction in the Southern Segment and identify roadway segments where bus routes and bus stops are located that may be affected during construction. The notice shall identify the approximate timing and duration that each bus stop may be affected. If necessary, bus stops shall be temporarily relocated or buses shall be rerouted until construction affecting the bus stop is complete, as determined through coordination with SCT. PG&E shall ensure signs are posted at affected bus stop no less than 7 days before bus stop closures. The signs shall provide information on the closest alternate bus stop for the route and the scheduled duration of relocation.	Project areas that could affect SCT bus routes	• **Before Construction:** SCT is notified no less than 30 days before construction • **During Construction:** Signs are posted at affected bus stops no less than 7 days before closures • **After Construction:** N/A