Low-Effect Habitat Conservation Plan for PG&E Gas Pipeline 1816-15
Vegetation Management Projects along Graham Hill Road and Ocean
Street in Santa Cruz County, California

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Executive Summary

Pacific Gas and Electric Company (PG&E) is responsible for funding and maintaining its natural gas transmission lines throughout a service territory of approximately 94,000 square miles in California. Part of this responsibility is for the Company to ensure that incompatible vegetation on top of and adjacent to the pipeline is removed to ensure compliance with Federal requirements as well as to ensure safe, reliable natural gas is delivered to its customers.

PG&E is applying for an incidental take permit under section 10(a)(1)(B) of the Endangered Species Act of 1973 as amended (16 USC 1531-1544, 87 Stat.884), from the U.S. Fish and Wildlife Service (USFWS) for the incidental take of the endangered Mount Hermon June beetle (MHJB) (*Polyphylla barbata*; Coleoptera: Scarabaeidae) associated with a vegetation removal project occurring at 28 locations in Santa Cruz County, California.

This vegetation removal project involves the targeted removal of approximately 1,243 trees and 632 brush units present on top of or immediately adjacent to natural gas transmission pipeline (DFM 1816-15) at 28 locations to improve gas transmission pipeline safety, reliability and accessibility for emergency personnel. Targeted vegetation will be cut above ground and selected woody vegetation within the Pipe Zone and targeted trees within All Zones (Pipe, Border, and Outer Zones as defined in the Project Description) will be selectively treated with a California Department of Pesticide Regulations approved herbicide control regrowth.

Forty work locations were assessed and 28 work locations occur in known or potential MHJB habitat (2.9 acres or 126,324 square feet). Avoidance measures have been included into the project description to reduce impacts to the MHJB. In addition, to offset potential direct and indirect impacts associated with this pipeline safety work at the 28 locations, PG&E proposes to purchase 126,324 conservation credits (2.9 acres) for the MHJB from the USFWS approved Zayante Sandhills Conservation Bank. In addition, this HCP proposes to cover potential future repairs of the gas pipeline within the project area. While repair work on this gas transmission line is not planned, periodic and regular surveys over the 20 year permit term may detect leaks which would require repair.

Section 1. Introduction and Background

1.1 Overview and Background

Pacific Gas and Electric Company (PG&E) has a combined electric and gas service territory of 94,000 square miles in northern and central California. PG&E owns and operates approximately 6,750-miles of natural gas transmission pipeline within the service territory.

PG&E is responsible for funding and maintaining its natural gas transmission lines throughout California. Part of this responsibility is to ensure that incompatible vegetation present on top of and adjacent to the pipeline is removed to ensure safe, reliable natural gas is delivered to its customers. PG&E developed

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1 The number of trees and brush units are for 28 out of the 40 projects where suitable habitat for Mount Hermon June beetle has been identified.
Utility Standard TD-4490S (See Section 2- Project Description) for maintaining gas pipeline rights-of-way to comply with federal law that requires the management of vegetation within gas transmission rights-of-way for thorough and complete leak detection and cathodic surveys. Vegetation present in our gas transmission easements pose problems with surveying the lines for leaks, as well as patrolling the lines for signs of encroachment or damage from erosion, landslide, fire, or other natural forces. Additionally, tree roots can grow around steel pipelines and damage their protective coating, which increases risks for corrosion and leakage. Trees present within our rights-of-way can also result in emergency access delays, which could prolong incidents or outages in the event a pipeline is damaged or a leak develops.

Vegetation removal is anticipated to be completed at all locations within approximately 3-4 weeks in 2017 but work may occur in 2018 depending on permit approvals, weather, and crew availability. Some treatment of targeted vegetation would also continue annually throughout the permit term. The project work areas are located along Graham Hill Road and Ocean Street in the cities of Scotts Valley and Santa Cruz respectively, in Santa Cruz County, California, USA (Figure 1).

Based on the environmental assessment performed by Dr. Richard Arnold (Arnold 2016), 29 of the 40 proposed work locations that are proposed for vegetation removal are located in areas that either may contain potentially suitable habitat for, or are in areas that contain previously identified locations of the Federally endangered Mount Hermon June Beetle (Polyphylla barbata (Coleoptera: Scarabaeidae; MHJB) (Figure 2). While habitat quality for the MHJB is variable over the 28 separate work areas, there is potential for the species to be present at the work locations and so it is assumed present at the 28 work areas.

This vegetation removal project involves the removal of approximately 1,243 trees and 632 brush units present on top of or adjacent to gas transmission pipeline (DFM 1816-15) to improve gas transmission pipeline safety, reliability and accessibility. The removal of vegetation is not uniform in nature as the vegetation targeted for removal differs based on distance from the pipeline. Per Utility Standard TD-4490S, targeted trees growing immediately over and within 14 feet of either edge of the pipeline and all woody brush growing within 5 feet of either edge of the pipeline must be removed (See Project Description). Overall, the total area where all work will occur will not exceed a total width of 30 feet.

Work on this project will occur off the shoulder of the road both on private property and in franchise (public land within a city or county) along Graham Hill Road and Ocean Street. Access to the work locations will occur from the paved Graham Hill Road and Ocean Street to the extent safely possible. Vegetation will be removed manually and with mechanical equipment, including a bucket truck, bobcat/ASV and chipper. The removed plant material will be chipped on site and hauled off-site. All vehicles will be parked on the road or road edge and a bobcat/ASV with rubber tracks may be used to move cut plant material from the job site to the road. Trucks will be parked on pavement to reduce impacts wherever it is safely possible to do so.

3 For the 28 projects where suitable habitat for Mount Hermon June beetle has been identified, removals include approximately 1,243 trees and 632 brush units.
4 30 feet is calculated as 2 feet directly above the pipeline and 14 feet on either side of the pipeline edge.
5 An ASV is a brand of compact track loaders and skid steer loaders. Loaders are used to move larger pieces of cut vegetation out of the work area.
An effective method that controls stump re-sprouting will be required on site to fully comply with the Utility Standard and prevent the re-growth of incompatible vegetation over the pipeline. On an annual basis for the duration of the 20 year permit term, all select targeted regrowth will be treated with a targeted low volume foliar treatment using a California Department of Pesticide Regulations approved herbicide in accordance with the label. All applications will be made under the supervision of a California licensed Pest Control Advisor who shall issue a written Pest Control Recommendation. Repeated annual herbicide applications using a broad leaf selective herbicide (foliar treatment) will be performed for all trees and all woody vegetation re-growth in the Pipe Zone. Only trees that meet the Utility Standard (TD-4490S) DBH requirement in the Border and Outer Zones will be removed and re-treated using the foliar herbicide (Section 2.1).

PG&E proposes to incorporate avoidance measures into the project to reduce impacts to the MHJB (Section 5). To avoid and minimize impacts to the MHJB, all vegetation removal work will occur above ground in the presence of a qualified biologist. No stump grinding or pulling out of root balls will occur unless PG&E is required to do so by the landowner or to ensure public safety. Work is also proposed to occur between September 1st and April 30th at the 28 locations with MHJB habitat present to avoid the flight season for the MHJB (the flight season is defined as May 1st to August 31st). Following vegetation removal, PG&E proposes to reseed the work areas with a native and weed-free seed mix using species that are compatible with the Utility Standard.

In addition, while pipeline repair work is not currently scheduled within the surveyed area, based on coordination and communications with the Service, PG&E recognizes that future pipeline maintenance and repair work may also need to occur within the surveyed work areas in MHJB habitat as a part of PG&E’s pipeline safety program. PG&E may determine that it may be necessary to test and repair the existing gas line during the 20 year permit term to ensure the safe and reliable delivery of natural gas and to comply with Federal regulations. Therefore, in an effort to efficiently address this issue we propose to cover these activities in this HCP. These activities would generally consist of excavating the area around the line needing repair and then backfilling prior to repair activities. All impacts are anticipated to be temporary in nature and all areas would be restored with native sandhills plant species.

PG&E proposes to mitigate for the vegetation removal work (2.9 acres) at the 28 work locations where MHJB habitat is present in two ways: 1) the implementation of avoidance measures in the project and 2) through the purchase of 126,324 conservation credits (2.9 acres) from the Zayante Sandhills Conservation Bank, a USFWS approved bank. Operations and Maintenance work would be compensated for through coordination with the Service as described in Section 6.2.3.

**1.2 Permit Holder/Permit Duration**

Upon approval of the incidental take permit (section 10(a)(1)(B) permit pursuant to the Endangered Species Act) it is assumed that PG&E will proceed as soon as authorized provided that work is conducted outside the flight season for the Mount Hermon June beetle (flight season defined as May 1st – August 31st so vegetation removal work will only be performed between September 1st and April 30th of any year to avoid the flight season). The period of performance may also be constrained by crew availability, weather (e.g., flooding, mudslides, or fire danger), and traffic control plans or other permits.
The requested permit term is 20 (twenty) years. The vegetation removal portion of the job is not anticipated to take longer than 4 weeks depending on crew availability and traffic plan requirements for work hours. However, depending on traffic control restrictions and weather conditions in the area, work could potentially take longer than 4 weeks. The 20 year permit duration is to cover incidental take during annual removal and foliar treatment of targeted regrowth of selected trees within all three zones (Pipe, Border, and Outer Zones) and all woody shrub species in the Pipe Zone that experience re-growth, as well as potential excavation work associated with temporary Operations and Maintenance work (Sections 2.1 and 6.2.3).

1.3 Permit Boundary/Covered Lands

Vegetation management activities in potential habitat for the MHJB will occur at 28 different work locations along Graham Hill Road and Ocean Street in Santa Cruz County, CA, USA (Appendix A. Figures 1-4. Note: All work areas (40) were surveyed and were included in the maps of the projects, although only 28 projects are being submitted for coverage for MHJB under this permit).

PG&E’s gas pipeline 1816-15 runs alongside Graham Hill Road and Ocean Street through a number of private properties and city/county public land (franchise property). Work will occur off the shoulder of the road both on private and franchise properties at each of the 28 project work locations.

1.4 Species to be Covered by the Permit

The following species is referred to as a “covered species” as related to the Incidental Take Permit:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Conservation Status</th>
<th>Federal</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mount Hermon June beetle</td>
<td><em>Polyphylla barbata</em></td>
<td>Endangered</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The Mount Hermon June beetle was listed in 1997 as endangered species by USFWS (USFWS 1997). A recovery plan was published by the USFWS for the MHJB, Zayante band-winged grasshopper (ZBWG) and four plant species in the Zayante Sandhills (Arnold 2016, USFWS 1997).

1.5 Regulatory Framework

Federal Endangered Species Act

The federal Endangered Species Act (ESA) and its implementing regulations prohibit the take of any fish or wildlife species that is Federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10(a)(1)(B) of the ESA. ESA defines take as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Federal regulation 50 CFR 17.3 further defines the term harm in the take definition to mean any act that actually kills or injures a Federally listed species, including significant habitat modification or degradation.

Section 10(a) of the ESA establishes a process for obtaining an incidental take permit, which authorizes non-Federal entities to incidentally take Federally listed wildlife or fish subject to certain conditions.
Incidental take is defined by ESA as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” Preparation of a low effect conservation plan, generally referred to as a habitat conservation plan (HCP), is required for all Section 10(a)(1)(B) permit applications.

Section 7 of the ESA requires all Federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any species listed under the ESA, or to result in the destruction or adverse modification of its habitat. Technically, the issuance of an incidental take permit is an authorization for take by a federal agency. Consequently, in conjunction with issuing a permit, the Service must conduct an internal Section 7 consultation on the proposed HCP. The internal consultation is conducted after a proposed HCP is developed by a non-Federal entity and submitted for formal processing and review. Provisions of Sections 7 and 10 of the ESA are similar, but Section 7 requires consideration of several factors not explicitly required by Section 10. Specifically, Section 7 requires consideration of the indirect effects of a project, effects on Federally listed plants, and effects on critical habitat. (ESA requires that the Service identify critical habitat to the maximum extent that it is prudent and determinable when a species is listed as threatened or endangered.) The internal consultation results in a Biological Opinion prepared by the Service regarding whether implementation of the proposed HCP will result in jeopardy to any listed species or will adversely modify critical habitat.

The Section 10 Process

The Section 10 process for obtaining an incidental take permit has three primary phases: (1) the HCP development phase; (2) the formal permit processing phase; and (3) the post-issuance phase.

During the HCP development phase, the project applicant prepares a plan that integrates the proposed project or activity with the protection of listed species. An HCP submitted in support of an incidental take permit application must include the following information:

- Impacts likely to result from the proposed taking of the species for which permit coverage is requested.
- Measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances.
- Alternative actions considered that would not result in take.
- Additional measures the Service may require as necessary or appropriate for purposes of the plan.

The Service has established a special category of HCP, called a low-effect HCP, for projects with relatively minor or negligible impacts. Based on criteria for determining whether a low-effect HCP is appropriate, as described below and in the HCP Handbook the Applicant, Pacific Gas & Electric Company, believes this proposed HCP qualifies as a low-effect HCP.

Low-effect HCPs are appropriate for projects that will have minor or negligible effects on Federally listed, proposed, or candidate species and their habitats that are covered by the HCP and minor or negligible effects on other environmental resources. Implementation of low-effect HCPs and their associated incidental take permits, despite authorization of some small level of incidental take, individually and cumulatively have a minor or negligible effect on the species covered by the HCP. The
determination of whether an HCP qualifies for the low-effect category is based on the anticipated impacts of the project prior to implementation of the mitigation plan. The purpose of the low-effect HCP is to expedite handling of HCPs for activities with inherently low impacts; this category of HCP is not intended for projects with significant potential impacts that are subsequently reduced through mitigation programs.

The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package for a low-effect HCP consists of an HCP, a permit application, and $100 fee from the applicant. The Service must also publish a Notice of Availability of the HCP in the Federal Register; prepare an Intra-Service Section 7 Biological Opinion; prepare a Set of Findings, which evaluates the Section 10(a)(1)(B) permit application in the context of permit issuance criteria (see below); and prepare an Environmental Action Statement, a brief document that serves as the Service’s record of compliance with the National Environmental Policy Act (NEPA) for categorically excluded actions (see below). An implementing agreement is not required for a low-effect HCP. A Section 10 incidental take permit is granted upon a determination by the Service that all requirements for permit issuance have been met. Statutory criteria for issuance of the permit specify that:

- The taking will be incidental.
- The impacts of incidental take will be minimized and mitigated to the maximum extent practicable.
- Adequate funding for the HCP and procedures to handle unforeseen circumstances will be provided.
- The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild.
- The applicant will provide additional measures that the Service requires as being necessary or appropriate.
- The Service has received assurances, as may be required, that the HCP will be implemented.

During the post-issuance phase, the permittee and other responsible entities implement the HCP, and the Service monitors the permittee’s compliance with the HCP as well as the long-term progress and success of the HCP. The public is notified of permit issuance by means of the Federal Register.

**NEPA National Environmental Policy Act (NEPA)**

NEPA requires that federal agencies analyze the environmental impacts of their actions (in this instance, issuance of an incidental take permit) and include public participation in the planning and implementation of their actions. NEPA compliance is obtained through one of three actions: (1) preparation of an environmental impact statement (generally prepared for high-effect HCPs); (2) preparation of an Environmental Assessment (generally prepared for moderate-effect HCPs); or (3) a categorical exclusion (allowed for low-effect HCPs). The NEPA process helps federal agencies make informed decisions with respect to the environmental consequences of their actions and ensures that measures to protect, restore, and enhance the environment are included, as necessary, as a component of their actions. Low-effect HCPs, as defined in the HCP Handbook, are categorically excluded under NEPA, as specified by the Department of Interior Manual 516DM2, Appendix 1, and Manual 516DM6, Appendix 1.
National Historic Preservation Act (NHPA)

All Federal agencies are required to examine the cultural impacts of their actions (e.g., issuance of a permit). This may require consultation with the State Historic Preservation Office (SHPO) and appropriate American Indian tribes. All incidental take permit applicants are requested to submit a Request for Cultural Resources Compliance form to the Service. To complete compliance, the applicants may be required to contract for cultural resource surveys and possibly mitigation.

The Request for Cultural Resources Compliance form is provided in Appendix D.

Section 2. Project Description/Activities Covered by Permit

2.1 Project Description

This vegetation management project involves the removal of trees and woody brush present within the right-of-way of natural gas transmission pipeline 1816-15 along Graham Hill Road and Ocean Street to improve pipeline safety and accessibility. Roots of certain tree and brush species growing within a defined proximity to the gas pipeline may affect its safe operation, while above-ground growth may limit accessibility by first responders and crews.

The need for this permit is associated with the above ground vegetation maintenance (removal) activities along gas transmission pipelines to ensure compliance with federal law the applicant’s Utility Standard TD-4490S:

Vegetation Zone Design:

- A hard cut is the severe change from one zone to another without a natural transition between the two zones. The Vegetation Zone Design avoids “hard cuts” on rights-of way that begin from the area over the pipelines (defined as the Pipe Zone) and expands to the outer edges beyond the Pipe Zone called Border Zones.
- The Vegetation Zone Design allows the landscape to incorporate an environmentally balanced “feather cut” from the Pipe Zone as it moves outward to the Border Zone and finally to the Outer Zone:

Pipe Zone:

- The Pipe Zone is a 12 foot corridor (5 feet on either side of the pipeline and the 2 feet present directly above the gas transmission pipeline). In the Pipe Zone, all trees, woody shrubs, and
woody vegetation will be removed. Low-profile herbaceous vegetation will remain in this area.

Border Zone:

- The Border Zone is the area that is located between the Pipe Zone and Outer Zone. From a distance of 5 feet to 10 feet from the pipeline, only trees exceeding 8 inches in diameter at 4.5 feet above ground (DBH) or of a species likely to exceed 8 inches DBH at maturity, and the trunk or main branch shall be removed. All other vegetation that does not currently meet or can be reasonably expected to rise to the 8 inch DBH requirement will remain in this area.

Outer Zone:

- The Outer Zone is the area next to the Border Zone. From 10 feet to 14 feet from the pipeline, only trees exceeding 36 inches in DBH or is of a species likely to grow to and exceed 36 inches in DBH at maturity, and the trunk or main branch shall be removed. All other vegetation that does not currently or can be reasonably expected to the reach the 36 inch DBH requirement will remain in this area.

To ensure pipeline and community safety, at each of the work locations, targeted trees growing within 14 feet of either edge of the pipeline as well as all woody brush growing within 5 feet of either edge of the pipeline will be removed (12 feet total width). The removals will involve selected trees that meet a threshold as defined in the Utility Standard previously described within a defined area of 30 feet at each work location (14 feet on either side of the pipeline plus the 2 feet directly above the pipeline).

All work is proposed to occur above ground level and no excavation is required to perform the vegetation removal. Vegetation will be removed manually and with mechanical equipment, including a bucket truck, bobcat/ASV, and chipper, with most work occurring from paved surfaces. Crews will utilize hand crews, a chip truck, and a trailered chipper for the entire project due to its proximity to the road. In cases where overhead electric lines are present, crews would bring in a bucket truck and overhead electric certified crews. Traffic control will also be onsite for the duration of the work and will be set up on paved areas or as per County regulations. All work is anticipated to take approximately 4 weeks to complete with work being completed during daylight hours approximately between 09:00 and 15:30.

The majority of the trees and brush within the work area will be chipped and cut vegetation will be hauled off site for disposal. Chipping of removed vegetation and temporary storage of brush piles will be on paved surfaces to the extent possible to reduce impacts to habitat. While cut vegetation will be off-hauled, some debris (e.g. some leaves, small branches, sawdust, etc.) associated with the vegetation removal activities will be left on site after work is completed. All cut stumps will be left intact and not ground down, unless PG&E is required to perform stump grinding by the private landowner.

To control the regrowth of trees all stumps will be treated with a California Department of Pesticide Regulations approved herbicide in accordance with the product label. On an annual basis all select targeted regrowth will be treated with a targeted low volume foliar treatment using a California Department of Pesticide Regulations approved herbicide in accordance with the label. All applications will be made under the supervision of a California licensed Pest Control Advisor who shall issue a written Pest Control Recommendation.
Foliar herbicide will only be applied in the following way on targeted vegetation, which will allow for the persistence of grasses, forbs, and non-woody vegetation to remain on site (in compliance with the Utility standard outlined above):

1. **Pipe Zone:** Herbicide treatment in the Pipe Zone will consist of a low volume foliar application that will be a 50% foliar coverage of target species only on all woody vegetation within 5 feet from edge of pipe (12 foot width- 5 foot on either side of the pipeline, 2 foot directly over the pipeline). All grasses and forbs are not targeted, and will not be sprayed. Vegetation targeted with foliar spray will include spraying of re-sprouting material from previously removed vegetation as well as new volunteer seedlings of woody vegetation and trees.

2. **Border Zone:** Treatment in the Border Zone (5 feet to 10 feet from the pipeline on either side) will consist of a low volume foliar application that will be a 50% foliar coverage of target tree species only. Vegetation targeted with foliar spray are all tree species that have the ability to be larger than 8 inches in diameter at 4.5 feet above grade at maturity within 5 feet to 10 feet from edge of pipe. No brush or grasses are targets in this zone.

3. **Outer Zone:** Treatment in the Outer Zone (10 feet to 14 feet from the pipeline on either side) will consist of a low volume foliar application that will be a 50% foliar coverage of target tree species only. Targets are all tree species that have the ability to be larger than 36 inches in diameter at 4.5 feet above grade at maturity within 10 feet to 14 feet from edge of pipe. No brush, woody vegetation, grasses, or tree species that are or will be less than 36 inches in diameter at 4.5 feet above grade at maturity will be targeted.

4. **Repeated Treatments:** After the initial vegetation removal, herbicide treatment may be repeated as frequently as annually, depending on the re-growth of vegetation that meets the DBH requirement in Utility Standard TD-4490S. Herbicide use is anticipated to be heavier earlier in the permit term and be reduced in the following years given less regrowth in subsequent years.

No laydown or staging areas are anticipated in order to perform work, but should a laydown or staging area be required it will be sited on pavement or in previously disturbed areas outside of habitat. To the extent safely possible, vehicles and equipment will stay on the paved surfaces unless off road vehicle access is required to perform work safely.

Vegetation removal associated with this project will occur at 40 locations along Graham Hill Road and Ocean Street in the cities of Scotts Valley and Santa Cruz, Santa Cruz County, California. However, only the 28 project areas that are anticipated to result in impacts to MHJB are described in this low-effect HCP (HCP). Representative photographs of work areas are provided in Appendix E.

Based on coordination and recommendations by the Service, PG&E proposes to include potential, future maintenance and/or repair activities to the gas line within the proposed project area. PG&E recognizes that future pipeline operations and maintenance repair work may need to occur within the surveyed work areas in MHJB habitat as a part of PG&E’s pipeline safety program. Examples of operation activities include inspecting, monitoring, testing, and operating valves, enclosures, switches, and other components. Examples of maintenance activities include repairing and replacing facilities and structures, access in addition to emergency repair and replacement. Examples of this type of work includes remedial maintenance, pipeline valve recoating, pipeline valve replacement, pipeline cathodic protection, pipeline recoating, pipeline inspection, strength testing, pipeline replacement, etc.
involves the following types of activities: grading, access, excavation of the pipeline and an area large enough around the pipeline to expose the bottom of the pipeline, staging, spoils piles placement, boring, pipeline marking, stringing pipe, pipe placement, welding, backfilling the excavation with the soil that was excavated, clean up and restoration. If gas line surveys reveal the need to conduct maintenance and/or repair activities, PG&E will notify the Service in writing at least 30 days in advance (unless the work is an emergency or severe enough to result in a reduction of pressure and loss of customers in which case PG&E will notify the Service as soon as possible, but no later than 30 days from identification of needed repairs) with information that includes: 1) project area and location, 2) extent of impacts in square feet, 3) dates of scheduled repairs, 4) proposed conservation measures; and, 5) proposed conservation credit purchase to offset impacts. PG&E anticipates compensating for impacts associated with maintenance and repair activities at a 1:1 ratio, in terms of impacts to credits purchased.

Vegetation targeted for removal varies for each of the 28 work areas where take coverage is requested varies.

1. **RW-V-12228_14**: The work area involves the removal of 82 trees, and 37 units of brush. Species involved include: 3 Japanese maple (*Acer palmatum*), 1 American smoketree (*Cotinus obovatus*), 5 willow (*Salix* sp.), 1 California bay (*Umbellularia californica*), 1 magnolia (*Magnolia* sp.), 5 privet (*Lingustrum* sp.), 1 lace leaf maple (*Acer dissectum*), 1 sourwood (*Oxydendrum arboreum*), 1 black locust (*Robinia pseudoacacia*), 1 redwood (*Sequoia sempervirens*), 1 citrus (*Citrus* sp.), 4 bottlebrush (*Callistemon* sp.), 1 ash (*Fraxinus* sp.), 14 birch (*Betula* sp.), 2 western juniper (*Juniperus occidentalis*), 28 miscellaneous brush, 4 poison oak (*Toxicodendron diversilobum*), 4 acacia (*Acacia* sp.), 2 European hackberry (*Celtis australis*), 1 red maple (*Acer rubrum*), 3 holly oak (*Quercus ilex*), 31 coast live oak (*Quercus agrifolia*), 2 chokecherry (*Prunus virginiana*), and 1 silver maple (*Acer saccharinum*). This site will require the use of a tracked vehicle (e.g. bobcat/ASV) to carry material to the chipper.

2. **RW-V-12229_14**: The work area involves the removal of 14 trees, and 9 units of brush. Species involved include: 4 miscellaneous brush, 4 oleander (*Nerium oleander*), 1 Ponderosa pine (*Pinus ponderosa*), 1 ash sp., 12 coast live oak, and 1 blackberry (*Rubus* sp.).

3. **RW-V-12231_14**: The work area involves the removal of 118 trees, and 20 units of brush. Species involved include: 1 California bay, 1 red fir (*Abies magnifica*), 1 redwood, 3 willow, 2 interior live oak (*Quercus wislizeni*), 1 Ponderosa pine, 10 bottlebrush, 10 privet, 57 coast live oak, 3 Monterey pine (*Pinus radiata*), 2 pittosporum (*Pittosporum* sp.), 1 beech (*Fagus* sp.), 5 Douglas fir (*Pseudotsuga menziesii*), 31 acacia, 3 poison oak, and 7 miscellaneous brush.

4. **RW-V-12232_14**: The work area involves the removal of 61 trees, and 4 units of brush. Species involved include: 2 western red cedar (*Thuja plicata*), 14 tupelo sour gum (*Nyssa sylvatica*), 2 Douglas fir, 2 willow, 8 California bay, 5 magnolia, 1 coyote brush (*Baccharis pilularis*), 10 coast live oak, 7 Monterey pine, 7 cherry (*Prunus* sp.), 1 madrone (*Arbutus* sp.), 1 acacia, 3 poison oak, and 2 Ponderosa pine. This site will require the use of a bobcat/ASV to remove vegetation.

5. **RW-V-12233_14**: The work area involves the removal of 36 trees, and 28 units of brush. Species involved include: 3 deodar cedar (*Cedrus deodara*), 1 sumac (*Rhus* sp.), 11 California bay, 2 holly oak, 8 coast live oak, 6 Monterey pine, 2 loquat (*Eriobotrya japonica*), 3 acacia,
and 28 miscellaneous brush. This site will require the use of a bobcat/ASV to remove vegetation.

6. **RW-V-12234_14**: The work area involves the removal of 44 trees, and 14 units of brush. Species involved include: 2 Jeffery pine (*Pinus jeffreyi*), 1 canyon live oak (*Quercus chrysolepis*), 12 miscellaneous brush, 4 California bay, 26 coast live oak, 4 Monterey pine, 1 dogwood (*Cornus* sp.), 6 acacia, and 2 poison oak. This site will require the use of a bobcat/ASV to remove vegetation.

7. **RW-V-12235_14**: The work area involves the removal of 23 trees, and 7 units of brush. Species involved include: 2 Douglas fir, 3 California bay, 1 Ponderosa pine, 17 coast live oak, 4 blackberry, 1 interior live oak, and 3 poison oak.

8. **RW-V-12236_14**: The work area involves the removal of 67 trees, and 26 units of brush. Species involved include: 21 miscellaneous brush, 2 oleander, 1 California bay, 1 bottlebrush, 1 privet, 2 sweetgum (*Liquidambar* sp.), 33 coast live oak, 3 Monterey pine, 5 willow, 13 acacia, 2 poison oak, and 9 redwood. This site will require the use of a bobcat/ASV to remove vegetation.

9. **RW-V-12237_14**: The work area involves the removal of 99 trees, and 27 units of brush. Species involved include: 3 Douglas fir, 1 big leaf maple (*Acer macrophyllum*), 1 willow, 4 California bay, 3 Chinese elm (*Ulmus parvifolia*), 1 mulberry (*Morus* sp.), 67 coast live oak, 1 Monterey pine, 18 acacia, 2 poison oak, and 25 units of miscellaneous brush. This site will require the use of a bobcat/ASV to remove vegetation.

10. **RW-V-12238_14**: The work area involves the removal of 4 willow trees.

11. **RW-V-12239_14**: The work area involves the removal of 31 trees, and 1 unit of brush. Species involved include: 7 willow, 3 California bay, 2 sycamore (*Platanus* sp.), 14 coast live oak, 3 interior live oak, and 3 acacia.

12. **RW-V-12241_14**: The work area involves the removal of 24 trees, and 12 units of brush. Species involved include: 5 manzanita (*Arctostaphylos* sp.), 16 coast live oak, 11 acacia, and 4 blackberry.

13. **RW-V-12242_14**: The work area involves the removal of 24 trees, and 5 units of brush. Species involved include: 18 acacia, 4 Ponderosa pine, and 7 coast live oak.

14. **RW-V-12243_14**: The work area involves the removal of 40 trees, and 38 units of brush. Species involved include: 1 willow, 8 Ponderosa pine, 3 sycamore, 1 cottonwood (*Populus* sp.), 26 Scotch broom (*Cytisus scoparius*), 25 coast live oak, 1 madrone, 1 acacia, 6 poison oak, and 6 blackberry.

15. **RW-V-12244_14**: The work area involves the removal of 24 trees, and 67 units of brush. Species involved include: 1 willow, 4 Ponderosa pine, 4 coyote brush, 2 ceanothus (*Ceanothus* sp.), 3 elderberry (*Sambucus* sp.), 15 coast live oak, 47 blackberry, 13 acacia, and 2 poison oak.

16. **RW-V-12246_14**: The work area involves the removal of 111 trees, and 88 units of brush. Species involved include: 56 manzanita, 5 chamise (*Adenostoma fasciculatum*), 2 Douglas fir, 6 miscellaneous brush, 5 toyon (*Heteromeles arbutifolia*), 9 Ponderosa pine, 6 ceanothus, 62 coast live oak, 1 blackberry, 44 acacia, and 3 poison oak.

17. **RW-V-12247_14**: The work area involves the removal of 29 trees, and 20 units of brush. Species involved include: 5 interior live oak, 5 coast live oak, 10 blackberry, 17 acacia, and 2 Canary Island pine (*Pinus canariensis*).

18. **RW-V-12248_14**: The work area involves the removal of 142 trees, and 31 units of brush. Species involved include: 5 manzanita, 1 scarlet firethorn (*Pyracantha coccinea*), 8 miscellaneous brush, 1 gooseberry (*Ribes uva-crispa*), 6 Ponderosa pine, 1 ceanothus, 1
elderry, 56 coast live oak, 4 Scotch broom, 1 interior live oak, 1 tan oak 
*(Notholithocarpus densiflorus)*, 77 acacia, 10 poison oak, and 1 blackberry. This site will require the use of a bobcat/ASV to remove vegetation.

19. **RW-V-12249_14**: The work area involves the removal of 47 trees, and 44 units of brush. Species involved include: 3 miscellaneous brush, 7 Ponderosa pine, 5 coyote brush, 13 ceanothus, 15 coast live oak, 1 blackberry, 25 acacia, and 22 poison oak. This site will require the use of a bobcat/ASV to remove vegetation.

20. **RW-V-12250_14**: The work area involves the removal of 26 trees, and 11 units of brush. Species involved include: 1 manzanita, 1 miscellaneous brush, 7 interior live oak, 5 Ponderosa pine, 3 coyote brush, 3 ceanothus, 11 coast live oak, 2 madrone, 1 acacia, and 1 poison oak.

21. **RW-V-12251_14**: The work area involves the removal of 68 trees, and 69 units of brush. Species involved include: 39 manzanitas, 8 miscellaneous brush, 24 interior live oak, 21 Ponderosa pine, 23 coast live oak, 1 Scotch broom, 19 poison oak, and 2 coffeeberry (*Frangula californica*).

22. **RW-V-12263_14**: The work area involves the removal of 20 trees, and 25 units of brush. Species involved include: 1 zelkova (*Zelkova* sp.), 1 Douglas fir, 24 miscellaneous brush, 1 oleander, 1 edible fig (*Ficus carica*), 3 citrus, 10 willow, 1 coast live oak, and 3 acacia. This site will require the use of a bobcat/ASV to remove vegetation.

23. **RW-V-12273_14**: The work area involves the removal of 21 trees, and 5 units of brush. Species involved include: 1 Douglas fir, 5 miscellaneous units of brush, 2 California bay, 1 Monterey cypress, 10 coast live oak, and 7 acacia.

24. **RW-V-8461_15**: The work area involves the removal of 27 trees, and 19 units of brush, and the pruning of 1 tree. Species involved include: 11 redwood, 3 willow, 5 California bay, 19 elderberry, 4 coast live oak, 1 Monterey pine, 1 box elder (*Acer negundo*), and 3 acacia.

25. **RW-V-8462_15**: The work area involves the removal of 10 trees, and 3 units of brush. Species involved include: 6 coast live oak, 3 photinia (*Photinia* sp.), 2 Douglas fir, and 2 redwood.

26. **RW-V-8554_15**: The work area involves the removal of 3 trees, and 1 unit of brush. Species involved include: 1 coast live oak, 1 cherry, 1 Douglas fir, and 1 miscellaneous brush.

27. **RW-V-9058_15**: The work area involves the removal of 45 trees, and 21 units of brush. Species involved include: 1 manzanita, 1 black locust, 5 Douglas fir, 7 miscellaneous brush, 7 Ponderosa pine, 25 coast live oak, 2 blackberry, 4 tan oak, 2 madrone, 1 acacia, and 11 Scotch broom.

28. **RW-V-9059_15**: The work area involves the removal of 3 acacia trees.

Vegetation that will be removed from private properties and dedicated easements in the work areas includes the following totals of native and non-native species, as well as some species that are identified on the CAL-IPC list: 3 Japanese maple, 1 American smoketree, 42 willow, 41 California bay, 6 magnolia, 16 privet, 1 lace leaf maple, 1 sourwood, 2 black locust, 24 redwood, 4 citrus, 15 bottlebrush, 2 ash, 14 birch, 2 western juniper, 303 acacia, 2 European hackberry, 1 red maple, 5 holly oak, 552 coast live oak, 2 chokecherry, 1 silver maple, 1 oleander, 76 Ponderosa pine, 77 blackberry, 1 red fir, 43 interior live oak, 25 Monterey pine, 2 pittosporum, 1 beech, 24 Douglas fir, 2 western red cedar, 14 tupelo sour gum, 13 coyote brush, 8 cherry, 6 madrone, 3 deodar cedar, 1 sumac, 2 loquat, 2 Jeffery pine, 1 canyon live oak, 1 dogwood, 2 sweetgum, 1 big leaf maple, 3 Chinese elm, 1 mulberry, 5 sycamore, 107 manzanita, 1 cottonwood, 42 Scotch broom, 25 ceanothus, 23 elderberry, 5 chamise, 5 toyon, 2 Canary Island pine, 1
scarlet firethorn, 1 gooseberry, 5 tan oak, 2 coffeeberry, 1 zelkova, 1 edible fig, 1 Monterey cypress, 1 box elder, 3 photinia, 82 poison oak, and 189 miscellaneous brush.

**Estimation of Suitable Soils Within the Survey Area**

The Mount Hermon June beetle is presumed present in areas containing suitable soils at the 28 project locations based on the biological review for the project (Arnold 2016). To approximate the work areas with suitable soils, a 30’ width survey area was evaluated for potential impacts (Arnold 2016). Dr. Arnold’s estimation of potential impacts associated with the project was based on an evaluation of the entire 30’ swath of the survey area of all work locations (413,581 square feet, 9.5 acres). The 9.5-acre calculation adequately evaluates the impacts associated with an entire 30’ swath of area to be cleared of vegetation. Further, it was determined through coordination with the Service that vegetation removal activities within 2.9 acres, of the evaluated 9.5 acre area as described above, may result in direct and/or indirect impacts to the species. This is primarily due to: 1) vegetation is not contiguous at the project sites, 2) vegetation removal is not uniform within the 30’ survey area- different targeted removals are required at the Pipe Zone, Border Zone, and Outer Zone, and 3) many areas do not have vegetation that need to be removed within the 30’ survey area. (For example, areas where no vegetation removal is planned are also included in the 9.5 acres even though no impacts will occur at many areas within this area).

**Tree Canopy Calculation for Pipe Zone**

To determine the impacts associated with the actual vegetation removed from the 28 work areas, a finer scale assessment of impacts were evaluated. An equation measuring tree canopy (Law et Al. 1994) was used to estimate canopy cover for the vegetation slated for removal (including brush where it extended over the tree canopy line).

As PG&E is only proposing to remove individual trees and incompatible vegetation over the line in differing degrees within the Pipe Zone, the Border Zone, and the Outer Zone, an estimate of canopy cover is a way to estimate areas where no work will occur in habitat and measure impacts associated with the work.

Each tree to be removed within the work areas was surveyed in the field by an arborist to map its location, identify species, measure diameter at breast height (DBH), and estimate height. However, canopy cover was not estimated in the field and the amount of area affected by tree removal could not be determined directly using the results of the field survey. Instead, an attempt was made to quantify the total area of canopy removed based on the known correlation between tree diameter and crown area. This is potentially problematic for several reasons. The relationship between diameter and crown area may be different between species, and other factors, especially crowding by neighboring trees, can diminish crown size. In addition, where canopies overlap vertically, removal of one understory or midstory tree may have a small to negligible effect on total canopy cover. With these reservations in mind, an equation was used to calculate crown area based on DBH for each tree proposed for removal.

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6 The difference between the 28 feet (14 feet on either side of the pipeline) and 30 feet total has to do with the area immediately above the pipeline (2 feet) which totals the 30 feet in potential impacts.
The sum of the crown areas was then totaled to estimate canopy cover removed. Canopy cover removed was then used to determine project size and area of potential impact.

As described by Law et Al. (1994), tree crown cover was estimated using the following equation:

\[
MCA = 0.0175 + 0.0205D + 0.0060D^2
\]

where MCA (maximum crown area) is the percent of one acre and D is DBH in inches (Krajicek et al. 1961). The assumptions of this equation include 1) equation was developed to estimate the relative area of tree crowns in open-grown oak savanna habitat types, 2) the tree canopy of each tree does not overlap, and 3) tree crowns are circular.

Using this calculation, impact acreages were calculated by estimating the vegetation present within the 12 foot corridor in the removal areas (12 feet is calculated as five feet on either side of the pipe and the two feet directly over the pipeline). Thus, this calculation applies only to target vegetation that is present within the Pipe Zone where the majority of the vegetation will be removed and targeted with repeated foliar herbicide. Areas with pavement, gravel, or areas where no vegetation is present (and no impacts will occur) were removed from work area polygons. Similarly, due to the limited targeted vegetation (certain trees with defined DBH requirements for removal) in the Border Zones and Outer Zones, those areas were removed from this calculation. Using this calculation, removals of woody brush and trees and repeated targeted herbicide application within the Pipe Zone over the permit term will occur over 2.9 acres at the 28 work locations.

Dr. Richard Arnold calculated a rough estimate of the survey area at 9.5 acres. The actual total vegetation removal area of the Pipe Zone where repeated herbicide will target all woody brush and trees within the 12 foot corridor on the pipeline is 2.9 acres. This 2.9 acres takes into account: 1) removal of areas where no work will occur 2) that only trees within the Border Zone (trees with >8 inch DBH) and Outer Zone (trees with >36 inch DBH removals will occur resulting in woody brush and other vegetation that will remain within the Border and Outer Zones and provide food sources (e.g., roots) for the beetle larvae after work is completed.

### 2.2 Activities Covered by Permit

Vegetation to be removed per project is identified in the project description (Section 2.1). Vegetation will be removed manually and with mechanical equipment, including a bucket truck and chipper. Crews will utilize hand crews, a chip truck, and a trailered chipper for the entire project due to its proximity to the road. In cases where overhead electric lines are present, crews would bring in a bucket truck and overhead electric certified crews. Traffic control will be per the traffic control permits issued for the project and may involve the placement of k-rail along the edge of the work area.

All trees and brush within the work area is proposed to be chipped and hauled off site for disposal. Chipping of removed vegetation and temporary storage of brush piles will be on paved surfaces to the extent possible. Private property trees and brush that are removed will be processed per the landowner’s request or off-hauled.
All work is proposed to occur above ground level. All cut stumps will be left intact and not grinded unless PG&E is required to perform stump grinding by the private landowner.

No laydown areas are anticipated, but should a laydown area be required, it will be sited on pavement. All vehicles and equipment will stay on the paved surfaces except designated rubber tracked equipment or unless vegetation work requires access on soil for crew or public safety.

Restoration of the site will occur following work and impacts associated with this restoration may include broadcast seeding and stabilization.

To control the regrowth of trees all stumps will be treated with a California Department of Pesticide Regulations approved herbicide in accordance with the product label. On an annual basis and as detailed in the project description of this document, all select regrowth will be treated with a targeted low volume foliar treatment using a California Department of Pesticide Regulations approved herbicide in accordance with the label. All applications will be made under the supervision of a California licensed Pest Control Advisor who shall issue a written Pest Control Recommendation. Foliar herbicide shall only be applied in the following way, which will allow for the persistence of grasses, forbs, and non-woody vegetation (in line with the pipeline standard outlined above):

While no construction work is currently planned within the surveyed area covered in this permit, PG&E recognizes that future pipeline maintenance and operations repair work may need to occur on gas transmission facilities within the surveyed work areas in MHJB habitat as a part of PG&E’s pipeline safety program over the permit term. Examples of operation activities include inspecting, monitoring, testing, and operating valves, enclosures, switches, and other components. Examples of maintenance activities include repairing and replacing facilities and structures, access, and emergency repair and replacement. Examples of this type of work includes remedial maintenance, pipeline valve recoating, pipeline valve replacement, pipeline cathodic protection, pipeline recoating, pipeline inspection, strength testing, pipeline replacement, etc. and involves the following types of activities: grading, access, excavation, staging, boring, pipeline marking, stringing pipe, pipe placement, welding, clean up and restoration.

Section 3. Environmental Setting/Biological Resources

3.1 Environmental Setting

Work will occur in the cities of Scotts Valley and Santa Cruz, Santa Cruz County, California. Work areas are within franchise or in a dedicated easement and occur adjacent to Graham Hill Road and Ocean Street in Scotts Valley and Santa Cruz respectively.

Background research was performed to evaluate species with potential to occur on site using USFWS IPaC species list (https://ecos.fws.gov/ipac) and the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB, December 2016) (Appendix A. Figures 5 and 6). Additional information was obtained from The Calflora Database (http://www.calflora.org/) and Jepson Flora Project (http://ucjeps.berkeley.edu/eflora/). All accessed December 2016. Plant bloom periods were accessed from the California Native Plant Society listed online at http://www.rareplants.cnps.org/ (Accessed January 2017).
Focused surveys to determine the presence of special-status insect species with potential to occur on site were conducted by Dr. Richard Arnold in 2016. Stantec botanists also performed on site due diligence in January and April 2017. Site visits conducted by Dr. Arnold, the PG&E Biologist, and Stantec biologists assessed site conditions, plant community structure, and potential for special-status wildlife species to occur near or within project work areas. Floristic surveys were completed in 2017.

3.1.1. Plants

Federal

The following plant species were evaluated for potential impacts. Species without habitat present or potential to occur are not evaluated further.

- **Ben Lomond Spineflower, *Chorizanthe pungens var. hartwegiana*.** FE, 1B.1. Identified during rare plant surveys in the work area.
- **Ben Lomond (Santa Cruz) wallflower, *Erysimum teretifolium*, FE.** SE, 1B.1: Habitat present, not observed during floristic surveys.
- **Robust spineflower, *Chorizanthe robusta var. robusta*, FE, 1B.1: Habitat present, not observed during floristic surveys.**
- **Santa Cruz tarplant, *Holocarpha macradenia*, FT, SE, 1B.1.** There is a CNDDB occurrence that overlaps multiple sites along Graham Hill Road. Identified during rare plant surveys adjacent to (just outside the boundary of) the project area.
- **White-rayed pentachaeta, *Pentachaeta bellidiflora*, FE, SE, 1B.1.** There is a CNDDB occurrence that overlaps all of the sites with a 5-mile radius. Habitat present, not observed during floristic surveys.

3.1.2. Wildlife (CNDDB occurrences within a 2-mile radius of project area)

The following Federally listed wildlife species are evaluated for impacts. Species without potential to occur on site are not evaluated further.

- **California red-legged frog, *Rana draytonii*, FT, SSC:** Highly marginal habitat present, not likely to occur.
- **Coho salmon—Central California Coast ESU, *Oncorhynchus kisutch*, FE, SE:** No habitat present, no potential to occur.
- **Mount Hermon June beetle, *Polyphylla barbata*, FE:** Habitat present, high potential to occur. Known occurrences within project work areas.
- **Ohlone tiger beetle, *Cicindela ohlone*, FE:** No habitat present, no potential to occur. Dr. Richard Arnold does not expect the Ohlone Tiger Beetle to occur in any of the vegetation management project sites along Graham Hill Road that are characterized by Watsonville loams (Arnold 2016).
- **Steelhead – Central California Coast DPS, *Oncorhynchus mykiss irideus*, FT:** No habitat present, no potential to occur.
- **Tidewater goby, *Eucyclogobius newberryi*, FE, SSC:** No habitat present, no potential to occur.
• Western snowy plover, *Charadrius alexandrinus nivosus*, FT, SSC: No habitat present, no potential to occur. Work is being completed outside of nesting season.
• White-tailed kite, *Elanus leucus*, FP: Habitat present, low potential to occur. Pre-activity nesting bird surveys will occur if work takes place during nesting season.
• Zayante Band-Winged Grasshopper, *Trimerotropis infantilis*, FE. ZBWG is not expected to occur in any of the work areas as none of the project sites that are underlaid by Zayante sands are characterized by open sand parkland vegetation (Arnold 2016).

### 3.1.3. Vegetation Communities

Several natural vegetation communities were identified within the vegetation removal sites including: Coast Live Oak Woodland, Mixed Evergreen/Chaparral, Riparian Woodland, Mixed Conifer/Redwood, Coastal Prairie, and Ruderal/Ornamental. Each habitat also contains a list of project sites that exhibit that habitat (sites may be listed in more than one category).

All work sites are along either Graham Hill Road or Ocean Street Extension and possess some ruderal qualities commonly found along roads. A majority of the sites are also within residential areas that contain some vegetation (mostly ornamentals) planted for landscape purposes. Three sites (RW-V-12221_14, RW-V-12222_14, and RW-V-12223_14) contain some woodland areas but again are adjacent to the roadway and are somewhat ruderal in nature. A few of the sites also contain open grassland areas that again are somewhat ruderal and disturbed by human use.

**Coast Live Oak Woodland**

This habitat type is characterized as oak forests with dense or spreading canopies among intervening arid grasslands. Representative overstory species include: coast live oak (*Quercus agrifolia*), interior live oak (*Quercus wislizeni*), madrone (*Arbutus menziesii*), toyon (*Heteromeles arbutifolia*), and California bay laurel (*Umbellularia californica*). Woodland understories may be dominated by herbs and shrubs such as: poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus discolor*), California coffeeberry (*Rhamnus californica*), and a variety of exotic annual grassland species including: wild oats (*Avena fatua* and *Avena barbata*), soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), bur clover (*Medicago polymorpha*), and filaree species (*Erodium* spp.).

**Mixed Evergreen/Chaparral**

This habitat classification was used for sites that contain the typical oak woodland overstory species (noted above) but are more sparsely populated with lower levels of canopy cover. Other differences are that these sites contain Ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), and chinquapin (*Crysolepis chrysophylla*), as well as a mixture of common chaparral or coastal scrub understory species such as coyote brush (*Baccharis pilularis*), manzanita (*Arctostaphylos spp.*), buckbrush (*Ceanothus cuneatus*), chamise (*Adenostoma fasciculatum*) and the invasive French broom (*Genista monspessulana*). Ponderosa pine (*Pinus ponderosa*) in this region occurs as open, park-like stands on Zayante soils with an herbaceous understory or as an overstory to maritime chaparral (USFWS 1997).
**Riparian Woodland**

Habitats classified as riparian woodlands were those that included woody plant species that typically occur in wet areas along streams, marshes or perennial drainages. Characteristic overstory species include: red alder (*Alnus rubra*), big leaf maple (*Acer macrophyllum*), sycamore (*Platanus racemosa*), cottonwood (*Populus fremontii*), box elder (*Acer negundo*), elderberry (*Sambucus mexicana*), creek dogwood (*Cornus californica*), and willow (*Salix spp.*). Non-native acacia trees are also prevalent in this habitat in the project area, although not generally associated with riparian habitats. Eagle Creek and Zayante Creeks are present near RW-V-12244_14, and site RW-V-8461_15 and are outside the work locations.

**Mixed Conifer/ Redwood**

This habitat was classified as areas with dense forest dominated by redwood (*Sequoia sempervirens*), tan oak (*Notholithocarpus densiflorus*), Douglas fir (*Pseudotsuga menziesii*), and California bay laurel (*Umbellularia californica*). Common understory species include: California hazelnut (*Corylus cornuta*), thimbleberry (*Rubus parviflorus*), various fern species, and the following invasive species: Himalayan blackberry (*Rubus discolor*), English ivy (*Hedera helix*), and periwinkle (*Vinca major*). This habitat type was found in transitional zones between oak woodland habitat and redwood dominated stands outside of the project site.

**Coastal Prairie**

This habitat was classified as open grassland with a large component of native species. Dominant native grass species such as purple needle grass (*Nassella pulchra*), meadow barley (*Hordeum brachyantherum*), and tufted hairgrass (Deschampsia cespitosa). Non-native grass species also occurred in lower quantities, with species such as Italian ryegrass (*Fetuca perene*), soft chess brome (*Bromus hordeaceus*), and foxtail barley (*Hordeum murinum*). This habitat type was found in transitional zones between oak woodland habitat and chaparral.

**Ruderal/ Ornamental**

Areas classified as Ruderal/Ornamental are those that have been previously altered (trees removed) leaving little to no vegetation. These areas are dominated by invasive ruderal species such as: iceplant (*Carpobrotus edulis*), French broom (*Genista monspessulana*), and acacia that have colonized after disturbance or site has been planted with ornamentals associated with a residence.

**3.2 Covered Species**

The Mount Hermon June beetle is the only Federally listed wildlife and fish species with the potential to occur at 28 of the work locations and to be incidentally taken because of the proposed project as described below (Arnold 2016).
Mount Hermon June Beetle (MHJB)

The Mount Hermon June beetle (MHJB) is a member of the beetle family Scarabaeidae. The genus *Polyphylla* consists of over 30 species in North America that are commonly referred to as May or June beetles since the adult flight season usually includes one or both of these months (Arnold 2016).

The MHJB was listed in 1997 as an endangered species by USFWS (USFWS 1998). The beetle is threatened by sand mining, urban development, agricultural conversion, equestrian use, recreational activities, alteration in natural fire regimes, and/or competition with nonnative vegetation (USFWS 1998). Overcollection and pesticide use are potential threats to the insect species (Arnold 2016). Very low numbers of individuals and populations of some of these species put them at great risk of extinction due to random naturally occurring events (Arnold 2016).

MHJB adults are typically active between mid-May and mid-August (Arnold 2016). There is one generation per year. Females are flightless, but males emerge from the soil at dusk and actively fly for about one hour in search of females. After they mate, the female burrows back into the sand to lay her eggs. Larvae burrow in the sand and may take as long as two or three years to complete their development. During this period, they feed on the roots of various trees, shrubs, forbs, and grasses (USFWS 1998; Arnold 2016).

Adult males of the MHJB measure about 0.75 inch in length, while females are slightly longer but possess smaller antennal clubs than males. The adult male has a black head and dark brown elytra (leathery forewings) that are covered with brown setae (hairs). The elytra also have stripes that are broken and irregular rather than continuous and well-defined as in related species of June beetles. The larvae are grub-shaped (scarbaeiform) and vary in color from cream to pale yellow for the body segments and darker brown for the head (Arnold 2016).

In some instances, multiple soil types occurred at a location. Zayante sands occurred at 28 of the surveyed locations, Watsonville loam is known from 10 locations, and Elkhorn sandy loam occurs at four sites (Table 2) (Arnold 2016).

Dr. Richard Arnold has previously conducted presence-absence surveys for the MHJB at various properties along Graham Hill Road and found the beetle at numerous locations (Arnold 2016). Although project RWV-12263 is characterized by Elkhorn sandy loam it is also a known MHJB location based on prior survey results (Arnold 2016). Thus, based on Dr. Arnold’s assessment of the work locations, all 28 sites with Zayante sands and one site with Elkhorn sandy loam represent actual or potentially suitable habitat for the MHJB (Figures 2-4; Table 1; Table 2).

The MHJB is known only from the Zayante Sandhills region of Santa Cruz County, CA. The MHJB occurs widely throughout the Zayante Sandhills. Dr. Richard Arnold has personally observed the beetle at approximately 200 locations (Arnold 2016). The MHJB is found associated with the following native plant communities: silverleaf manzanita chaparral with Ponderosa Pine, Ponderosa Pine forest, dense sand parkland, open sand parkland, and mixed deciduous-evergreen forest. It can also be found in degraded remnants of these communities, as well as landscaped residential yards and ruderal habitats as the larvae feed on a variety of plant roots. Although most known MHJB locations are associated

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with Zayante sands, it has also been observed in areas mapped as other sandy soils, notably Elkhorn sandy loams, especially when they are in close proximity to Zayante sands (Arnold 2016).

### 3.3 Other Plant Species

In addition to the MHJB, the Zayante Sandhills region is known to provide potential habitat for several other special status plant species, as discussed in section 3.1.1 above. Negligible impacts to these species are expected, as either suitable habitat is absent or impacts to Federally listed plant species will be avoided or minimized through the implementation of conservation measures such as pre-activity surveys, flagging of individuals for avoidance, and having a biologist on site (Table 3).

### 3.4 Federally Listed Plant Species

Where potential habitat was present, PG&E performed pre-activity floristic surveys during the correct blooming period in 2017 for Federally listed species (as well as some endemic species present in the Zayante Sandhills). PG&E will flag any Federally protected plants that are found during the survey for avoidance during work. With the implementation of conservation measures, negligible impacts have the potential to occur.
Table 3. Federally Listed Plant Species

The following Federally listed plant species have potential to occur in the work area:

**Ben Lomond Spineflower:**

Ben Lomond spineflower (*Chorizanthe pungens var. hartwegiana*) occurs in sandstone soils in the Santa Cruz Mountains, from Boulder Creek south to Felton, and east to Quail Hollow Ranch in the Santa Cruz Mountains (USFWS). A CNDDB query determined that Ben Lomond spineflower has been recorded within two miles of the project sites and could potentially be affected by activities within the project area. Sites within the project area where the substrate is comprised of the Zayante soil type have potential habitat for this species. Identified in the work area within RW-V-12251-14, and in between RW-V-12246-14 (southern boundary) and RW-V-12244-14 (northern boundary). The plant is an annual and will have set seed by the time that project activities will occur. As no soil is being removed to perform vegetation removal work, the seedbank will not be affected and the plant is not anticipated to be impacted by vegetation removal activities. The area where the plants were observed in 2017 will be flagged for avoidance and, where possible crews will limit activities within this area to the extent safely possible. With the implementation of conservation measures, negligible impacts will occur.

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Lomond Spineflower</td>
<td>Endangered</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ben Lomond (Santa Cruz) Wallflower</strong></td>
<td>Endangered</td>
<td>-</td>
</tr>
<tr>
<td>Robust Spineflower</td>
<td>Endangered</td>
<td>-</td>
</tr>
<tr>
<td>Santa Cruz Cypress</td>
<td>Threatened</td>
<td>Endangered</td>
</tr>
<tr>
<td><strong>Santa Cruz Tarplant</strong></td>
<td>Threatened</td>
<td>Endangered</td>
</tr>
<tr>
<td>White-rayed Pentachaeta</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
</tbody>
</table>

A CNDDB query determined that Ben Lomond (Santa Cruz) wallflower has been recorded within two miles of the project sites and could potentially be affected by activities within the project area. Sites within the project area where the substrate is comprised of the Zayante soil type have potential habitat for this species; however, due to the disturbed nature of the site, this species has a low potential to occur and was not observed during 2017 floristic surveys. With the implementation of conservation measures, no impacts will occur.

**Ben Lomond (Santa Cruz) Wallflower:**
Robust Spineflower:

There are three known occurrences of Robust spineflower within two miles of the project sites, one of which is along Graham Hill Road. This species is found in coastal scrub and cismontane woodland habitats. The project sites include marginal habitat areas, but due to the high level of disturbance this species has a low potential to occur, and was not observed during 2017 floristic surveys. With the implementation of conservation measures, no impacts will occur.

Santa Cruz Cypress

Santa Cruz Cypress is rare and only known from five localities in Santa Cruz County. This species was not observed during floristic surveys and is not listed on the planned removals associated with the projects. With the implementation of conservation measures, no impacts will occur.

Santa Cruz Tarplant:

There is a CNDDB occurrence, dated 2001, that overlaps multiple sites along Graham Hill Road (RW-V-12215-12217, 12219, 12221-12224_14). This occurrence is presumed extant and is described as 550 plants observed in 2001. This species is found often in clay and sandy soils in coastal prairie, coastal scrub, and valley and foothill grassland habitats. Santa Cruz Tarplant was identified during rare plant surveys near the work area and located approximately 35 feet west of Site RW-V-12219-14. With the implementation of avoidance measures, no impacts will occur. With the implementation of conservation measures, negligible impacts will occur.

White-rayed Pentachaeta:

There is a CNDDB occurrence, dated April 1933, that overlaps all of the sites as it has a 5-mile radius. This occurrence is considered possibly extirpated and is described from the 1933 Armstrong Collection with the notes of occurring along beach cliffs near Santa Cruz. This species is found in cismontane woodlands and valley and foothill grasslands (often serpentinite). The project sites include marginal grassland and woodland areas, but, due to the high level of disturbance and development in the sites, this species only possesses a low potential to occur within the project area, and was not observed during 2017 floristic surveys. With the implementation of conservation measures, no impacts will occur.

Section 4. Potential Biological Impacts/Take Assessment

4.1 Mount Hermon June beetle (MHJB)

Direct and indirect effects are anticipated to occur from the removal of above-ground vegetation within each of the 28 work locations (Arnold 2016).

Temporary disturbance to the surface of the soil will occur in the area during vegetation removal activities although no excavation is proposed. These potential direct effects include soil compaction from vehicles and outriggers in some limited areas where it is not safely possible to perform all work from pavement, moving of the felled vegetation from foot traffic and a rubber tracked bobcat/ASV vehicle, and temporary erosion while the native seed establishes during restoration.
The MHJB spends up to three years as a subterranean larva feeding on the roots of various native and non-native plants (Arnold 2016). If the roots of any plants that the beetle larvae are feeding on are removed and/or die, this reduces sources of food for the MHJB. Repeated vegetation management activities over the same area to maintain the gas pipeline right-of-way after it is initially cleared is likely to cause repeated indirect effects to MHJB (Arnold 2016). However, since the larval stage of the MHJB feeds on the roots of various trees, shrubs, forbs, and grasses (USFWS 1998; Arnold 2016), the applicant proposes that methods taken to reduce impacts in the removal and treatment process (Project Description) reduces this impact in the following three ways: 1) grasses and forbs are not targeted in any of the three zones, 2) trees and woody shrubs are only targeted in the Pipe Zone, and 3) selected trees rising to the DBH requirement outlined in the Utility Standard are only targeted within the Outer and Border Zones. As a result, non-targeted species will persist within the work area and roots (food) associated with non-targeted species present in the Outer Zone and Border Zone may potentially extend underground into the Pipe Zone as well. As a result of measures implemented into the project design with the inclusion of reduced scope and included avoidance and conservation measures, it is anticipated that 2.9 acres of indirect and/or direct effects may occur within the project area.

Indirect take due to herbicide application is also a potential impact. Larvae of the MHJB are subterranean and feed for as long as 3 years to complete their development (Arnold 2017). At this time the full range of plant species upon whose roots they feed is not known, but the preliminarily available information suggests that the larvae are generalist root and fungi feeders (Hill and O’Malley 2010, Arnold 2017). Larval feeding information suggests that the MHJB is a generalist, feeding on trees, brush, and herbaceous plant roots, as well as fungi (Arnold 2017). Thus, any herbicide use that will kill the plants and their roots could indirectly kill larvae of the MHJB (Arnold 2017). As outlined in Section 2.2, to control the regrowth of trees all stumps will be treated with a California Department of Pesticide Regulations approved herbicide in accordance with the product label. On an annual basis all select regrowth will be treated with a targeted low volume foliar treatment using a California Department of Pesticide Regulations approved herbicide in accordance with the label. All applications will be made under the supervision of a California licensed Pest Control Advisor who shall issue a written Pest Control Recommendation.

Operations and Maintenance work could result in temporary indirect and direct effects to the MHJB through the potential for beetles to be crushed by vehicles, harmed during soil excavation, and temporary disturbance to soils during project work.

Both direct and indirect effects over the twenty year permit term will be fully mitigated through purchase of credits from a USFWS approved bank.

4.2 Anticipated Impacts on Covered Wildlife Species

According to Dr. Richard Arnold, both direct and indirect effects are likely to occur from the removal of the above-ground vegetation within project sites as the MHJB spends up to three years as a subterranean larva feeding on the roots of various plants. If roots of any plants that are removed die, this reduces sources of food for the MHJB (Arnold 2016). Utility standard (Section 2.1) prevents PG&E from replacing trees and shrubs within 5 feet of the pipeline and so the permanent removal of this vegetation above ground will constitute a removal of food sources (roots) within the 12 foot area (5 feet on either side of the pipeline plus the 2 feet above the pipeline) for the beetle. Therefore, we anticipate
that 2.9 acres of MHJB habitat would be affected to the extent that individuals within this area may experience indirect and direct effects, subsequently resulting in injury or mortality.

The beetle is expected to periodically recolonize the majority of the site and due to the limitations associated with the targeted vegetation, most of the non-targeted vegetation present within the assessment area will remain on the site to provide the beetle with food sources. PG&E is implementing avoidance measures to reduce direct impacts to the species (e.g. Not performing stump-grinding impacts to the soil or other ground disturbance, reducing impacts to only those required for the work, performing work from pavement wherever possible, and not performing work activities during the flight season for the beetle, having a biological monitor on site, etc.).

Due to the repeated impacts associated with maintaining these areas (e.g., addressing re-sprouting targeted vegetation, potential for additional removals through new vegetation recruitment into the treatment areas, herbicide application, removal of root systems for the beetle larvae, etc.), long term indirect effects on the species may occur as the beetle is likely to recolonize these areas after the initial work is completed. However, since the larval stage of the MHJB feeds on the roots of various trees, shrubs, forbs, and grasses (USFWS 1998; Arnold 2016), methods taken to reduce impacts in the removal and treatment process (Project Description) reduces this impact in the following three ways: 1) grasses and forbs are not targeted in any of the three zones, 2) trees and woody shrubs are only targeted in the Pipe Zone, and 3) selected trees rising to the DBH requirement outlined in the Utility Standard are only targeted within the Outer and Border Zones. As a result, non-targeted species will persist within the work area and roots (food) associated with non-targeted species present in the Outer Zone and Border Zone may potentially extend underground into the Pipe Zone as well. As a result of measures implemented into the project design with the inclusion of reduced scope and included avoidance measures, food sources will remain in the majority of the work areas following vegetation removal activities and the taking is incidental to the activities.

The impacts of incidental take have been minimized and mitigated to the maximum extent practicable. Measures that will be implemented to monitor, minimize, and mitigate impacts during vegetation removal, herbicide application, and minor temporary excavation have been proposed; funding will be made available to undertake such measures and comply with the HCP; and procedures to deal with unforeseen circumstances have been included in this document.

The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild due to the limited scope of the work and proximity of suitable habitat surrounding the project area following work. The beetle will also be able to recolonize the project area (soil) following work as no hardscape or building is proposed.

### 4.3 Anticipated Impacts on Plant Species

Negligible impacts on Federally listed plant species are anticipated. Pre-activity floristic surveys conducted during the blooming seasons for covered plant species took place in 2017. Conservation measures and pre-activity surveys will ensure minimal impacts to Federally listed plant species.
4.4 Effects on Critical Habitat

No Critical Habitat has been designated for the MHJB and so none can be affected. Critical Habitat has been designated for the ZBWG and occurs within the project work areas. However, project activities would not result in impacts to primary constituent elements of critical habitat for the ZBWG, therefore, no effects are anticipated.

4.5 Cumulative Impacts

PG&E is not aware of any other projects in the area at this time aside from a CALFIRE vegetation removal project that has been approved by the Service.

Section 5. Conservation Program

5.1 Biological Goals and Objectives

The biological goals and objectives of this proposed HCP include on site measures that avoid and minimize impacts to MHJB at the project site as well as off-site compensation.

Goal 1: Avoid and minimize impacts to the extent practical within the project work locations.

Objective 1: Ensure work activities are minimized to the extent to safely achieve project goals. Vegetation removal would occur above ground.

Objective 2: Work methods will be modified to not utilize stump grinding (unless required by the private landowner) and having crews park vehicles/equipment on pavement or disturbed areas to the extent safely possible to reduce impacts to the soils on site. Vegetation will also be removed from the site to ensure beetles can emerge from the soil and are not prevented from leaving the ground following work. Vegetation will not be left onsite unless PG&E is required to do so by the landowner.

Objective 3: Work will occur outside of the flight season for the MHJB to avoid impacts to dispersing beetles.

Objective 4: Revegetation of the temporarily disturbed areas will involve the use of native plant seed. All work areas would be temporarily disturbed and revegetated with native, weed-free seed indigenous to the Zayante Sandhills upon project completion.

Objective 5: All herbicide applications will be made under the supervision of a California licensed Pest Control Advisor who shall issue a written Pest Control Recommendation. Herbicide application will be targeted and will only be applied to stumps; herbicide will not be broadcast sprayed. Avoidance measures to limit spills will be implemented to avoid additional impacts to non-targeted areas.
Goal 2: Protect habitat at an off-site location at an approved conservation bank for the Mount Hermon June beetle.

Objective 1: Purchase conservation credits for an USFWS-approved offsite Conservation Bank for the MHJB, the Zayante Sandhills Conservation Bank. To offset vegetation removal impacts over a twenty year period within 2.9 acres of suitable habitat, PG&E will purchase 126,324 credits (2.9 acres) from the Zayante Sandhills Conservation Bank, a USFWS approved bank. Temporary impacts resulting from potential future maintenance and repair activities would also be compensated for through the purchase of conservation credits at a Service-approved conservation bank. We anticipate the need to compensate for these temporary impacts at a 1:1 ratio, in terms of impacts to credits purchased.

5.2 Avoidance, Minimization, and Mitigation Measures

The PG&E Gas Pipeline 1816-15 vegetation management projects along Graham Hill Road and Ocean Street in Santa Cruz County, CA will incorporate the following minimization and conservation measures into the project scope to compensate for impacts to the Mount Hermon June beetle (Table 4).

Fire Prevention/Suppression Measures

PG&E will perform vegetation removal between September 1st and April 30th to avoid impacts to dispersing MHJB during their flight season. In the event of drought or dry vegetation, the following measures will be implemented:

- No campfires or trash burning will be permitted.
- Smoking will be restricted to vehicle interiors or in approved smoking areas.
- All trash will be removed from the project work areas.
- Fire suppressant equipment will be present on site.
- Hand tools and shovels will be stocked inside vehicles.
- The vegetation contractor and biological monitor will each have a cellular phone to report immediately a fire to the proper authorities. In the event cellular service is limited in the work area, a designated individual will be assigned to drive to an area with service.
Migratory Bird Measures

PG&E will be performing vegetation removal between September 1st and April 30th due to beetle flight season restrictions and anticipates performing work outside the season for nesting birds.

- If work is scheduled to occur during the avian nesting season (February 15 through August 31), nest detection surveys will be conducted no more than 14 days before initial work activities at designated project areas to determine nesting status in the area. If active nests are observed, PG&E will follow the Avian Protection Plan and a PG&E biologist will provide species specific buffers for nest avoidance. If work cannot be completed within 14 days of a survey, work areas shall be resurveyed. Should an active bird nest be observed during work activities, all work shall cease and the PG&E Project Biologist shall be contacted for guidance.

General Measures

The following general measures will be implemented.

- Vegetation removal shall not exceed the minimum amount necessary to complete work.
- No impacts to wetlands or waterways may occur. Employ best management practices between work areas and waterways to ensure no impacts to waterways.
- For herbicide application, a California Department of Pesticide Regulations approved herbicide in accordance with the product label and shall be applied as described in this document under Section 2.1- Project Description.
- All herbicide applications will be made under the supervision of a California licensed Pest Control Advisor who shall issue a written Pest Control Recommendation.
- Herbicide best management practices for vegetation management will be followed to prevent spills.
- The container containing the herbicide will be kept in secondary containment and not placed directly on the soil.
- Ensure vegetation debris is felled away from creeks and waterways.
- Trees will be cut at the base above ground-level. The stump will be left unless PG&E is required to grind the stump due to safety or landowner requirements.
- Refueling of equipment will not occur within 100 feet of creeks or waterways.
- Parking will occur on pavement to the extent safely possible to achieve work goals.
- When accessing work sites, limit travel and parking of vehicles and equipment to pavement, existing roads, right of ways, and previously disturbed areas. Vehicles shall not exceed a speed limit of 15 mph when traveling off paved roads.
- Laydown and staging shall be conducted in previously developed or disturbed areas.
- Project activities shall minimize foot traffic and disturbance to the extent practicable.
- All trash shall be removed from the project site daily to prevent attracting wildlife to the project area.
- Before moving vehicles, chippers, and other heavy equipment, crews will look under tires to ensure no wildlife is present under tires.
Measures to Minimize Impacts to Mount Hermon June beetles (MHJB) and Federally Listed Plants

- Vegetation management work will not take place during the flight season for the beetle. Work will not occur between May 1st and August 31st. All vegetation removal will occur between September 1st and April 30th of any year;
- All vehicles and equipment will remain on paved surfaces unless vegetation work requires access on soil for safety;
- A biological monitor familiar with the identification of all stages of beetle will be present during all work activities to help identify appropriate access and work areas to minimize impacts to the Zayante Sandhills habitat;
- Prior to the start of work, all workers will participate in an educational awareness training session (tailboard) about the endangered insects and plants of the Zayante Sandhills, the Mount Hermon June beetle and measures implemented for work;
- If any life stages of the MHJB are encountered during the work, they will be salvaged by the Service-approved biologist and relocated to suitable habitat outside of the project’s work area and access routes;
- All cut stumps will be left intact and not grinded down. Stump grinding will not occur unless PG&E is required to do so by the private landowner;
- To minimize soil disturbance, only foot traffic will be allowed off the paved roadway where safe to do so. If it is not safe to do so, the minimum number of vehicles will access the area to complete work safely;
- If erosion control measures are needed to stabilize the soil following work, they will utilize open-cell jute matting (>2” openings) or similar materials that allow MHJBs to readily enter and exit the soil;
- Straw wattles are not likely to be required on site unless stabilization concerns are present, but any straw wattles used on site will be minimized and not contain plastic monofilament (only coconut or jute shall be used);
- A qualified biologist will perform a preconstruction rare plant survey for Ben Lomond Spineflower and Santa Cruz Tarplant. GPS coordinates will be taken of any protected plants for later identification and flagging in the field. Immediately before work begins, the biologist will flag any protected plants identified during the pre-activity survey for avoidance; biologists will remove flagging at the completion of work;
- Removal work at the location with the noted occurrence of the Ben Lomond Spineflower and near the Santa Cruz Tarplant is planned to occur after the species have set seed. The area where the 2017 plants were identified during rare plant surveys will be flagged for avoidance and, where possible crews will limit activities within this area.

5.3 Measures to Mitigate Unavoidable Impacts

PG&E plans to purchase conservation credits for the MHJB from the Zayante Sandhills Conservation Bank as mitigation for its vegetation management project related impacts. PG&E is proposing to compensate at a 1:1 ratio. PG&E implemented measures into the project description to reduce impacts to the MHJB. PG&E will also re-seed the work areas following vegetation removal using a native, weed-free seed mix compatible with the Zayante Sandhills and the gas transmission pipeline utility standard.
The proposed seed mix is provided below. Note that species may be changed due to availability from vendor.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Seeding Rate (PLS) (lb./acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California brome</td>
<td><em>Bromus carinatus</em></td>
<td>3</td>
</tr>
<tr>
<td>California poppy</td>
<td><em>Eschscholzia californica</em></td>
<td>2</td>
</tr>
<tr>
<td>Tidy Tips</td>
<td><em>Layia platyglossa</em></td>
<td>1</td>
</tr>
<tr>
<td>Coyote mint</td>
<td><em>Monardella villosa</em></td>
<td>0.5</td>
</tr>
<tr>
<td>Dwarf plantain</td>
<td><em>Plantago erecta</em></td>
<td>1</td>
</tr>
<tr>
<td>Santa Cruz County monkeyflower</td>
<td><em>Mimulus rattanii var. decurtatus</em></td>
<td>0.5</td>
</tr>
<tr>
<td>Yarrow</td>
<td><em>Achillea millefolium</em></td>
<td>1</td>
</tr>
</tbody>
</table>
Table 4. Summary of Avoidance Measures and Biological Goals and Objectives Based on the Level of Impacts Resulting from Covered Activities

<table>
<thead>
<tr>
<th>Covered Activity</th>
<th>Species Affected</th>
<th>Type of Impact (Take(^1) or Impact)</th>
<th>Quantify Take or Impact(^2)</th>
<th>Avoidance, Minimization, &amp; Mitigation Measures</th>
<th>Biological Goals and Objectives met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetation Removal and indirect impacts associated with trimming/removal of trees and vegetation and potential impacts associated with excavation for O&amp;M activities</td>
<td>Mount Hermon June Beetle</td>
<td>Impacts will occur from the removal of above-ground vegetation within each project work location through potential crushing from equipment, repeated foliar treatment of the Pipe Zone and selected trees within the Border and Outer Zones, and loss of food sources for larvae.</td>
<td>2.9 acres</td>
<td>See above for Avoidance Measures and Mitigation proposed as well as Section 6.2.3.</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)Take as defined by the Act (e.g. Harassment, injury, mortality, etc.).

\(^2\)Take can be expressed as a number of individuals or number of acres, assuming that a specified number of individuals may occur per acre.

5.4 Monitoring and Reporting

A post-activity compliance report will be prepared within 120 calendar days of project completion and will be forwarded to the Ventura Fish and Wildlife office. This report will detail the following information:

- A description of work performed during that year;
- Vegetation removal dates;
- Revegetation efforts including the seed mix used and documentation of compliance with the avoidance measures for the project;
- Pertinent information concerning the permittee’s success in meeting the project AMMs;
- An explanation of failure to meet such measures, if any;
- Known project effects on Federally or state-listed species (if any);
- Occurrences of incidental take of Federally listed species (if any);
- Details of the temporary impacts including post-activity photo documentation,
• Need for additional adaptive management needs as identified, and
• Any additional pertinent information as determined by the PG&E biologist.

5.5 Performance and Success Criteria

The biological objective of this proposed HCP is to avoid and minimize effects to the MHJB which includes the purchase, manage, and protect in perpetuity 126,324 square feet (2.9 acres) of high quality MHJB habitat. Avoidance measures address the goal of avoiding and minimizing impacts to the extent practical within the project work locations. Restoring the sites using a native, weed-free seed addresses the potential for impacts of removal of food for the beetle.

PG&E proposes to compensate for impacts resulting from potential, future maintenance and repair activities through the purchase of conservation credits at a 1:1 ratio, in terms of impacts to credits purchased.

5.6 Adaptive Management Strategy

PG&E will mitigate impacts by purchasing conservation credits from the Service-approved Zayante Sandhills Conservation Bank. The conservation bank has an approved management plan which includes an adaptive management strategy.

Section 6. Plan Implementation

6.1 Implementation

Phasing of the project may be required due to crew availability, weather and traffic control limitations during the period of performance of the permit. Work will be constrained between September 1st and April 30th of any year. Restoration of the site may also occur after work is completed to take advantage of the rainy season.

6.2 Changed Circumstances

Section 10 regulations (69 Federal Register 71723, December 10, 2004 as codified in 50 Code of Federal Regulations (C.F.R.), Sections 17.22(b)(2) and 17.32(b)(2)) require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the permittee and the Service. The purpose of the No Surprises Rule is to provide assurance to the non-Federal landowners participating in habitat conservation planning under the ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

Changed circumstances are defined in 50 CFR 17.3 as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by plan developers and the Service and for which contingency plans can be prepared (e.g., the new listing of species, a fire, or other natural catastrophic event in areas prone to such event). If additional conservation and mitigation
measures are deemed necessary to respond to changed circumstances and these additional measures were already provided for in the plan’s operating conservation program (e.g., the conservation management activities or mitigation measures expressly agreed to in the HCP), then the permittee will implement those measures as specified in the plan. However, if additional conservation management and mitigation measures are deemed necessary to respond to changed circumstances and such measures were not provided for in the plan’s operating conservation program, the Service will not require these additional measures absent the consent of the permittee, provided that the HCP is being “properly implemented” (properly implemented means the commitments and the provisions of the HCP and the IA have been or are fully implemented). Foreseeable changed circumstances within the project area of this HCP include: the new listing of a species; and the discovery of another federally-listed species (Table 2) within the project area.

6.2.3. Maintenance and Operations

While no gas line maintenance and/or repair work is currently planned for the surveyed areas, PG&E recognizes that future pipeline maintenance and repair work may also need to occur within the surveyed work areas in MHJB habitat as a part of PG&E’s pipeline safety program during the permit term. If operations and maintenance (O&M) construction needs to occur on the gas transmission pipelines within the surveyed areas covered in this permit, PG&E will notify USFWS with information that includes: 1) project area and location, 2) extent of impacts in square feet, 3) dates of scheduled repairs, 4) proposed conservation measures; and, 5) proposed conservation credit purchase to offset impacts. PG&E anticipates compensating for impacts associated with maintenance and repair activities at a 1:1 ratio, in terms of impacts to credits purchased. Examples of operation activities include inspecting, monitoring, testing, and operating valves, enclosures, switches, and other components. Examples of maintenance activities include repairing and replacing facilities and structures, access in addition to emergency repair and replacement. Examples of this type of work includes remedial maintenance, pipeline valve recoating, pipeline valve replacement, pipeline cathodic protection, pipeline recoating, pipeline inspection, strength testing, pipeline replacement, etc. and involves the following types of activities: grading, access, excavation, staging, boring, pipeline marking, stringing pipe, pipe placement, welding, clean up and restoration.

All Avoidance Measures proposed would be utilized and compensation for temporary acres impacted will be purchased at a 1:1 ratio. If work does need to be performed, PG&E will purchase credits for this O&M work at a 1:1 ratio in coordination with the Service due to the temporary nature of the work (e.g., pipeline repairs and maintenance) that does not result in permanent loss of habitat on site. PG&E would provide a notification to the Service that work needs to occur within these areas and provide AMMs that will be followed for work. Additional measures that may be implemented for this O&M work may include the following:

- During all vegetation clearing, excavation, and other ground disturbing activities a qualified biologist will survey for, capture, and relocate any life stages of the Mount Hermon June beetle that may be impacted by the proposed project. Any beetles captured or relocated would be reported to the Service in a report submitted to the Service (The report details will comply with Section 5.4 in terms of content).
- If Federally listed plant species are found in an area where O&M activities are planned to take place, if practicable, all seed would be collected from the subject plants to be used in post-project
restoration of the site.

- The top 6”-12” of topsoil will be separated and stockpiled separately. This topsoil will be placed back on site at the completion of the project.
- To prevent entrapment or burrowing of native wildlife, all open holes or trenches more than 2 feet deep will be covered at the close of each work day by plywood or similar materials. Escape ramps may also be used if deemed necessary.
- All work areas will be clearly identified in the field in coordination with the Service-approved biologist. Off-pavement portions of work areas will be surrounded by orange construction fencing.
- Open excavations will be inspected each morning for wildlife species, including the Mount Hermon June beetle, prior to the resumption of work.
- The site will be revegetated with native and weed-free seed upon completion of work.

6.2.4. Contingencies for Other HCP

In the event that PG&E seeks and receives an approved HCP that covers this area after this HCP is issued and includes coverage for the MHJB, the measures that are in the Company’s other HCP would supersede the measures listed in this document.

6.2.5 Newly listed species

If a new species that is not covered by the HCP but that may be affected by activities covered by the HCP is listed under the Act during the term of the section 10(a)(1)(B) permit, the section 10 permit will be reevaluated by the Service. The HCP covered activities may be modified, as necessary, to insure that the activities covered under the HCP are not likely to jeopardize or result in the take of the newly listed species or adverse modification of any newly designated critical habitat. PG&E shall implement the modifications to the HCP covered activities identified by the Service as necessary to avoid the likelihood of jeopardy to or take of the newly listed species or adverse modification of newly designated critical habitat. PG&E shall continue to implement such modifications until such time as PG&E has applied for and the Service has approved an amendment of the Section 10(a)(1)(B) permit, in accordance with applicable statutory and regulatory requirements, to cover the newly listed species or until the Service notifies PG&E in writing that the modifications to the HCP covered activities are no longer required to avoid the likelihood of jeopardy of the newly listed species or adverse modification of newly designated critical habitat.

6.3 Summary of Circumstances

Section 10 regulations [(69 Federal Register 71723, December 10, 2004 as codified in 50 Code of Federal Regulations (C.F.R.), Sections 17.22(b)(2) and 17.32(b)(2))] require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the permittee and the Service. The purpose of the No Surprises Rule is to provide assurance to the non-Federal landowners participating in habitat conservation planning under the Act that no additional land restrictions or financial compensation will be required for species
adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

### 6.4 Unforeseen Circumstances

Unforeseen circumstances are defined in 50 CFR 17.3 as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and the Service at the time of the HCP’s negotiation and development and that result in a substantial and adverse change in status of the covered species. The purpose of the No Surprises Rule is to provide assurances to non-Federal landowners participating in habitat conservation planning under the Act that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

In case of an unforeseen event, the permittee shall notify the Service staff as soon as practical. In determining whether such an event constitutes an unforeseen circumstance, the Service shall consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; percentage of range conserved by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species’ conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If the Service determines that additional conservation and mitigation measures are necessary to respond to the unforeseen circumstances where the HCP is being properly implemented, the additional measures required must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that already set-aside in the HCP’s operating conservation program. Additional conservation and mitigation measures shall involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under original terms of the HCP only with the consent of the permittee.

### Section 7. Amendments

#### 7.1 Permit Amendments

At this time, there is no reason to expect that an amendment to the take permit will be needed to complete the proposed vegetation removal activities. However, during the specified permit period, an amendment of the Section 10(a) permit for the project would be required for any change in the following:

- significant revision of the permit area boundary;
- ESA listing of a species that is not currently addressed in the HCP that may be taken by project activities;
• modification of any important project action or mitigation component under the HCP, including funding, that may significantly affect authorized take levels, effects of the project, or the nature or scope of the mitigation programs; and
• any other modification of the project likely to result in significant adverse effects to MHJB not addressed in the original HCP and permit application.

Amendment of the Section 10(a) permit would be treated in the same manner as an original permit application. The specific documentation needed in support of a permit amendment may vary, depending on the nature of the amendment. This would be as discussed with USFWS to determine the nature of the documentation required. If the permit amendment also qualifies under a low-effect HCP, an Implementing Agreement and NEPA document would not be needed.

This HCP may, under certain circumstances, be amended without amending the associated permit, if such amendments are of a minor or technical nature and that the effect on the species involved and the levels of take resulting from the amendment are not significantly different from those described in the original HCP. Examples of minor amendments to the HCP that would not require permit amendment include, but are not limited to:

• minor revisions to the HCP’s plan area or boundaries;
• minor changes to conservation bank planting site(s) and site preparation; and
• minor changes to survey, monitoring, or reporting protocols.

To amend the HCP without amending the permit, PG&E must submit to the USFWS, in writing, a description of:

• the proposed amendment;
• an explanation of why PG&E believes the effects of the proposed amendment would not be significantly different than those described in the original HCP.

If the USFWS concurs with PG&E’s proposal, it shall authorize the HCP amendment in writing and the amendment shall be considered effective upon the date of the USFWS’s written authorization.

7.2 Suspension/Revocation

The Service may suspend or revoke their respective permits if PG&E fails to implement the HCP in accordance with the terms and conditions of the permits or if suspension or revocation is otherwise required by law. Suspension or revocation of the Section 10(a)(1)(B) permit, in whole or in part, by the Service shall be in accordance with 50 CFR 13.27-28, 17.32 (b)(8).

7.3 Renewal of the Section 10(a)(1)(B) Permit

Upon expiration after 20 years of the time of issue, the Section 10(a)(1)(B) permit may be submitted for renewal without the issuance of a new permit, provided that the biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original HCP. To renew the permit, PG&E shall submit to the Service, in writing:
• a request to renew the permit; reference to the original permit number;
• certification that all statements and information provided in the original HCP and permit application, together with any approved HCP amendments, are still true and correct, and inclusion of a list of changes;
• a description of any take that has occurred under the existing permit; and
• a description of any portions of the project still to be completed, if applicable, or what activities under the original permit the renewal is intended to cover.

If the Service concurs with the information provided in the request, it shall renew the permit consistent with permit renewal procedures required by Federal regulation (50 CFR 13.22). If PG&E files a renewal request and the request is on file with the issuing Service office at least 30 days prior to the permits expiration, the permit shall remain valid while the renewal is being processed, provided the existing permit is renewable. However, PG&E may not take listed species beyond the quantity authorized by the original permit or change the scope of the HCP unless otherwise authorized. If PG&E fails to file a renewal request within 30 days prior to permit expiration, the permit shall become invalid upon expiration. PG&E and the mitigation bank operator (if applicable) must have complied with all annual reporting requirements to qualify for a permit renewal.

7.4 Permit Transfer

In the unlikely event of a sale or transfer of ownership of the property during the life of the permit, the new owner(s) of the pipeline will seek their own take permits.

7.5 Authorizing Take Associated With Mitigated Activities

As described above, certain elements of the Vegetation Removal project could result in take of MHJB. For purposes of such mitigation or management activities, the ESA Section 10(a)(1)(B) permit issued pursuant to this HCP will authorize the take of MHJB during such activities provided that: 1) such take is specifically intended to satisfy mitigation measures described in this HCP or to minimize more serious forms of take (i.e., killing/injury); 2) such take is directly associated in time and place with activities authorized under the permit; 3) such activities are conducted under the supervision of a qualified biologist; and 4) the USFWS authorizes the applicant to proceed.

Section 8. Funding

8.1 Costs of HCP Implementation

Costs of HCP implementation are estimated at $821,235.88 with $552,035.88 of the cost being a one-time mitigation cost (Table 5).
Table 5. Costs of HCP Implementation

<table>
<thead>
<tr>
<th>Item/Activity</th>
<th>Unit Cost</th>
<th>Year One</th>
<th>Re-occurring Cost Totals</th>
<th>Total Cost (x # of years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Monitor</td>
<td>~$1200/day</td>
<td>$24,000</td>
<td>$115,200</td>
<td>Total of 20 days for initial work. Estimated monitoring for repeated treatment at 4 days for 19 years (= 96 days).</td>
</tr>
<tr>
<td>Crew Tailboard Training</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$28,500</td>
<td>1 training/year</td>
</tr>
<tr>
<td>Reporting</td>
<td>Post-Work Report</td>
<td>$5,000</td>
<td>$5000 each year, if required, for total of $100,000</td>
<td>1 report estimated per year over 20 year period</td>
</tr>
<tr>
<td>Mitigation Bank Cost)</td>
<td>-</td>
<td>$552,035.88</td>
<td>-</td>
<td>One time cost.</td>
</tr>
</tbody>
</table>

8.2 Funding Source

In the fall of 2016, PG&E approved all the funds necessary to implement this project. Pending permit approval it is anticipated that all vegetation removal will be completed by the end of 2017 or early 2018.

Funding for all aspects of the HCP will be included in PG&E’s approved Capital Projects Budgets for the Community Pipeline Safety Initiative. PG&E understands that failure to provide adequate funding, and a consequent failure to implement the terms of this HCP in full, could result in temporary permit suspension or permit revocation.

8.3 Funding Mechanism and Management

PG&E has purchased conservation credits from a USFWS-approved offsite Conservation Bank for the MHJB, the Zayante Sandhills Conservation Bank. To offset the 2.9 acres of affected area for vegetation removal, PG&E purchased 126,324 credits (2.9 acres) from the Zayante Sandhills Conservation Bank, a USFWS approved bank, at a cost of $552,035.88.
Section 9. Alternatives

9.1 Summary

Section 10(a)(2)(A)(iii) of the Endangered Species Act of 1973, as amended, [and 50 CFR 17.22(b)(1)(iii) and 17.32(b)(1)(iii)] requires that alternatives to the taking of species be considered and reasons why such alternatives are not implemented be discussed.

9.2 No Action Alternative

A No Action alternative means the USFWS would not issue an incidental take permit to PG&E as proposed. PG&E is responsible for funding and maintaining its natural gas transmission lines throughout California. Part of this responsibility is to ensure that incompatible vegetation present is removed to ensure safe, reliable natural gas is delivered to its customers. PG&E developed Utility Standard TD-4490S (Section 2) for maintaining gas pipeline rights-of-way to comply with federal law that requires the management of vegetation within gas transmission rights-of-way for thorough and complete leak detection and cathodic surveys. Vegetation within PG&E’s gas transmission easements pose problems with surveying the lines for leaks, as well as patrolling the lines for signs of encroachment or damage from erosion, landslide, or other natural forces. Additionally, tree roots can grow around steel pipelines and damage their protective coating, which increases risks for corrosion and leakage. Trees present within our rights-of-way could also result in emergency access delays, which could prolong incidents or outages in the event a pipeline is damaged or a leak develops. Eliminating the vegetation removal activities necessary to maintain the transmission line system would eliminate the potential take of any MHJB located in project work areas. However, PG&E would then not be able to ensure a safe and reliable natural gas supply to its Santa Cruz County customers including local schools (San Lorenzo Valley High, San Lorenzo Valley Elementary, and Scotts Valley Middle School) as well as critical businesses and services. Not removing these trees could put the public’s health, welfare, and safety at risk and could result in substantial damage to PG&E’s gas transmission system. PG&E is mandated by the California Public Utility Commission to provide adequate, safe levels of energy to meet the gas service demands of its customers. PG&E has considered this alternative and has found that it is not viable due to the public safety risks described.

9.3 Reduced Scope (Proposed Action)

Under the proposed action alternative, PG&E would implement the project as described in Section 2. The proposed action will require the issuance of a Section 10(a)(1)(B) permit in order for the project to be implemented in compliance with the federal Endangered Species Act. The project could cause mortality to individuals potentially occurring in the 2.9 acre action area. The proposed action would provide for greater conservation benefits to the species that would result from the no action alternative and original project alternative. Specifically, under the proposed action, PG&E will permanently protect 2.9 acres of high quality habitat for the species through the purchase of conservation credits at the Zayante Sandhills Conservation Bank. Additionally, the proposed action meets the needs of PG&E by reducing potential hazards from the existing natural gas pipeline. Therefore, the proposed action is the preferred alternative.
9.4 Original Scope

PG&E’s original plan was to remove all trees and woody vegetation within a 30 foot corridor (14 feet on either side of the pipeline plus the 2 feet directly above the pipeline) to comply with the Utility Standard, chip all vegetation on site, and leave all woodchips on site. This Alternative was rejected because of the greater impact of the removals on the MHJB (i.e., a greater loss of beetle larvae food sources (roots), and because the woodchips could result in a barrier to beetles emerging from the soil.
Section 10. Literature Cited


California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (accessed December, 2016).


