2 Project Description

The Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project) is a response to the growing severity of wildfires in the western United States, which has been exacerbated by hazardous excess fuel loads in forests, and the need to enhance economic activity in California's rural counties. The proposed project serves as an opportunity to help restore western forests, watersheds, and ecosystems to a more natural and resilient condition. Project components and operations will provide overall benefit to the region by sustainably procuring and processing excess biomass into a pelletized fuel source for renewable energy generation. This project description describes the proposed project as a whole, consisting of three basic components: The forest treatment and restoration activities ("Feedstock Acquisition"); the transportation and processing of the feedstock at two pellet production facilities, one in the Central Sierra Nevada foothills and one in Northern California ("Wood Pellet Production"); and the transportation of the finished product to a storage facility to be constructed at the Port of Stockton, California, for export to international markets ("Transport to Market").

2.1 Background

Golden State Finance Authority (GSFA), a California joint powers authority, is a governmental entity that has led numerous project financing efforts in California since its creation in 1993. GSFA and its affiliate, Rural County Representatives of California (RCRC), established Golden State Natural Resources (GSNR), a California public benefit corporation and nonprofit organization, in 2019. GSNR was created for the purposes of implementing a robust forest resiliency initiative with a mission to enhance quality of life, public safety, economic development, and the environment in California. Specifically, GSNR's proposed initiative would involve removal of fire fuels from forested lands located in and around California, manufacturing of pelletized fuel products at new production facilities in rural California, and exportation of produced pellets to for use in energy generation in Europe and Asia. By transforming excess and unmarketable fire fuels into a marketable wood product, GSNR aims to create fire resilient landscapes and fire adaptive communities (GSNR 2022).

While wildfires are a natural part of California's landscape, the fire season in California has generally been starting earlier and ending later with each passing year. Warmer spring and summer temperatures, reduced snowpack, insect infestation, and earlier spring snowmelt driven by climate change create longer and more intense dry seasons that increase moisture stress on vegetation and make forests more susceptible to severe wildfire (CAL FIRE 2021). Overgrown forests experiencing significant tree mortality have furthered the degradation of forest health and increased hazardous fuel loads, leading to catastrophic wildfires and environmental degradation, and contributing to the loss of life, property, and natural resources. Similar conditions are present in the adjoining forested regions of Oregon and Nevada.

The need to increase the pace and scale of wildfire fuel reductions treatments in this area is widely recognized by both the federal and state governments. For example, in August 2020, the State of California and the United States Forest Service, Pacific Southwest Region (Region 5) entered into an *Agreement for Shared Stewardship of California's Forest and Rangelands* which includes a commitment "to the following actions to advance shared stewardship opportunities":

> **"Treat One Million Acres per Year:** The Parties will scale up vegetation treatment to one million acres of forest and wildlands annually by 2025, committing to each sustainably treat 500,000 acres per year. Treatments will

follow a joint plan and will be driven by public safety and ecological goals including reducing wildfire impacts in high priority areas and maintaining or restoring healthy, resilient forests and rangelands."

In response to this issue, the proposed project will remove excess woody biomass from forested lands located in and around California to reduce the threat of catastrophic wildfires and environmental degradation. This excess woody biomass would then be transported to pellet production facilities. This complements efforts underway in several countries participating in the Paris Climate Accord, including Japan, Poland, and the United Kingdom, which are converting some industrial energy plants from coal to wood pellet energy generation (in some cases co-firing the pellets with coal, and in others relying entirely on wood pellets as part of their objective to reduce anthropomorphic carbon emissions and to meet the need for baseload renewable energy generation).

California has among the highest concentration of low- to no-value forest vegetation in the western United States. Additionally, California and its adjoining region have a significant geographic advantage for overseas transport to international markets in Asia since most U.S. wood pellet manufacturers are in the southeast portion of the country. The finished wood pellet product would be transported to contracted offtake markets, mainly targeting the international power market due to large and increasing demand for industrial wood pellets to meet climate change carbon reduction goals.

In October 2019, GSFA executed a 20-year Master Stewardship Agreement (MSA) with the U.S. Forest Service to provide for mutual benefit and mutual interests between GSFA and the USFS for the purpose of achieving resilient forests within U.S. Forest Service Region 5, which includes 18 national forests located in California. The MSA provides that GSFA may elect to have GSNR perform forest treatment work under the MSA on GSFA's behalf. The proposed project includes providing such authorization to GSNR, and establishing a framework for GSFA to approve individual Supplemental Project Agreements for specific forest treatment projects under the MSA, to be performed by GSNR.

2.2 Project Objectives

The proposed project is designed to achieve all of the following objectives:

- Sustainably reduce excess fuel loads in high hazard landscapes at greatest risk of catastrophic wildfire.
- Reduce catastrophic wildfire risks associated with ladder fuels, crown fires, insect pathogens, and disease.
- Enhance ecological functions, watershed functions, wildlife habitat, biodiversity, and overall forest health and resilience by increasing tree spacing, reducing evapotranspiration water loss, reducing nutrient resource competition, improving the growth rates and health of larger and healthier tress, and increasing carbon sequestration and storage.
- Reduce environmental harms resulting from uncontrolled wildfires, including emissions of greenhouse gases and air pollutants.
- Facilitate opportunities to reintroduce traditional tribal and cultural forest management practices and prescribed burning to maintain healthy forest conditions.
- Reduce risk to first responders, residents, visitors, communities, and natural and manmade infrastructure from catastrophic wildfire.
- Reduce firefighting suppression costs, healthcare costs related to wildfire smoke, and impacts and losses to manmade infrastructure and communities.
- Protect California's high-value, iconic recreational resources, National and State Parks and other priceless natural resources from catastrophic wildfires.

- Offset the high costs of wildfire management activities by making productive use of low-value forest materials generated from those activities.
- Improve economic and community development and create jobs in historically overlooked and underinvested California communities.
- Support the development of new and emerging technologies that use biomass fuels to address climate change, such as Bioenergy with Carbon Capture and Storage (BECCS).

2.3 Project Overview

The proposed project will consist of three primary phases:

1. **Feedstock Acquisition.** Feedstock generally consists of the underutilized and unmarketable forest material used to produce industrial wood pellets. As described in greater detail in Section 2.4, feedstock will typically consist of low or negative value woody biomass, such as brush, small trees designated as undesirable ladder fuels, slash piles that would otherwise be open-burned, and dead or dying trees with little or negative value as timber. Feedstock may include otherwise marketable roundwood resulting from forest fuels reduction and restoration activities, subject to the conditions and criteria discussed in Section 2.4 below. Feedstock would be sourced from approved salvage, prescribed green tree thinning, fuel-reduction, community wildfire protection, or other forest resiliency projects in California and adjoining forests. Section 2.4 further describes the mandatory Project Design Features established for these projects, which set significant constraints upon these activities. Feedstock sources for the project fall into three categories: (1) "GSNR Biomass Only Thinning Projects" are wildfire fuel reduction operations undertaken by GSNR, or on GSNR's behalf, and which would not occur without GSNR's proposed project; (2) "Harvest Residuals" are residual biomass material resulting from timber harvest, vegetation management, and forest management operations undertaken by third-parties unaffiliated with GSNR and which would occur regardless of GSNR's proposed project; and (3) "Mill Residuals" are residual biomass materials, including residual chips, sawdust, planer shavings, bark and other byproducts, of commercial lumbermills operated by third-parties unaffiliated with GSNR. The feedstock is transported by truck from the forest or mill to the wood pellet production facility.
2. **Wood pellet production.** Feedstock is received at wood pellet production facilities located in the Central Sierra Nevada foothills (Tuolumne County) and Northern California (Lassen County) regions. In general, any feedstock received in roundwood form is processed through a debarker and chipper. The processed chips are conveyed to a radial stacker reclaimer where they will be combined with material that is received in residual (size reduced) form for the next processing phase. The bark from any roundwood is conveyed separately to a storage pile for use as fuel for the furnace used to heat the dryer. The wood chips are then screened for the appropriate size and transferred to the dryer. Chips that do not pass through the screens are directed to an array of hammer mills to be reduced to the appropriate size. The chips are then dried and can go through another stage of size reduction by way of hammer mills and are then sent through the pellet mill. The pellets are cooled to ambient air temperature and sent through a final screen, after which they are stored in silos awaiting loading for off-site transportation. Additional information regarding production facility design is set forth below and in subsequent chapters of this EIR, including mandatory Site Design Features established for these facilities.
3. **Transport to market.** The pellets are loaded onto railcars for transport to a dedicated, purpose-built export terminal at the Port of Stockton, California. At the terminal, the pellets are unloaded and stored in large domes, where they are continuously monitored while awaiting final ship load out. The domes feed covered

conveyors by gravity, which transport the pellets to a shiploader, where the pellets are loaded into dedicated cargo ships for delivery to international energy markets. Additional information regarding port facility design is set forth below and in subsequent chapters of this EIR, including mandatory Site Design Features established for this facility.

2.4 Feedstock Acquisition

Feedstock for manufacturing of wood pellets at GSNR's proposed pellet facilities will come from three sources, collectively referred to herein as "Sustainable Forest Management Projects": (1) "Harvest Residuals" are residual biomass material resulting from timber harvest, vegetation management, and forest management operations undertaken by third-parties unaffiliated with GSNR and which would occur regardless of GSNR's proposed project; (2) "GSNR Biomass Only Thinning Projects" are wildfire fuel reduction operations undertaken by GSNR, or on GSNR's behalf, and which would not occur without GSNR's proposed project; and (3) "Mill Residuals" are residual biomass materials, including residual chips, sawdust, planer shavings, bark and other byproducts, of commercial lumbermills operated by third-parties unaffiliated with GSNR.

2.4.1 Harvest Residuals

General Description

Subject to the constraints set forth in this section, GSNR will procure and utilize residual biomass material resulting from timber harvest, vegetation management, and forest management operations undertaken within the geographic area depicted in Figures 2-1 and 2-2 (the “Working Area”) by third-parties unaffiliated with GSNR, for their own purposes, which would occur regardless of GSNR's proposed project. Among other limitations, GSNR will only accept "harvest residual" materials from timber harvest, vegetation management, and forest management operations that have been approved under NEPA, CEQA, or the California Forest Practices Act (or, for materials originating out-of-state, an equivalent law of that state). Material from private lands that have not obtained such an approval, sometimes referred to as "gate wood," would not be procured or used by the proposed project.

Currently, this material is often left in the forest to decay or disposed of by open burning. Each of these disposal methods can have significant adverse consequences, including wildfire ramifications and criteria pollutant and carbon emissions. In particular, harvest residuals left in the forest to decay can be the source of a higher fire hazard because they concentrate the dead fuel loading on the ground, increasing PM2.5 emissions and the risk of a crown fire. In the absence of a wildfire, these harvest residuals decompose slowly over time producing atmospheric methane and CO2 over the next 15-20 years. Open burning greatly reduces fuel loading and wildfire hazard, but creates uncontrolled criteria pollutant emissions, including PM2.5, as the piles are burned. Pile burning rarely completely consumes 100% of the piled material so the unburned component continues to decompose over time producing methane and CO2 emissions.

The third-party operations the generate Harvest Residuals generally include the following types of projects (undertaken by those third-parties, on their own initiative):

- **Commercial Timber Harvest Residuals.** Licensed Timber Operators and other forest contractors hired by a private landowner or federal timber purchaser cut and remove green or dead, dying, or diseased trees using sustainable silvicultural methodologies. Tree bole wood is removed in log form and transported to traditional forest products facilities such as sawmills and plywood plants. Feedstock procured by GSNR resulting from these

projects will be derived from limbs and tops of green trees and other bole wood that is unutilizable by traditional forest products facilities.

- **Pre-commercial Thinning Harvests.** These prescribed thinning operations selectively remove smaller, less healthy trees (16 inches DBH[1] or less) to increase the inter-tree spacing between the remaining larger and healthiest trees generally to improve overall forest health, growth, and carbon sequestration, and to increase resiliency to wildfire, insects, and diseases. Generally, 100% of the trees removed in these projects will be utilized as pellet feedstock. The equipment typically used for these projects will be tracked feller bunchers, rubber-tired grapple skidders, and a whole tree chipper that will convert the removed trees to chips and load them into a truck for delivery to GSNR's facility.
- **Fire, Insect, or Disease Salvage Harvests.** These operations selectively remove dead, diseased, or dying trees, generally in an emergency situation aimed at utilizing bole wood as higher value sawlogs or veneer before they are too decayed. Feedstock will generally be derived from bole wood that is too defective for local forest products facilities to use, or tree limbs and tops that are unutilizable for making lumber or veneer. Tree cutting and removal may be accomplished using tracked feller-bunchers or chain saws, rubber-tired grapple skidders, and processed using whole tree processors and whole tree chippers.
- **Removal of Slash Piles Slated for Open-Burning.** This type of operation removes slash piles, generally along roads left in the forest from previous forest management activities on private, state, or federal timberlands that have been slated for disposal through traditional open-burning. Feedstock is derived from chipping or grinding all woody material in the slash piles uncontaminated by soil, rock, and other non-woody material and loaded into large chip vans for delivery to GSNR's facility.
- **Hazardous Fuel Reduction Projects.** These projects are performed to reduce wildfire risk to forests, watersheds, wildlife habitat, communities, neighborhoods, or homes in Moderate, High and Very High Fire Hazard Severity Zones and in the Wildland-Urban Interface (WUI). They selectively thin the smaller (generally up to 16 inches DBH) trees to increase inter-tree spacing and remove brush that can act as a fire ladder that will allow a wildfire to move from ground level to the crowns of the larger trees making the wildfire much more difficult to control. Limbs on larger remaining trees will often be pruned 8-10' above the ground to further reduce the risk of a crown fire and make a wildfire easier to suppress. Feedstock obtained from these projects is generally derived from the small trees, limbs, and brush that are removed. Equipment that is used to cut and remove feedstock are chain saws and small rubber-tired or rubber-tracked tractors, and feedstock is processed through a whole tree chipper or large wood-grinding machine and loaded into chip vans to be trucked to a GSNR facility.
- **Construction of Shaded Fuel Breaks.** These operations generally have a linear footprint that may be 100 to 500 feet wide located along a property line, strategic ridge line, or critical access road to allow access by emergency personnel to be used to fight an approaching wildfire. Shaded fuel breaks are created by removing small trees and brush that can act as ladder fuels and substantially increasing spacing between remaining trees using mastication equipment. Limbs on larger remaining trees will often be pruned 8 to 10 feet above the ground to further reduce the risk of a crown fire and provide a safety zone for fire managers to safely make a stand against an oncoming wildfire. Feedstock obtained from these projects is derived from the brush, small trees, tops and limbs and other bole wood that is unmerchantable and chipped into large chip vans using a whole tree chipper or grinder and removed to GSNR's facility..
- **Reforestation Site Preparation.** Reforestation site preparation activities remove dead hazardous fuels loading to desired levels following wildfires, post-fire salvage, or other forest treatment activities to allow for reforestation. Generally, all dead trees in severely burned areas, except snags specifically left for wildlife

[1] DBH = Diameter at Breast Height.

habitat, are cut and removed to reduce fuel loading prior to replanting trees to establish a new forest. Roundwood feedstock obtained from these projects will be loaded onto log trucks and removed to GSNR's facility for further processing. Dead trees will generally be cut with tracked feller bunchers or by hand with chain saws, removed to a landing using rubber-tired skidders, and further processed by hand before being loaded on log trucks. Other feedstock obtained from these projects is derived from the small trees, limbs, and brush that are removed and chipped into large chip vans using a whole tree chipper or grinder and removed to GSNR's facility.

Approval and Monitoring of Harvest Residual Feedstock Sources

1. General Requirements
   a. All sources of harvest residuals must be approved and under contract with GSNR prior to delivery of feedstock to GSNR. (The "source of harvest residuals" is typically the public or private forest landowner from whose property the materials originated, but may alternatively be a public agency or nonprofit organization which conducted treatment activities that generated the residuals.) The contract shall expressly require compliance with the provisions of this section and shall prescribe remedies for violation (subject to any conditions or restrictions applicable to federal land management agencies).
   b. Each source of harvest residuals must provide, at a minimum, a copy of the applicable environmental document (i.e., CEQA, NEPA, or Timber Harvest Plan document, or sister state equivalent) for the operations that generated the residuals. (For harvest residuals originating on federal lands, GSNR may accept the representation of the applicable federal land management agency that the material resulted from a project conducted in compliance with all applicable environmental laws to satisfy this requirement.)
   c. A source of harvest residuals that is (1) a public or tribal agency, (2) a fire safe council or similar nonprofit organization conducting forest treatment activities, or (3) the owner of 200,000 or more acres of timberland must submit a certification under penalty of perjury that the harvest residuals resulted from operations conducted within the scope and boundaries of, and in compliance with, the above-described environmental document, and otherwise in compliance with the provisions of this section. (For harvest residuals originating on federal lands, GSNR may accept the representation of the applicable federal land management agency that the material resulted from a project meeting these conditions to satisfy this requirement.)
   d. Any other source of harvest residuals must submit both the certification noted above and photographic or other evidence documenting the location from which the harvest residuals originated, and demonstrating that the harvest residuals comply with the provisions of this section.
   e. Each source of harvest residuals must consent to allow GSNR or its representatives to access and inspect the location(s) from which the harvest residuals originated both before and for a reasonable time after delivery of the feedstock, and must agree to cooperate with GSNR's audit and inspection program (subject to any conditions or restrictions applicable to federal land management agencies).
   f. Each delivery of feedstock material to GSNR shall be accompanied by chain of custody documentation as specified by the Executive Director of Golden State Finance Authority or their designee. GSNR shall employ, or cause to be employed, trained staff responsible for accepting feedstock deliveries to review this documentation and ensure compliance with this section.

2. Approval Process
    a. Prior to contracting with a source of harvest residuals or taking delivery of feedstock, GSNR shall submit the complete package of documents as described above to the Executive Director of Golden State Finance Authority or their designee for approval.
    b. The Executive Director or designee may approve the source of harvest residuals if they determine that the harvest residuals and their source comply with the requirements of this section and are otherwise consistent with the Project Objectives.
    c. GSFA shall use a written checklist or similar device prepared in accordance with CEQA Guidelines Section 15168(c) to document the evaluation of the site and GSNR's activities to determine whether the environmental effects are within the scope of this EIR.
    d. The Executive Director or designee shall submit an annual public report to the Golden State Finance Authority Board of Directors regarding approved sources of harvest residuals.
3. Audits and Inspections
    a. For sources of harvest residuals described in Paragraph 1.D, GSNR or its representatives shall inspect the location(s) from which the harvest residuals both before and after delivery of feedstock to verify compliance with the provisions of this section.
    b. For all other sources of harvest residuals, GSNR shall establish and implement a program of random audits and inspections to verify compliance with the provisions of this section. The program shall ensure that each year, no less than thirty percent (30%) of feedstock deliveries are subject to a "desk audit" review of the source's records pertaining to the harvest residuals, and that no less than ten percent (10%) of harvest residual source locations are physically inspected by GSNR or its representatives either before or after delivery of feedstock.
    c. GSNR shall make an annual report regarding the results of audits and inspections conducted under this section to the Executive Director of Golden State Finance Authority or their designee.

Harvest Residual Collection and Transportation

Harvest Residual material may come in the form of either roundwood or chips, depending upon the type of third-party operation from which it resulted. GSNR's activities to obtain Harvest Residual feedstock will typically commence after the third-party operations within a forested area have been completed, and will typically include the following:

- Large-diameter residuals (i.e., roundwood) would be loaded from the pile location at a forest landing onto log trucks (typical capacity of 26 tons) with a loader (heel boom). The log trucks would then transport the material to the wood pellet production facility.
- Small-diameter residuals (typically less than 6-8 inch diameter) would be loaded from the pile location at a forest landing into a chipper with a loader (heel boom). The resulting wood chips would then be loaded onto haul trucks (typical capacity of 25 tons), and transported to the wood pellet production facility.

Harvest Residuals are anticipated to provide approximately 69 percent of the total feedstock utilized at the proposed Tuolumne facility, and approximately 47 percent of the total feedstock utilized at the proposed Lassen facility.

Acquisition of harvest residuals will be subject to the following minimum constraints. In addition to the constraints and Project Design Features (PDFs) set forth in this section, other Chapters of this EIR identify mitigation measures to further reduce potentially significant environmental impacts. Additionally, some harvest residual acquisition

activities may be subject to existing regulatory requirements or other standards that cover the same subject matter as one or more constraints or PDFs. Where this occurs, whichever measure has the strictest environmental protection requirements shall be applied.

General Limitations

GSNR's procurement of Harvest Residuals will be subject to all of the following constraints:

- GSNR will only accept "harvest residual" materials (in any form) from timber harvest, vegetation management, and forest management operations conducted within the Working Area.
- GSNR will not accept "harvest residual" materials (in any form) from operations that involve the conversion of forest land to non-forest use.
- GSNR will only accept "harvest residual" materials (in any form) from timber harvest, vegetation management, and forest management operations within California that were subject to determination under NEPA, CEQA, or the Forest Practices Act.
- GSNR's activities to obtain Harvest Residual feedstock (i.e., from the location(s) in which it was deposited by the third-party) will comply with all applicable laws and all conditions and mitigation measures adopted for the third-party timber harvest, vegetation management, or forest management operations that generated the Harvest Residuals.
- GSNR will only accept "harvest residual" material from out-of-state timber harvest, vegetation management, and forest management operations that are subject to determination under NEPA or under a law of that state requiring preparation of a document containing essentially the same points of analysis as NEPA.
- For both in-state and out-of-state timber harvest, vegetation management, and forest management operations, the environmental review for the operation and applicable regulations must have included assurances of all of the following:
  - All State and Federal environmental laws are observed.
  - The timber harvest, vegetation management, or forest management operation is legally permitted and received an approved environmental determination (under CEQA, NEPA, the Forest Practices Act, or equivalent law of another state) in compliance with all applicable public notice and comment requirements.
  - The timber harvest, vegetation management, or forest management operation has a well-described silvicultural treatment that includes regeneration and practices that protect the forest from insects and disease.
  - Biological resources are recognized and any impacts fully mitigated to the extent feasible – including wildlife habitat and late successional forest protection, plant diversity (including threatened and endangered), aquatics, protection of endangered and sensitive species and their habitat
  - Water quality and riparian vegetation is protected and maintained and any impacts fully mitigated to the extent feasible. Sensitive watersheds have been designated. Roads and landings have been designed to protect water quality. Cumulative watershed effects have been analyzed and mitigated.
  - Soil resources are protected and maintained and any impacts fully mitigated to the extent feasible.
  - Air quality is protected and maintained and any impacts fully mitigated to the extent feasible.
  - Archaeological, historical and tribal cultural resources are protected, and any impacts fully mitigated to the extent feasible, and local tribes have been given sufficient opportunity to provide input.

  - The project area is managed to minimize wildfire risks and offset climate change effects by maximizing carbon sequestration rates and minimizing carbon emissions to the extent feasible.
- GSNR will not remove materials from federally designated wilderness areas, federally designated Wild and Scenic Rivers, or areas protected under the California Wild and Scenic Rivers Act.
- GSNR will not remove materials from Roadless Areas subject to the 2001 Roadless Rule (36 CFR 294).
- GSNR will not remove materials from areas with slope greater than 75% (37 degrees).
- GSNR will not remove materials from riparian areas – i.e., areas within 75' of a perennial stream or body of water.

Additionally, where feasible, GSNR will prioritize acquisition of Harvest Residuals based upon the following considerations:

- GSNR will prioritize removing Harvest Residual materials from forested lands that cause or threaten substantial increased risk of the occurrence or severity of wildfire.
- GSNR will prioritize removing Harvest Residual materials from forested lands whose decay will cause substantial carbon emissions.
- GSNR will prioritize removing Harvest Residual material from forested lands that are designated by a public agency as having elevated fire risk (such as High or Very High Fire Hazard Severity Zones) or are otherwise designated by a public agency as Wildland Urban Interface (WUI) areas.
- GSNR will prioritize removing Harvest Residual material from forested lands that have previously been heavily burned in catastrophic wildfires for the purpose of reducing fuel loading prior to reforestation activities.

Harvest Residual Removal and Transportation Project Design Features

All of GSNR's activities to obtain Harvest Residual feedstock (i.e., from the location(s) in which it was deposited by the third-party) will comply with all applicable laws and regulations and will incorporate the following project design features (PDFs), described below in Section 2.4.2, that will be implemented to the extent applicable to avoid or minimize environmental impacts from the activities under GSNR's control:

> PDF-ADMIN-3, PDF-AQ-1, PDF-AQ-2, PDF-CUL-8, PDF-CUL-9, PDF-BIO-2, PDF-BIO-3, PDF-BIO-4, PDF-BIO-8, PDF-HAZ-1, PDF-HAZ-2, PDF-HAZ-4, PDF-NOI-1, PDF-NOI-2, PDF-NOI-3, PDF-NOI-4, PDF-NOI-5, PDF-NOI-6, PDF-REC-1, PDF-REC-2, PDF-REC-3, PDF-TRF-1.

The effect of these PDFs on the existence and significance of potential environmental impacts is discussed within the respective impact chapters of this Environmental Impact Report.

2.4.2 GSNR Biomass Only Thinning Projects

"GSNR Biomass Only Thinning Projects" are wildfire fuel reduction operations undertaken by GSNR, or on GSNR's behalf, which would not occur without GSNR's proposed project. Subject to the constraints set forth in this section. GSNR will perform, or cause to be performed, vegetation management activities on forested lands designed to reduce the risk and severity of wildfire occurrence. The goal of fuel treatment is not to remove all vegetation, but to minimize the potential for ignitions, crown fires, and extreme fire behavior by reducing fuel loads and managing the structure, composition, and spacing (horizontal and vertical) of retained vegetation.

The wildfire fuel reduction operations undertaken by GSNR will take place within the geographic area depicted in Figures 2-1 and 2-2 (the "Working Area"), and will generally include the following types of projects:

- **Hazardous Fuel Reduction Projects.** These projects are performed to reduce wildfire risk to forests, watersheds, wildlife habitat, communities, neighborhoods, or homes in Moderate, High and Very High Fire Hazard Severity Zones and in the Wildland-Urban Interface (WUI). They selectively thin vegetation (primarily smaller trees up to 16 inches DBH) to increase inter-tree spacing and remove brush that can act as a fire ladder that will allow a wildfire to move from ground level to the crowns of the larger trees making the wildfire much more difficult to control. Limbs on larger remaining trees will often be pruned 8-10' above the ground to further reduce the risk of a crown fire and make a wildfire easier to suppress. Feedstock obtained from these projects is generally derived from the small trees, limbs, and brush that are removed.
- **Construction of Shaded Fuel Breaks. These** operations generally have a linear footprint that may be 100 to 500 feet wide located along a property line, strategic ridge line, or critical access road to allow access by emergency personnel to be used to fight an approaching wildfire. Shaded fuel breaks are created by removing small trees and brush that can act as ladder fuels and substantially increasing spacing between remaining trees using mastication equipment. Limbs on larger remaining trees will often be pruned 8 to 10 feet above the ground to further reduce the risk of a crown fire and provide a safety zone for fire managers to safely make a stand against an oncoming wildfire. Feedstock obtained from these projects is derived from the brush, small trees, tops and limbs and other bole wood that is unmerchantable..
- **Reforestation Site Preparation.** Reforestation site preparation activities remove dead hazardous fuels loading to desired levels following wildfires, post-fire salvage, or other forest treatment activities to allow for reforestation. Generally, all dead trees in severely burned areas, except snags specifically left for wildlife habitat, are cut and removed to reduce fuel loading prior to replanting trees to establish a new forest.
- **Fire, Insect, or Disease Salvage Harvests.** These types of operations are described in greater detail in Section 2.4.1.

GSNR Biomass Only Thinning Projects are expected to range from 10 to 2,000 acres each, and will generally consist of the following activities:

Mechanical Treatment. Mechanical treatment is effective at removing dense stands of vegetation and is typically used in shrub- and tree-dominated vegetation communities. Mechanical vegetation treatment involves the use of heavy motorized equipment, such as feller-bunchers, specially designed to cut, tear, uproot, crush, compact, or chop target vegetation. (Feller-bunchers are tracked vehicles with a self-leveling cab that mechanically grasps the standing tree, cuts it with a hydraulically powered chain saw, and arranges cut trees in bunches to facilitate dragging the tree out of the forest (skidding).) Felled feedstock material is then removed to a forest landing using rubber-tired skidders, where would be loaded into a chipper with a loader (heel boom). The resulting wood chips would then be loaded onto haul trucks (typical capacity of 25 tons), and transported to the wood pellet production facility.

Manual Treatment. Manual treatments are typically used in developed, sensitive or hard to access areas, or for small-scale projects. Manual treatment would involve the use of hand tools and hand-operated power tools (such as chain saws) to cut, clear, or prune herbaceous and woody species. Felled feedstock material is then removed to a forest landing using rubber-tired skidders, where would be loaded into a chipper with a loader (heel boom). The resulting wood chips would then be loaded onto haul trucks (typical capacity of 25 tons), and transported to the wood pellet production facility.

Site Access and Preparation. Each GSNR Biomass Only Thinning Project may include up to one mile of low standard (i.e., unpaved) road construction to access the project site, which could include one or more stream crossings. These projects will typically also require preparation of forest landings as locations to sort, store, and chip cut trees, and load haul trucks.

GSNR Biomass Only Thinning Projects will be scheduled based on the following considerations:

- Normal Operating Season - Forest operations will generally be conducted between April 1 through November 15 when soil conditions are dry enough for heavy equipment operations to take place without long-term damage to forest soils and road systems. It is anticipated that approximately 90% of GSNR's feedstock will be acquired during the normal operating season.
- Winter Period Operations – Some forest operations may take place between November 16 and March 31 (the "Winter Period") during extended dry periods provided that a Registered Professional Forester (RPF) or U.S. Forest Service Resource Specialist has provided a Winter Operating Plan that addresses limitations that will be placed on certain activities such as skid trail construction/maintenance, or watercourse crossings, based on ground conditions (soil moisture condition or frozen soil), form of precipitation (rain or snow), operations on unstable areas, required erosion control facilities, etc.). The Winter Operating Plan will also ensure that roads, landings, watercourse crossings, and skid trails can only be constructed or operated on during dry, rainless periods, or frozen soil conditions with snow covering, where necessary to avoid erosion or damage to the road surface. In addition, there is a requirement that erosion control structures be installed on skid trails when there is a significant chance of rain the following day and prior to weekends.
- Fire Hazard Shutdowns – Tree falling and heavy equipment operations between April 1 and November 15 may be curtailed or limited during Red Flag, or dry and windy weather conditions or during periods when there are active wildfires in the area.
- Limited Operating Periods (LOPs) for T&E Species – In many areas, forest operations will be curtailed for several months each year to keep equipment operations from negatively impacting Sensitive or Threatened or Endangered bird, mammal, or amphibian nesting or egg laying seasons or Threatened or Endangered plant blooming periods. The most common LOPs are for northern and spotted owls (March 1 to August 15), goshawks (February 15 to September 15), Yosemite toad (October 1 to May 15) , red or yellow-legged frogs, Bald Eagles, Great Horned owls, and certain flowering plants.

It is anticipated that GSNR Biomass Only Thinning Projects will treat approximately 85,779 acres of forested land annually on average once the proposed project is fully operational (see Chapter 3.7, Greenhouse Gas Emissions). These activities are anticipated to provide approximately 30 percent of the total feedstock utilized at the proposed Tuolumne facility, and approximately 52 percent of the total feedstock utilized at the proposed Lassen facility.

Selection and Approval of GSNR Biomass Only Thinning Projects

GSNR Biomass Only Thinning Projects will be selected, designed, and approved through the following public process:

1. Project Identification
    a. GSNR will coordinate with the United States Forest Service and other public, private, and tribal forest landowners to identify potential hazardous fuel reduction projects, shaded fuel breaks, reforestation site preparation projects, and fire, insect, or disease salvage harvests on their respective lands. This initial identification will be based on several parameters including the following:
        - Location and accessibility of the site;

- Characteristics of the site such as size; distribution, density, life cycle, and life stage during which plants are most affected by treatment; soil characteristics; weather conditions; and proximity to sensitive areas;
- Topography, slope, and aspect of the site;
- Ability and willingness of land management agency or landowner to maintain treated area;
- Effectiveness of the treatment in achieving desired fuel conditions and other applicable CalVTP objectives and follow-up maintenance requirements;
- Cost of the treatment methods and available funding;
- Potential for environmental effects that were not examined in this program EIR.
- Objectives for the site;
- Historic and current conditions;
- Opportunities to preserve desirable vegetation and wildlife habitat;
- Success of past treatments, or treatments conducted under similar conditions;
- Recommendations by local experts and input from local community;
- Primary land use (e.g., WUI, forestry, range, open space);
- Compliance with the requirements and constraints set forth in this section; and
- Overall consistency with the Project Objectives set forth in Section 2.2.

b. GSNR will prioritize all of the following in the selection process, where feasible:

- Removing fire fuels from forested lands that cause or threaten substantial increased risk of the occurrence or severity of wildfire.
- Removing biomass materials from forested lands whose decay will cause substantial carbon emissions.
- Removing fire fuels from forested lands that are designated by a public agency as having elevated fire risk (such as High or Very High Fire Hazard Severity Zones) or are otherwise designated by a public agency as Wildland Urban Interface (WUI) areas.
- Removing fire fuels from forested lands that have previously been heavily burned in catastrophic wildfires for the purpose of reducing fuel loading prior to reforestation activities.

2. Project Design

a. Once potential projects have been identified, GSNR will employ or contract with professional foresters and other qualified resource specialists to develop an appropriate silvicultural treatment prescription consistent with the requirements and constraints of this section, in coordination with the applicable land management agency or landowner. This will include preparation of drafts of necessary regulatory/approval documentation (e.g., timber harvest plan, NEPA documentation and decision memos, etc.)

3. Project Review and Approval

a. GSNR will then submit the complete package of documents regarding the proposed project, as described above, to the Executive Director of Golden State Finance Authority or their designee for approval.

b. GSFA shall prepare a Project Specific Analysis (PSA) for each GSNR Biomass Only Thinning Project. The purpose of the PSA is to evaluate the proposed project site and treatment activities to determine whether the environmental effects of these activities are addressed within the scope of this program EIR, consistent with Section 15168 of the CEQA Guidelines. The PSA shall also determine that all applicable PDFs and mitigation measures identified in this EIR have been incorporated into the project,

and whether additional mitigation would be necessary. If it is determined that the proposed treatment is within the scope of this EIR, then no additional CEQA documentation would be required for GSFA's approval (i.e., additional EIR, negative declaration, or MND). The PSA shall provide the substantial evidence to support a determination that the proposed treatment is within the scope. If it is determined that the proposed treatment includes activities that may result in one or more new significant effect(s) not addressed in this EIR or a substantial increase in the severity of significant impacts addressed in the EIR, the following actions may be taken:

- The proposed project may be changed to avoid the potential significant effect or substantial increase in severity.
- The proposed project may be disapproved by GSFA.
- Additional CEQA analysis in the form of an MND or supplemental or subsequent EIR focused on the new or substantially more severe significant environmental effect may be conducted to address the effect and identify any feasible mitigation measures.

c. The Executive Director or designee may approve a GSNR Biomass Only Thinning Project if they determine that the proposed project complies with the requirements of this section and is otherwise consistent with the Project Objectives. If the GSNR Biomass Only Thinning Project is approved, GSFA would file a Notice of Determination.

d. The Executive Director or designee shall submit an annual public report to the Golden State Finance Authority Board of Directors regarding approved GSNR Biomass Only Thinning Projects.

4. Project Permitting and Implementation
   a. GSNR will submit any necessary applications for permits or regulatory approvals, and will coordinate with regulatory and land management agencies to obtain any necessary review or approval for the proposed project.
   b. GSNR will engage qualified contractors to perform the approved treatment activities. The contracts shall expressly require compliance with the provisions of this section and shall prescribe remedies for violation.
5. Project Oversight
   a. At a minimum, GSNR or its representatives shall inspect the project site both before and after treatment activities are conducted to verify compliance with the provisions of this section, and shall require the contractor to submit records demonstrating compliance with these provisions and any applicable regulations and permit conditions.
   b. Each delivery of feedstock from a GSNR Biomass Only Thinning Project shall be accompanied by chain of custody documentation as specified by the Executive Director of Golden State Finance Authority or their designee. GSNR shall employ, or cause to be employed, trained staff responsible for accepting feedstock deliveries to review this documentation and ensure compliance with this section.
   c. GSNR shall make an annual report regarding its inspections and oversight of contractors to the Executive Director of Golden State Finance Authority or their designee.

GSNR Biomass Only Thinning Project Requirements

GSNR Biomass Only Thinning Projects will be subject to the following minimum constraints. In addition to the constraints and Project Design Features (PDFs) set forth in this section, other Chapters of this EIR identify mitigation measures to further reduce potentially significant environmental impacts. Additionally, some GSNR Biomass Only Thinning Projects may be subject to existing regulatory requirements or other standards that cover the same subject

matter as one or more constraints or PDFs. **Where this occurs, whichever measure has the strictest environmental protection requirements shall be applied.**

General Limitations

GSNR Biomass Only Thinning Projects will be subject to all of the following constraints:

- All GSNR Biomass Only Thinning Projects will take place within the Working Area, and will comply with all applicable laws and regulations.
- GSNR Biomass Only Thinning Projects shall not involve the conversion of forest land to non-forest use.
- GSNR Biomass Only Thinning Projects shall not involve clearcutting, as that term is defined in Sections 913.1, 933.1, and 953.1 of Title 14 of the California Code of Regulations, except in the case of Fire, Insect, or Disease Salvage operations, where a registered professional forester, qualified biologist, [2] or qualified botanist[3] determines that the removed trees are unlikely to survive due to damage from the fire, insects, or disease.
- GSNR Biomass Only Thinning Projects shall not occur within federally designated wilderness areas federally designated Wild and Scenic Rivers, or areas protected under the California Wild and Scenic Rivers Act.
- GSNR Biomass Only Thinning Projects shall not occur within Roadless Areas subject to the 2001 Roadless Rule (36 CFR 294).
- GSNR Biomass Only Thinning Projects shall not occur within Spotted Owl Protected Activity Centers.
- Wildfire fuel reduction operations will not take place within riparian areas – i.e., areas within 75' of a perennial stream or body of water.
- No GSNR Biomass Only Thinning Project shall require more than one mile of low standard road construction (as that term is used in 36 C.F.R. § 220.6).
- GSNR Biomass Only Thinning Projects shall not involve any activities where the capability of forests to produce a range of wood and non-wood forest products and services on a sustainable basis is not maintained or harvesting levels exceed a rate that can be sustained in the long term.
- GSNR Biomass Only Thinning Projects shall not involve any activities where forest management does not contribute to the maintenance, conservation or enhancement of biodiversity on landscape, ecosystem, species or genetic levels.
- GSNR Biomass Only Thinning Projects shall not involve activities where ecologically important forest areas are not identified, protected, conserved or set aside.

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[2] A qualified biologist is an individual who individual who holds a degree from an accredited university in wildlife biology, botany, ecology, forestry, or other similar field from an accredited university and meets the following requirements: 1) knowledgeable about relevant species life histories and ecology, 2) able to correctly identify relevant species and their habitat, 3) experience conducting field surveys of relevant species or resources, 4) knowledgeable about relevant survey protocols, 5) familiarity with federal, state, and relevant local regulations related to special-status species, and 6) experience with CDFW's California Natural Diversity Database (CNDDB) and Biogeographic Information and Observation System (BIOS).

[3] A qualified botanist is an individual who holds a degree from an accredited university in wildlife biology, botany, ecology, forestry, or other similar field from an accredited university and meets the following requirements: 1) knowledgeable about plant taxonomy, 2) familiar with plants of the relevant region, including special-status plants and sensitive natural communities, 3) experience conducting botanical field surveys in accordance with the most current and relevant agency protocols and guidelines (e.g., CDFW 2018, USFWS 2000, or CNPS 1983) or experience conducting such surveys under the direction of an experienced botanical field surveyor, 4) experience with the California Manual of Vegetation (CNPS 2023a), and 5) familiarity with federal, state, and relevant local regulations related to plants.

- Every GSNR Biomass Only Thinning Project shall have a well-described silvicultural treatment that includes regeneration and practices that enhance resiliency of the residual forest to excessive damage from fire, drought, insects, and disease. All silvicultural prescriptions shall be reviewed and approved by a Certified Silviculturist.[4]
- GSNR Biomass Only Thinning Projects occurring outside the State of California shall undergo environmental review under NEPA or under a law of that state requiring preparation of a document containing essentially the same points of analysis as NEPA.

Mandatory Treatment Prescription Criteria

- No tree larger than 30" DBH shall be removed, except in the case of Fire, Insect, or Disease Salvage operations, where a registered professional forester, qualified biologist, or qualified botanist determines that the tree is unlikely to survive due to damage from the fire, insects, or disease, or where necessary to abate a safety hazard or for operability, such as creating landings. When necessary to remove a larger tree for operability, a qualified biologist shall be consulted prior to implementation.
- Minimum basal area retention of 70 square feet (averaged across the stand), except as part of a Shaded Fuel Break.
- No blue oak, tan oak, Pacific Madrone, valley oaks, , cottonwood, white bark pine, coastal redwood trees, or other heritage trees shall be removed. (A heritage tree is a large individual tree determined by GSNR, or by a federal, state, or local agency with jurisdiction, in its discretion and supported by substantial evidence, to possess unique value, age, rarity, and/or size, as well as aesthetic, botanical, ecological, and historical value.)
- Trees and shrubs shall be evaluated for vertical and horizontal spacing; remove unhealthy, structurally unsound or highly flammable trees that are likely to torch and distribute embers; and remove short understory trees. Criteria for tree removal would include consideration of tree health, structure, height, potential for failure, flammability/fire hazard, high fuel volume production of small diameter fuels, and competition with other trees (including for water, space, and light). Dead, unhealthy, and structurally unsound trees would be removed, as would trees prone to torching or burning with high fire intensity.
- Criteria for retention of trees include fuel characteristics (flammability, fuel volume, amount of dead material), consideration of ability to slow spreading of invasive species and surface fuels, protection of understory, encouragement of nesting and improvement of flight patterns of raptors, erosion prevention, and cost of removal. Near roads, trails, and buildings, lower limbs of trees would generally be pruned and understory vegetation shortened.
- In the case of fire salvage, the largest snags shall be left uncut for cavity nesting wildlife and to eventually contribute to the woody biomass component of the forest soil, in accordance with applicable regulations and practice rules.

Project Design Features

All GSNR Biomass Only Thinning Projects will include a number of project design features (PDFs) that will be implemented to avoid or minimize environmental impacts. The effect of these PDFs on the existence and significance of potential environmental impacts is discussed within the respective impact chapters of this Environmental Impact Report..

[4] A certified silviculturist is an individual trained in the growth, care, and reestablishment of trees-describing the types of trees to be planted and the techniques to be used to improve a timber stand on national forest land or other forested land.

Administrative

- PDF-ADMIN-1: The boundaries of the treatment area and protected resources shall be clearly defined on maps for the treatment area and with highly-visible flagging or clear, existing landscape demarcations (e.g., edge of a roadway) prior to beginning any treatment to avoid disturbing the resource. "Protected Resources" refers to environmentally sensitive places within or adjacent to the treatment areas that would be avoided or protected to the extent feasible during planned treatment activities to sustain their natural qualities and processes. This work will be performed by a qualified specialist for the specific resource (e.g., qualified RPF or biologist).
- PDF-ADMIN-2: The treatment shall be designed and implemented in a manner that is consistent with applicable local plans (e.g., Forest Plans, general plans, Community Wildfire Protection Plans, CAL FIRE Unit Fire Plans), policies, and ordinances to the extent the project is subject to them.
- PDF-ADMIN-3: If trash receptacles are used on-site, fully covered trash receptacles with secure lids (wildlife proof) will be used to contain all food, food scraps, food wrappers, beverages, and other worker generated miscellaneous trash. Remove all temporary non-biodegradable flagging, trash, debris, and barriers from the project site upon completion of project activities.
- PDF-ADMIN-4: Vegetation treatments will not occur during extreme fire danger conditions such as red flag warnings, as posted by the local CAL FIRE unit or National Weather Service. Fire danger shall be specifically determined before the start of each work day, and GSNR may require that operations be limited or ceased to mitigate wildfire risk even without a red flag warning. In addition, during the dry season, a ground inspection for fire will occur within 2 hours of felling, yarding, and mechanical loading activities ceasing each. The person conducting the inspection shall have adequate communication available for prompt reporting of any fire that may be detected.

Aesthetics

- PDF-AES-1: Vegetation adjacent to the viewshed of public trails, parks, recreation areas, and roadways will be thinned and feathered to break up or screen linear edges of the clearing and mimic forms of natural clearings as reasonable or appropriate for vegetation conditions. In general, thinning and feathering in irregular patches of varying densities, as well as a gradation of tall to short vegetation at the clearing edge, will achieve a natural transitional appearance. The contrast of a distinct clearing edge will be faded into this transitional band.
- PDF-AES-2: All treatment-related materials, including vehicles, vegetation treatment debris, and equipment, will be stored outside of the viewshed of public trails, parks, recreation areas, and roadways to the extent feasible.
- PDF-AES-3: Sufficient vegetation shall be preserved within, at the edge of, or adjacent to treatment areas to screen views from public trails, parks, recreation areas, and roadways as reasonable or appropriate for vegetation conditions.

Air Quality

- PDF-AQ-1: All treatment activities will comply with the applicable air quality requirements of air districts within whose jurisdiction the project is located.
- PDF-AQ-2: To minimize dust during treatment activities, the following measures will be implemented:
  - Limit the speed of vehicles and equipment traveling on unpaved areas to 15 miles per hour to reduce fugitive dust emissions.

  - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved roads) will be maintained using water or another CARB-approved non-toxic dust control agent as necessary to avoid particulate emissions that may "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property," per Health and Safety Code Section 41700.
  - Remove visible dust, silt, or mud tracked-out on to public paved roadways where sufficient water supplies and access to water is available.
  - Suspend ground-disturbing treatment activities, including land clearing and bulldozer lines, when there is visible dust transport (particulate pollution) outside the treatment boundary, if the particulate emissions may "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property," per Health and Safety Code Section 41700.
- PDF-AQ-3: Ground-disturbing treatment activities will be avoided in areas identified as likely to contain naturally occurring asbestos (NOA) per maps and guidance published by the California Geological Survey, unless an Asbestos Dust Control Plan (17 CCR Section 93105) is prepared and approved by the air district(s) with jurisdiction over the treatment area. Any NOA-related guidance provided by the applicable air district will be followed.

Archaeological and Cultural Resources

- PDF-CUL-1: A CHRIS record search and review of other pertinent desktop sources will be conducted per the applicable federal, state or local agency procedures prior to any treatment activities.
- PDF-CUL-2: The project proponent will obtain the latest Native American Heritage Commission (NAHC) provided Native Americans Contact List. Using the appropriate Native Americans Contact List, the California Native American Tribes in the counties where the treatment activity is located will be notified. The notification will contain the following:
  - A written description of the treatment location and boundaries.
  - Brief narrative of the treatment objectives.
  - A description of the activities used (e.g., mastication) and associated acreages.
  - A map of the treatment area at a sufficient scale to indicate the spatial extent of activities.
  - A request for information regarding potential impacts to cultural resources from the proposed treatment.
  - A detailed description of the depth of excavation if ground disturbance is expected. In addition, NAHC will be contacted for a review of their Sacred Lands File.
- PDF-CUL-3: Research will be conducted prior to implementing treatments as part of the cultural resource investigation. The purpose of this research is to properly inform survey design, based on the types of resources likely to be encountered within the treatment area, and to be prepared to interpret, record, and evaluate these findings within the context of local history and prehistory. Qualified cultural resources specialists will review records, study maps, read pertinent ethnographic, archaeological, and historical literature specific to the area being studied, and conduct other tasks to maximize the effectiveness of the survey.
- PDF-CUL-4: GSNR will coordinate with a qualified archaeologist to conduct a site-specific survey of the treatment area. The survey methodology (e.g., pedestrian survey, subsurface investigation) depends on

whether the area has a low, moderate, or high sensitivity for resources, which is based on whether the records search, pre-field research, and/or Native American consultation identifies archaeological or historical resources near or within the treatment area. A survey report will be completed for every cultural resource survey completed. The specific requirements will comply with the applicable federal, state, or local agency procedures.

- PDF-CUL-5: If cultural resources are identified within a treatment area, and cannot be avoided, a qualified archaeologist will notify the culturally affiliated tribe(s) based on information provided by NAHC and assess whether an archaeological find qualifies as a unique archaeological resource, an historical resource, or in coordination with said tribe(s), as a tribal cultural resource. GSNR, in consultation with culturally affiliated tribe(s), will develop effective protection measures for important cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. These protection measures will be written in clear, enforceable language, and will be included in the survey report in accordance with applicable state or local agency procedures.
- PDF-CUL-6: GSNR, in consultation with the culturally affiliated tribe(s), will develop effective protection measures for important tribal cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. The project proponent will provide the tribe(s) the opportunity to submit comments and participate in consultation to resolve issues of concern. GSNR will defer implementing the treatment until the tribe approves protection measures, or if agreement cannot be reached after a good-faith effort, GSNR determines that any or all feasible measures have been implemented, where feasible, and the resource is either avoided or protected.
- PDF-CUL-7: If the CHRIS records search and/or other desktop review identifies built environment historical resources, as defined in Section 15064.5 of the State CEQA Guidelines, these resources will be avoided. Within a buffer of 100 feet of the built historical resource, there will be no mechanical treatment activities Buffers less than 100 feet for built historical resources will only be used after consultation with and receipt of written approval from a qualified archaeologist or architectural historian. If the records search does not identify known historical resources in the treatment area, but structures (i.e., buildings, bridges, roadways) over 50 years old that have not been evaluated for historic significance are present in the treatment area, they will similarly be avoided.
- PDF-CUL-8: All crew members and contractors implementing treatment activities will be trained on the protection of sensitive archaeological, historical, or tribal cultural resources. Workers will be trained to halt work if archaeological resources are encountered on a treatment site and the treatment method consists of physical disturbance of land surfaces (e.g., soil disturbance).
- PDF-CUL-9: If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil (“midden”), that could conceal cultural deposits, are discovered during ground-disturbing activities, all ground-disturbing activity within 100 feet of the resources will be halted and a qualified archaeologist will assess the significance of the find. The qualified archaeologist will work with the project proponent to develop a primary records report that will comply with applicable state or local agency procedures. If the archaeologist determines that further information is needed to evaluate significance, a data recovery plan will be prepared. If the find is determined to be significant by the qualified archaeologist (i.e., because the find constitutes a unique archaeological resource, subsurface historical resource, or tribal cultural resource), the archaeologist will work with the project proponent to develop appropriate procedures to protect the integrity of the resource. Procedures could include preservation in place (which is the preferred manner of mitigating impacts to archaeological sites), archival research, subsurface testing, or

recovery of scientifically consequential information from and about the resource. Any find will be recorded using standard Department of Parks and Recreation (DPR) Primary Record forms (Form DPR 523) will be submitted to the appropriate regional information center.

Biological Resources

- PDF-BIO-1: GSNR will require a qualified RPF or biologist to conduct a data review and reconnaissance-level survey prior to each treatment project during the feedstock acquisition phase. The review and surveys will be conducted no more than one year prior to the preparation of the Project-Specific Analysis (PSA), and no more than one year between completion of the PSA and implementation of each treatment project. The data reviewed will include the biological resources setting, species and sensitive natural communities tables, and habitat information where the treatment will occur. The data review will incorporate the best available, current data for the area, including vegetation mapping data, species distribution/range information, California Natural Diversity Database (CNDDB), California Native Plant Society Inventory of Rare and Endangered Plants of California, relevant Biogeographic Information and Observation System (BIOS) queries, relevant general and regional plans, and Tables 2 and 3 in Appendix X of the DEIR.

  Reconnaissance-level biological surveys will be general surveys that include visual and auditory inspection for biological resources to help determine the environmental setting of the site. The qualified surveyor will: 1) identify and document sensitive resources, such as riparian or other sensitive habitats, sensitive natural communities, wetlands, or wildlife nursery sites (including bird nests); 2) assess the suitability of habitat for special-status plant and wildlife species; and 3) record any incidental wildlife observations.

  If more than one year passes between completion of the PSA and initiation of the treatment project, GSNR will verify the continued accuracy of the PSA prior to beginning the treatment project by reviewing for any data updates and/or visiting the site to verify conditions. Based on the results of the data review and reconnaissance-level survey, GSNR, in consultation with a qualified RPF or biologist, will determine which one of the following best characterizes the treatment:

  1. **Suitable Habitat Is Present but Adverse Effects Can Be Clearly Avoided.** If, based on the data review and reconnaissance-level survey, the qualified RPF or biologist determines that suitable habitat for sensitive biological resources is present but adverse effects on the suitable habitat can clearly be avoided through one of the following methods, the avoidance mechanism will be implemented prior to and throughout the treatment project:
     a. Physically avoid suitable habitat. Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of road or property fence) to delineate the boundary of the avoidance area around the suitable habitat. For physical avoidance, a buffer may be implemented as determined necessary by the qualified RPF or biologist.
     b. Conduct the treatment outside of the season when a sensitive resource could be present or outside the season of sensitivity (e.g., outside of special-status bird nesting season, during dormant season of sensitive annual or geophytic plant species, or outside of maternity and rearing season at wildlife nursery sites).
  2. **Suitable Habitat is Present and Adverse Effects Cannot Be Clearly Avoided.** Further review and surveys will be conducted to determine presence/absence of sensitive biological resources that may be affected, as described in the PDFs below. Further review may include contacting USFWS, NOAA Fisheries, CDFW, or local resource agencies as necessary to determine the potential for special-status species or other sensitive biological resources to be affected by the treatment project.

Focused or protocol-level surveys will be conducted as necessary to determine species presence/absence. Survey procedures will adhere to methodologies approved by resource agencies and the scientific community. Specific survey requirements for special-status plants and wildlife are addressed by PDF-BIO-5 and PDF-BIO-7, respectively.

- PDF-BIO-2: GSNR will require crew members and contractors to receive worker environmental awareness training from a qualified RPF or biologist prior to beginning treatment activities. The training will describe the appropriate work practices necessary to effectively implement all relevant PDFs and to comply with applicable environmental laws and regulations regarding biological resources. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats present or with the potential to occur in the work area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during work activities to leave the area unharmed and to report encounters to a qualified RPF, biologist, or biological technician.[5] The qualified RPF, biologist, or biological technician will immediately contact CDFW or USFWS, as appropriate, if any wildlife protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA) is encountered and cannot leave the site on its own (without being handled). All attendees of the training will be required to sign a log documenting attendance and completion of the training.
- PDF-BIO-3: When implementing the proposed project in sensitive natural communities or other habitats at heightened risk from plant pathogens, GSNR will require that the following best management practices be undertaken to prevent the spread of *Phytopthora* spp. and other plant pathogens (e.g., honey mushroom [*Armillaria gallica*], fir-annosum [*Heterobasidion annosum*], pitch canker [*Fusarium* spp.], shothole borer [*Scolytus rugulosus*], bark beetle [*Curculionidae* spp.]):
  - clean and sanitize vehicles, equipment, tools, footwear, and clothes before arriving on-site and when leaving a contaminated site, or a site in a county where contamination is a risk;
  - include training on *Phytopthora* diseases and other plant pathogens in the worker awareness training if applicable;
  - minimize soil disturbance as much as possible by limiting the number of vehicles, avoiding off-road travel as much as possible, and limiting use of mechanized equipment as feasible;
  - minimize movement of soil and plant material within the site, especially between areas with high and low risk of contamination;
  - clean soil and debris from equipment and sanitize hand tools, buckets, gloves, and footwear when moving from high risk to low risk areas or between widely separated portions of a treatment area; and
  - follow the procedures listed in the *Guidelines to Minimize Phytophthora Contamination in Restoration Projects* (Working Group for Phytophthora in Native Habitats, 2016) for plant pathogen prevention when working at contaminated restoration sites or within sensitive habitat as applicable.
- PDF-BIO-4: GSNR will require that the following actions be taken as applicable to prevent the spread of invasive plants, noxious weeds, and invasive wildlife that could result from project activities:

[5] A qualified biological technician is an individual who meets the following requirements: 1) knowledgeable in relevant species life histories and ecology, 2) able to correctly identify relevant species and their habitat, 3) professional experience conducting biological monitoring of relevant species or resources, and 4) familiarity with federal, state, and relevant local regulations related to special-status species.

- Clean clothing, footwear, and equipment used during treatments of soil, seeds, vegetative matter, or other debris or seed-bearing material, before entering the treatment area or when leaving an area with infestations of invasive plants, noxious weeds, or invasive wildlife;
- For all heavy equipment and vehicles traveling off road, pressure wash, if feasible, or otherwise appropriately decontaminate equipment at a designated weed-cleaning station prior to entering the treatment area. Anti-fungal wash agents will be specified if the equipment has been exposed to any pathogen that could affect native species;
- Track/document decontamination efforts for each piece of equipment or vehicle using a wash log with the date and service type (e.g., pressure wash, anti-fungal wash, other decomination solutions); the log will be stored in said vehicle or equipment and may be inspected by the qualified RPF, biologist, or biological technician prior to entering the treatment area;
- Inspect all heavy equipment, vehicles, tools, or other treatment-related materials for sand, mud, or other signs that weed seeds or propagules could be present prior to use in the work area. If the equipment is not clean, the equipment shall be denied entry to the treatment area;
- Stage equipment in areas free of invasive plant infestations unless there are no uninfested areas present within a reasonable proximity to the treatment area;
- Implement applicable BMPs outlined in the most current version of Cal-IPC's *Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers*.

- PDF-BIO-5: If PDF-BIO-1 determines that suitable habitat for special-status plant species is present in the treatment area and cannot be avoided, GSNR will require that the following actions be taken:
  - A qualified RPF or botanist will conduct protocol-level surveys for special-status plant species with the potential to be affected by a treatment project prior to initiation of the treatment. The survey will follow the most current and relevant agency survey protocols and guidelines for special-status plants (e.g., CDFW 2018, USFWS 2000, and CNPS 2001). The protocol surveys will be conducted in suitable habitat that could be affected by the treatment and timed to coincide with the blooming or other appropriate phenological period of the target species (as determined by a qualified RPF or botanist), or all species in the same genus as the target species will be assumed to be special-status.
  - If potentially occurring special-status plants are listed under CESA or FESA, protocol-level surveys of the listed species will be conducted in all circumstances, unless determined otherwise by CDFW or USFWS.
  - For other special-status plants not listed under CESA or FESA, surveys will not be required under the following circumstances:
    - If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the 5 years before implementation of the treatment project and no special-status plants were found, and no treatment activity has occurred following the protocol-level survey, treatment may proceed without additional plant surveys.
    - If the target special-status plant species is an herbaceous annual, stump-sprouting, or geophyte species, the treatment may be carried out during the dormant season for that species or when the species has completed its annual lifecycle without conducting surveys provided the treatment will not alter habitat or destroy seeds, stumps, or roots, rhizomes, bulbs and other underground parts in a way that would make it unsuitable for the target species to reestablish following treatment.
- PDF-BIO-6: GSNR will require that the following actions be taken if special-status plant species are observed in the work area:

- The RPF or botanist will delineate a no-disturbance buffer around the area occupied by special-status plants. The buffer will be a minimum of 50 feet from the special-status plants and marked with high-visibility flagging, fencing, stakes, or similar. The the size and shape of the buffer zone may be adjusted under the discretion of the qualified RPF or botanist. The appropriate buffer size will be determined based on the individual species' life history and vulnerability to disturbance, type and timing of treatment activities, environmental conditions, such as hydrology, topography, and anticipated changes to conditions from treatment activities (e.g., reduced canopy cover, edge effects, and potential introduction or spread of invasive plants).
- For treatment projects, if the buffer is reduced from 50 feet, a qualified RPF or botanist will provide a specific explanation for the reduction in the PSA (see PDF-BIO-1). If there is any deviation (e.g., further reduction) to the reduced buffer as explained in the PSA, this deviation and a science-based justification for the deviation will be documented in the post-project implementation report.
- For FESA or CESA listed plant species, if GSNR cannot avoid loss by implementing no-disturbance buffers, GSNR will implement MM-BIO-1.
    - The only exception to this approach is in cases where it is determined by a qualified RPF or biologist, in consultation with USFWS and/or CDFW, that the species would benefit from treatment in occupied habitat, even if some individual(s) may be lost during treatment activities. For a treatment to be considered beneficial to a given species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., citing scientific studies demonstrating that the species [or similar species] has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or reduction of inter-species competition). The substantial evidence will be included in the PSA (see PDF-BIO-1). If it is determined that treatment activities would be beneficial to a listed species, no compensatory mitigation will be needed.

- PDF-BIO-7: If PDF-BIO-1 determines that suitable habitat for special-status wildlife species or nurseries of any wildlife species is present and cannot be avoided by a treatment activity (either directly or indirectly), GSNR will require that a qualified RPF or biologist conduct focused or protocol-level surveys for special-status wildlife species or nursery sites (e.g., bat maternity roosts, deer fawning areas, heron or egret rookeries). The survey area will be determined by a qualified RPF or biologist based on the target species and habitats and any recommended buffer distances in agency protocols.

  The qualified RPF or biologist will determine if following an established protocol is required, and GSNR may consult with CDFW and/or USFWS for technical information regarding appropriate survey protocols. Unless otherwise specified in a protocol, the survey will be conducted no more than 14 days prior to the beginning of treatment activities. Focused or protocol-level surveys for a special-status wildlife species with a potential to occur in the treatment area may not be required if species presence is assumed.

- PDF-BIO-8: If feasible, GSNR will require that project activities be scheduled to avoid the active nesting season of common native bird species, including raptors, that could be present within or adjacent to the work area. The active nesting season will be defined by the qualified RPF or biologist based on the location of the feedstock operation or other project activity (e.g., wood pellet processing and transport to market) and the nesting season of the bird species potentially affected by the activity.

  If active nesting season avoidance is not feasible, and project activities will occur within the nesting season, a qualified RPF or biologist will conduct a survey for nesting birds (including raptors) and active nests. Surveys of nesting birds may be completed concurrent with other required surveys, provided the individual requirements of each survey are met.

The survey area will encompass reasonably accessible portion of the work area and nearby suitable nesting habitat viewable from the work area. The survey area will be determined by a qualified RPF or biologist, based on the species known to occur in the area, location of suitable nesting habitat, and expected project activities. The survey will be conducted at a time that balances the effectiveness of detecting nests and the reasonable consideration of potential avoidance strategies. Typically, this timeframe would be up to 2 weeks before project activities. Survey methods and timing will be tailored by the qualified RPF or biologist to the list of target bird species and site and habitat conditions, typically involving walking throughout the survey area, visually searching for nests and birds exhibiting breeding-type behavior (e.g., copulation, carrying nesting material, and delivering food).

If an active nest is observed (i.e., presence of eggs and/or chicks) or determined to likely be present based on breeding-type behavior, GSNR will implement a feasible strategy to avoid disturbance of active nests, which may include, but is not limited to, one or more of the following:

- **Establish Buffer.** GSNR will require that a species-appropriate no-disturbance buffer be established around the nest sufficient to reasonably expect that breeding would not be disrupted by project activities. Project activities will not be permitted within the buffer. The buffer location will be determined by a qualified RPF or biologist. Factors to be considered for determining buffer location will include: presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and expected project activities. No-disturbance buffers will be marked with high-visibility flagging, fencing, stakes, or similar, as well as maintained until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.
- **Modify Activity.** GSNR will require that the project activity in the vicinity of an active nest be modified to avoid disturbance of active nests. Activity modifications will be determined by GSNR in coordination with the qualified RPF, biologist, or biological technician.
- **Defer Activity.** GSNR will require that the timing of project activities in the portion(s) of the work area that could disturb the active nest be deferred. When this avoidance strategy is implemented, project activity will not commence until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.
- **Monitor During Activity.** A qualified RPF, biologist, or biological technician will monitor an active nest during project activities to identify signs of agitation, nest defense, or other behaviors that indicate potential nest disturbance. If nesting birds are showing signs of nest disturbance, one of the other avoidance strategies (establish buffer, modify or defer activity) will be implemented or a pause in the work area will occur until the disturbance behavior ceases.

The following avoidance strategy may also be considered together with or in lieu of other actions for implementation by GSNR to avoid disturbance to raptor nests:

- Trees with visible raptor nests, whether occupied or not, will be retained.

- PDF-BIO-9: GSNR will require that the following actions be taken if special-status wildlife species are observed during reconnaissance surveys (PDF-BIO-1), focused or protocol-level wildlife surveys (PDF-BIO-7) or nesting bird surveys (PDF-BIO-8):

California Fully Protected Species or Species Listed Under ESA or CESA:

- Injury or mortality of California Fully Protected Species is prohibited pursuant to Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code.
- GSNR will require that one of the following actions be taken to avoid mortality, injury, or disturbance of California Fully Protected Species or species listed under ESA or CESA:
  - Project activities will not be implemented within habitat occupied by California Fully Protected Species or species listed under ESA or CESA. Any project activities outside occupied habitat will be a sufficient distance from the occupied habitat such that mortality, injury, or disturbance of the species will not occur, as determined by a qualified RPF or biologist using the most current and commonly-accepted science and considering published agency guidance; OR
  - Project activities will be implemented outside the sensitive period of the species' life history (e.g., outside the breeding or nesting season). For species present year-round, CDFW and/or USFWS will be consulted to determine if there is a period of time within which project activities could occur that would avoid species mortality, injury, or disturbance.
- For species listed under ESA or CESA, if project activities cannot avoid mortality, injury or disturbance by taking one of the two actions listed above, GSNR will implement MM-BIO-2.
  - For treatment projects, the only exception to this approach is in cases where it is determined by a qualified RPF or biologist that the species would benefit from treatment activities in occupied habitat, even if some individual(s) may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to a given species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., citing scientific studies demonstrating that the species [or similar species] has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or reduction of inter-species competition). The substantial evidence will be included in the PSA (see PDF-BIO-1). If it is determined that treatment activities would be beneficial to a listed species, no compensatory mitigation will be needed. The qualified RPF or biologist will consult with CDFW and/or USFWS for technical information regarding the determination.

Other Special-Status Wildlife Species:

- GSNR will require that the following actions be taken to avoid mortality, injury, or disturbance of other special-status wildlife species:
  - For all project activities, GSNR will require that a no-disturbance buffer be established around occupied sites (e.g., nests, dens, roosts, burrows, nursery colonies). Buffer size will be determined by a qualified RPF or biologist using the most current, commonly accepted science and will consider published agency guidance. Factors to be considered in determining buffer size may include: the species' tolerance to disturbance; the presence of natural buffers provided by vegetation or topography; locations of foraging territory; baseline levels of noise and human activity; and expected project activity. Buffer size may be adjusted if the qualified RPF or biologist determines that such an adjustment would not be likely to adversely affect (i.e., cause mortality, injury, or disturbance to) the species within the occupied site.
  - No-disturbance buffers will be marked with high-visibility flagging, fencing, stakes, or similar. The no-disturbance buffer will be maintained until young fledge or the occupied site becomes inactive, as determined by the qualified RPF, biologist, or biological technician. A qualified RPF, biologist, or biological technician will monitor the effectiveness of the no-disturbance buffer during treatment. The

qualified RPF, biologist, or biological technician will have the authority to stop any project activities that could result in mortality, injury or disturbance to the occupied site, as well as increase the buffer distance if project activities are causing disturbance to to the occupied site (e.g., agitated behavior of special-status species).

- If any special status wildlife is encountered during treatment activities, the animal will be allowed to leave the treatment area unharmed and on its own accord.

- PDF-BIO-10: GSNR will require that one of the following actions be taken to maintain habitat function for special-status wildlife:

  - Concurrently with PDF-BIO-1, a qualified RPF or biologist will identify and demarcate any habitat features that are necessary for survival of the affected wildlife species (e.g., tree snags, trees cavities, dens, downed woody debris, foraging resources). Treatments will be designed to minimize or avoid the loss or degradation of the demarcated habitat features by incorporating life history and habitat requirements of the affected species and the most current, commonly accepted science.
  - If it is determined that special-status wildlife species with specific requirements for high canopy cover (e.g., marten, fisher, spotted owl) are present within a treatment area, then tree or shrub canopy cover within existing suitable areas will be retained at the percentage preferred by the species (as determined by the qualified RPF or biologist based on the most current, commonly accepted science for the affected species) such that habitat function is maintained.
    - For wildlife species listed under FESA and/or CESA, the qualified RPF or biologist will consult with CDFW and/or USFWS regarding the determination that habitat function is maintained. If consultation determines that habitat function will be maintained and the impact on special-status wildlife would be less than significant, no further mitigation will be required. If consultation determines that the treatment will not maintain habitat function, GSNR will implement MM-BIO-2 to reduce the residial effects of treatment on special-status wildlife to less than significant under CEQA.
    - For other special-status wildlife species, the qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding habitat function. If technical information suggests that habitat function will be maintained and the impact on special-status wildlife would be less than significant, no further mitigation will be required. If technical information suggests that the treatment will not maintain habitat function, GSNR will implement MM-BIO-2 to reduce the residial effects of treatment on special-status wildlife to less than significant under CEQA.
      - For treatment projects, the only exception to this approach is in cases where it is determined by a qualified RPF or biologist that the species would benefit from treatment in occupied habitat, even if some individual(s) may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to a given species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., citing scientific studies demonstrating that the species [or similar species] has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or reduction of inter-species competition). The substantial evidence will be included in the PSA (see PDF-BIO-1). If it is determined that treatment activities would be beneficial to a non-listed special-status species, no compensatory mitigation will be needed. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding the determination.

- PDF-BIO-11: If special-status bumble bees are identified as occurring or having potential to occur in the treatment area during implementation of PDF-BIO-1, GSNR will require that the following actions be taken:
  - Concurrently with PDF-BIO-1, a qualified RPF or biologist will identify and demarcate any habitat features that are necessary for survival of the affected species (e.g., hot plant species, foraging resources, and refugia). Treatments will be designed to minimize or avoid the loss or degradation of the demarcated habitat features by incorporating life history and habitat requirements of the affected species and the most current, commonly accepted science.
  - Treatment areas within occupied or suitable habitat will be divided into a sufficient number of treatment units to avoid treating the entire habitat within a single year. In addition, treatment activities within occupied or suitable habitat will be conducted in a patchy pattern as feasible. This approach aims to provide continued shelter to special-status bumble bees during treatment and temporarily preserve nearby floral resources.
  - A qualified RPF or biologist knowledgeable of the affected species will review the treatment design to reduce any residual effects of the treatment that could be significant under CEQA. If technical information suggests that habitat function will be maintained and the impact on special-status bumble bees would be less than significant, no further action will be required. If technical information suggests that the treatment will not maintain habitat function, GSNR will implement MM-BIO-2 to reduce the residual effects of treatment on special- status bumble bees to less than significant under CEQA.
    - The only exception to this approach is in cases where it is determined by a qualified RPF or biologist that the species would benefit from treatment in occupied habitat, even if some individual(s) may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to a given species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., citing scientific studies demonstrating that the species [or similar species] has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or reduction of inter-species competition). The substantial evidence will be included in the PSA (see PDF-BIO-1). If it is determined that treatment activities would be beneficial to a given species, no compensatory mitigation will be needed. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding the determination.

- PDF-BIO-12: If PDF-BIO-1 determines that a sensitive natural community or other sensitive habitat may be present in the treatment area, GSNR will:
  - Require a qualified RPF, biologist, or botanist perform a protocol-level survey, following the most current CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*, of the treatment area prior to the start of treatment activities for sensitive natural communities and other sensitive habitats. Sensitive natural communities and other sensitive habitats will be identified and keyed using the best scientific resources and data available, including the most current edition of *A Manual of California Vegetation* (http://vegetation.cnps.org/) or other relevant reports. The limits of these communities or habitats identified in the treatment area will be mapped and recorded digitally using a Global Positioning System (GPS), and GSNR will design treatments to avoid these delineated areas.
  - Require that before implementation of treatment activities, all sensitive natural communities or other sensitive habitat identified during the above surveys will be delineated as an environmentally sensitive area with brightly visible construction flagging and/or fencing under the direction of the qualified RPF,

biologist, or botanist. No treatment activities will be allowed within the environmentally sensitive area, including foot traffic to prevent inadvertant crushing of plants or spreading invasive or non-native species. The qualified RPF, biologist, botanist, or biological technician will routinely inspect the integrity of exclusion fencing/flagging throughout the treatment period.

- If GSNR determines that avoidance of a sensitive natural community or other sensitive habitat is not infeasible, a qualified RPF, biologist, or botanist will review the treatment design to reduce any residual effects of the treatment (i.e., habitat functions not maintained) that could be significant under CEQA. If it is determined that the impact would be less than significant, no additional action will be required. If it is determined that the impact would be significant under CEQA, even after implementing feasible treatment design alternatives and impact minimization measures, then GSNR will implement MM-BIO-3.
    - The only exception to this mitigation approach is when a qualified RPF, biologist, or botanist determines that treatment in the occupied area would be beneficial to a sensitive natural community or other sensitive habitat, even if there is some loss during the treatment. To be considered beneficial, the qualified individual must show that the habitat is likely to improve after the treatment, leading to expansion, regeneration, or increased vigor. This can be supported by scientific studies indicating benefits such as increased sunlight due to canopy opening, invasive species eradication, or reduced resource competition. These findings will be documented in a report to GSNR. If treatment is deemed beneficial, no compensatory mitigation will be needed.

- PDF-BIO-13: If potentially jurisdictional aquatic resources are identified in the treatment area during implementation of PDF-BIO-1, GSNR will require that the following actions be taken:
    - The qualified RPF or biologist will delineate the boundaries of aquatic resources in accordance with the most current published agency guidance at the time of the delineation (e.g., USACE 1987; USACE 2008; USACE 2010; SWRCB 2021) pursuant to Section 404 of the federal Clean Water Act, Section 401 of the federal Clean Water Act and the Porter-Cologne Act; and California Fish and Game Code. If there are aquatic resources delineated within 75 feet of the treatment area, the resource boundaries will be verified by the USACE by submitting a Aquatic Resources Delineation Report and *Request for Aquatic Resources Delineation Verification or Jurisdictional Determination* form to the appropriate USACE district office.
    - A qualified RPF or biologist will delineate an no-disturbance buffer around each aquatic resources within the treatment area. The buffer will be a minimum width of 25 feet or larger if necessary. The buffer will be installed using high-visibility flagging, fencing, stakes, or similar in coordination with the qualified RFP or biologist. The size and shape of the buffer will depend on the type of aquatic resource present, type and timing of treatment activities, special-status species occupancy, and environmental conditions and topography.
    - A qualified RPF, biologist, or biological technician will periodically inspect the condition and visibility of the no-disturbance buffer(s) and to confirm that impacts to the resource(s) are being avoided.
    - No soil disturbance, vehicle and equipment staging or acess, or any other ground-disturbing activitites will be allowed within the no-disturbance buffer.

Geology and Soils

- PDF-GEO-1: GSNR will require that mechanical treatments be suspended if the National Weather Service forecast is a “chance” (30 percent or more) of rain within the next 24 hours during the Winter Period. Activities that cause mechanical soil disturbance may resume when precipitation stops and soils

are no longer saturated (i.e., when soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur). Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials.

- PDF-GEO-2: New road construction and road maintenance activities in areas with slopes in excess of 50% (27 degrees) shall be completed under the guidance of a licensed geologist (P.G. or C.E.G.) or geotechnical engineer (G.E) . Prior to and during road construction or maintenance, a CEG shall evaluate the road route based on the presence of existing landslides, bedrock type, bedding orientation, steepness of slope, and drainage pathways (proposed and existing). In the event areas of potential slope instability are identified, slope stability remedial measures shall be employed to prevent slope instability from occurring. Remedial measures shall include, but not be limited to:
  - Installation of surface and subsurface drainage culverts, water diversion features, and drain holes;
  - Sloping the road inward toward the hillside;
  - Installation of erosion control blankets, soil binders, and wire mesh to stabilize the hillside;
  - Scaling (i.e., removing loose or potentially unstable material/rocks);
  - Installing ground anchors/rock bolts;
  - Reducing/flattening the slope angle; and
  - Installing rock trap devices at the toe of slopes.

- PDF-GEO-3: A Storm Water Pollution Prevention Plan (SWPPP) or equivalent document shall be prepared for the project specifically to address new road construction and existing road maintenance. The SWPPP or equivalent shall include sediment control and erosion control Best Management Practices (BMPs) to minimize erosion induced sedimentation of downslope water bodies, including creeks, wetlands, lakes, and reservoirs. A Qualified SWPPP Practitioner (QSP) and/or delegated monitor shall inspect the road work, as set forth in the California Construction General Permit requirements. As the project progresses, the SWPPP shall be modified and amended to reflect modifications to stormwater control measures, as construction/maintenance conditions change. The SWPPP or equivalent shall be kept on-site and amended to reflect the current site conditions until final stabilization is met. If field circumstances do not allow the SWPPP to remain on-site, the QSP shall retain the hard copy SWPPP or equivalent, which will be made available upon request to federal, state, or county inspectors. Erosion control measures on federal lands shall be implemented in accordance with the 2011 Forest Service Region 5 Water Quality Management Handbook 2509.22, Chapter 10 (U.S. Forest Service 2011) and the National Best Management Practices for Water Quality Management on National Forest System Lands, National Core BMP Technical Guide (USDA Forest Service 2012b). Erosion control measures on non-federal lands shall be implemented in accordance with the 2020 California Forest Practice Rules (California Licensed Timber Operators and California Registered Professional Foresters (2020). Existing compacted road surfaces with no maintenance required are exempted as they are already compacted from use.

  Erosion prevention and control measures to be included in the SWPPP or equivalent shall include, but not be limited to:

  - Sidecast deposits, which are loose sediments created during road construction/maintenance and pushed over the downslope side of the road, shall be minimized to prevent downstream sedimentation

of water bodies and prevent mass wasting events during periods of heavy precipitation. Alternatively, a compacted berm shall be created with residual sediments along the downslope edge of the road, to prevent stormwater runoff from overtopping the road and eroding downslope sediments.

- Road construction and maintenance shall be completed such that stormwater drainage is controlled to prevent soil erosion. Drainage controls shall include measures described in PDF-GEO-2 regarding slope stability.
- Erosion control fabric, straw wattles, and soil binders shall be used on exposed areas of soil adjacent to roadways until vegetation can be reestablished.
- Road construction/maintenance shall be suspended during periods of heavy precipitation. Activities shall resume when precipitation ends and soils are no longer saturated (i.e., when soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur). Indicators of saturated soil conditions may include, but are not limited to: 1) areas of ponded water, 2) pumping of fines from the soil or road surfacing, 3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, 4) spinning or churning of wheels or tracks that produces a wet slurry, or 5) inadequate traction without blading wet soil or surface materials.
- GSNR shall require that road construction and maintenance areas be inspected for proper implementation of erosion control features prior to the rainy season. If erosion control measures are not properly implemented, they will be remediated prior to the first rainfall event. Additionally, GSNR shall require an inspection for evidence of erosion after the first large storm or rainfall event (i.e., greater than 1.5 inches in 24 hours), as soon as is feasible after the event. Any areas of erosion that will result in substantial sediment discharge shall be remediated within 48 hours.

- PDF-GEO-4: A SWPPP or equivalent document shall be prepared for the project specifically to address wildfire fuel reduction operations. Erosion prevention and control measures to be included in the SWPPP or equivalent shall include, but not be limited to:
  - Slopes steeper than 75% (37 degrees) shall be avoided to minimize soil erosion following soil disturbance.
  - Limit skidding with rubber-tired or fixed track equipment to slopes less than 35%; limit low ground pressure tracked equipment (e.g., traditional feller buncher) to less than 45%; and limit heel-boom loaders / shovel yarding to less than 40% unless otherwise approved by a licensed geologist (P.G. or C.E.G.) or geotechnical engineer (G.E). .
  - Skyline and/or noise yarding shall be used on slopes in excess of 45%, but less than 75%, to minimize soil erosion following soil disturbance.
  - High ground pressure vehicles shall be limited in treatment areas. GSNR will limit heavy equipment that could cause soil disturbance or compaction to be driven through treatment areas when soils are wet and saturated to avoid compaction and/or damage to soil structure. Saturated soil means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. If use of heavy equipment is required in saturated areas, other measures such as operating on organic debris, using low ground pressure vehicles, operating on frozen soils/snow covered soils, or use of small specialty skyline yarding equipment, shall be implemented to minimize soil disturbance. Existing compacted road surfaces are exempted as they are already compacted from use.
  - Newly created bare soil shall be stabilized with mulch or equivalent as soon as practicable after treatment activities and before October 15, to minimize the potential for substantial sediment discharge. Organic material shall be incorporated onto at least 75% of the disturbed soil where the soil

erosion hazard is moderate or high, and 50% of the disturbed soil where soil erosion hazard is low, to help prevent erosion. Where slash mulch is used, it shall be packed into the ground surface with heavy equipment so that it is sufficiently in contact with the soil surface.

- PDF-GEO-5: GSNR will require drainage of compacted and/or bare linear treatment areas capable of generating storm runoff via water breaks using the spacing and erosion control guidelines contained in Sections 914.6, 934.6, and 954.6(c) of the California Forest Practice Rules or equivalent Best Management Practices adopted by the United States Forest Service or other federal land management agency or state agency with jurisdiction. Where waterbreaks cannot effectively disperse surface runoff, including where waterbreaks cause surface run-off to be concentrated on downslopes, other erosion controls will be installed as needed to maintain site productivity by minimizing soil loss.
- PDF-GEO-6: GSNR will require that a Registered Professional Forester (RPF) or licensed geologist (P.G. or C.E.G.) or geotechnical engineer (G.E) evaluate treatment areas with slopes greater than 50 percent for unstable areas (areas with potential for landslide) and unstable soils (soil with moderate to high erosion hazard). If unstable areas or soils are identified within the treatment area, are unavoidable, and will be potentially directly or indirectly affected by the treatment, a licensed geologist (P.G. or C.E.G.) or geotechnical engineer (G.E) will determine the potential for landslide, erosion, of other issue related to unstable soils and identify measures that will be implemented by GSNR such that substantial erosion or loss of topsoil would not occur.

Hazards

- PDF-HAZ-1: GSNR will require that all diesel- and gasoline-powered equipment be maintained per manufacturer's specifications, and in compliance with all state and federal emissions requirements. Maintenance records will be available for verification. Prior to the start of treatment activities, all equipment will be inspected for leaks and inspected everyday thereafter until equipment is removed from the site. Any equipment found leaking will be promptly removed.
- PDF-HAZ-2: GSNR will require mechanized hand tools to have federal- or state-approved spark arrestors.
- PDF-HAZ-3: GSNR will require tree cutting crews to carry one fire extinguisher per chainsaw. Each vehicle would be equipped with one long-handled shovel and one axe or Pulaski consistent with PRC Section 4428.
- PDF-HAZ-4: GSNR will require that smoking is only permitted in designated smoking areas barren or cleared to mineral soil at least 3 feet in diameter.
- PDF-HAZ-5: Prior to the start of vegetation treatment activities requiring soil disturbance (i.e., mechanical treatments), GSNR will make reasonable efforts to check with the landowner or other entity with jurisdiction (e.g., United States Forest Service, California Department of Parks and Recreation, etc.) to determine if there are any sites known to have previously used, stored, or disposed of hazardous materials. If it is determined that hazardous materials sites could be located within the boundary of a treatment site, GSNR will conduct a DTSC EnviroStor web search (https://www.envirostor.dtsc.ca.gov/public/) and consult DTSC's Cortese List to identify any known contamination sites within the project site. If a proposed mechanical treatment is located on a site included on the DTSC Cortese List as containing potential soil contamination that has not been cleaned up and deemed closed by DTSC, the area will be marked and no or soil disturbing treatment activities will occur within 100 feet of the site boundaries. If it is determined through coordination with landowners or after review of the Cortese List that no potential or known contamination is located on a project site, the project may proceed as planned.

Hydrology and Water Quality

- PDF-HYDRO-1: GSNR shall require that proposed vegetation treatments be conducted in conformance with appropriate RWQCB timber, vegetation and land disturbance related Waste Discharge Requirements (WDRs) and/or related Conditional Waivers of Waste Discharge Requirements (Waivers), and appropriate Basin Plan Prohibitions. Where these regulatory requirements differ, the most restrictive will apply. If applicable, this includes compliance with the conditions of general waste discharge requirements (GWDR) and waste discharge requirement waivers for timber or silviculture activities where these waivers are designed to apply to non-commercial fuel reduction and forest health projects. In general, GWDR and Waivers of waste discharge requirements for fuel reduction and forest health activities require that wastes, including but not limited to petroleum products, soil, silt, sand, clay, rock, felled trees, slash, sawdust, bark, ash, and pesticides must not be discharged to surface waters or placed where it may be carried into surface waters; and that Water Board staff must be allowed reasonable access to the property in order to determine compliance with the waiver conditions.
- PDF-HYDRO-2: GSNR shall require that cumulative watershed effects (CWE) analysis be performed for proposed treatment areas prior to implementing proposed treatments to ensure cumulative effects are below the threshold of concern. CWE analysis shall meet or exceed the standards set forth in Technical Rule Addendum No 2 "Cumulative Impacts Assessment Guidelines" in the 2023 California Forest Practice Rules, and shall include evaluation of sediment, water temperature, organic debris, chemical contamination, peak flow, soil productivity effects.
- PDF-HYDRO-3: GSNR will require that Watercourse and Lake Protection Zones (WLPZs) be established on either side of watercourses as defined in the table below, which is based on 14 CCR Section 916 .5 of the California Forest Practice Rules (February 2019 version). WLPZ's are classified based on the uses of the stream and the presence of aquatic life. Wider WLPZs are required for steep slopes.

Procedures for Determining Watercourse and Lake Protection Zone (WLPZ) widths

Water Class	Class I	Class II	Class III	Class IV
Water Class Characteristics or Key Indicator Beneficial Use	1) Domestic supplies, including springs, on site and/or within 100 feet downstream of the operations area and/or 2) Fish always or seasonally present onsite, includes habitat to sustain fish migration and spawning.	1) Fish always or seasonally present offsite within 1000 feet downstream and/or 2) Aquatic habitat for nonfish aquatic species. 3) Excludes Class III waters that are tributary to Class I waters.	No aquatic life present, watercourse showing evidence of being capable of sediment transport to Class I and II waters under normal high-water flow conditions after completion of timber operations.	Man-made watercourses, usually downstream, established domestic, agricultural, hydroelectric supply or other beneficial use.
WLPZ Width (ft) – Distance from top of bank to the edge of the protection zone				
< 30 % Slope	75	75	Sufficient to prevent the degradation of downstream beneficial uses of water. Determined on a site-specific basis, but not less than 75 ft.	
30-50 % Slope	100	75		
>50 % Slope	150	100		

The following WLPZ protections will be applied for all treatments:

- Treatment activities within WLPZs (where permitted in accordance with the General Limitations above) will retain at least 75 percent surface cover and undisturbed area to act as a filter strip for raindrop energy dissipation and for wildlife habitat. If this percentage is reduced, a qualified RPF will provide a site- and/or treatment activity-specific explanation for the percent surface cover reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced percent as explained in the PSA, this will be documented in the post-project implementation report.
- Treatments will be limited to removal of uncharacteristic fuel loads (e.g., removing dead or dying vegetation), trimming/limbing of woody species as necessary to reduce ladder fuels, and select thinning of vegetation to restore densities that are characteristic of healthy stands of the riparian vegetation types characteristic of the region. This includes hand removal (or mechanized removal where topography allows) of dead or dying riparian trees and shrubs, invasive plant removal, selective thinning, and removal of encroaching upland species.
- Removed trees will be felled away from adjacent streams or waterbodies and piled outside of the riparian vegetation zone (unless there is an ecological reason to do otherwise that is approved by applicable regulatory agencies, such as adding large woody material to a stream to enhance fish habitat, e.g., see *Accelerated Wood Recruitment and Timber Operations: Process Guidance from the California Timber Harvest Review Team Agencies and National Marine Fisheries Service*).
- Vegetation removal that could reduce stream shading and increase stream temperatures will be avoided.
- Equipment, including tractors and vehicles, must not be driven in wet areas or WLPZs, except over existing roads or watercourse crossings where vehicle tires or tracks remain dry.
- Equipment used in vegetation removal operations will not be serviced in WLPZs, within wet meadows or other wet areas, or in locations that would allow grease, oil, or fuel to pass into lakes, watercourses, or wet areas.
- WLPZs will be kept free of slash, debris, and other material that harm the beneficial uses of water. Accidental deposits will be removed immediately.
- Within Class I and Class II WLPZs, locations where project operations expose a continuous area of mineral soil 800 square feet or larger shall be treated for reduction of soil loss. Treatment shall occur prior to October 15th and disturbances that are created after October 15th shall be treated within 10 days. Stabilization measures shall be selected that will prevent significant movement of soil into water bodies and may include but are not limited to mulching, rip-rap, grass seeding, or chemical soil stabilizers.

  Where mineral soil has been exposed by project operations on approaches to watercourse crossings of Class I, II, or III within a WLPZ, the disturbed area shall be stabilized to the extent necessary to prevent the discharge of soil into watercourses or lakes in amounts that would adversely affect the quality and beneficial uses of the watercourse.

  Where necessary to protect beneficial uses of water from project operations, protection measures such as seeding, mulching, or replanting shall be used to retain and improve the natural ability of the ground cover within the WLPZ to filter sediment, minimize soil erosion, and stabilize banks of watercourses and lakes.

- Equipment limitation zones (ELZs) will be designated adjacent to Class III and Class IV watercourses with minimum widths of 25 feet where side-slope is less than 30 percent and 50 feet where side-slope is 30 percent or greater. An RPF will describe the limitations of heavy equipment within the ELZ and, where appropriate, will include additional measures to protect the beneficial uses of water.

Noise

- PDF-NOI-1: GSNR will require that operation of heavy equipment associated with treatment activities (heavy off-road equipment, tools, and delivery of equipment and materials) will occur during daytime hours if such noise would be audible to receptors (e.g., residential land uses, schools, hospitals, places of worship). Cities and counties in the treatable landscape typically restrict construction-noise (which would apply to vegetation treatment noise) to particular daytime hours. If treatment activity is subject to local noise ordinance, it will adhere to those to the extent the project is subject to them. If the applicable jurisdiction does not have a noise ordinance or policy restricting the time-of-day when noise-generating activity can occur noise-generating vegetation treatment activity will be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday and federal holidays. If the treatment activity is not subject to local ordinances, it will adhere to the restrictions stated above or may elect to adhere to the restrictions identified by the local ordinance encompassing the treatment area.
- PDF-NOI-2: GSNR will require that all powered treatment equipment and power tools will be used and maintained according to manufacturer specifications. All diesel- and gasoline-powered treatment equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.
- PDF-NOI-3: GSNR will require that engine shrouds be closed during equipment operation.
- PDF-NOI-4: GSNR will require that treatment activities, equipment, and equipment staging areas be located away from nearby noise-sensitive land uses (e.g., residential land uses, schools, hospitals, places of worship), to the extent feasible, to minimize noise exposure.
- PDF-NOI-5: GSNR will require that all motorized equipment be shut down when not in use. Idling of equipment and haul trucks will be limited to 5 minutes.
- PDF-NOI-6: For treatment activities utilizing heavy equipment, GSNR will require notification of noise-sensitive receptors (e.g., residential land uses, schools, hospitals, places of worship) located within 1,500 feet of the treatment activity. Notification will include anticipated dates and hours during which treatment activities are anticipated to occur and contact information, including a daytime telephone number, of the project representative. Recommendations to assist noise-sensitive land uses in reducing interior noise levels (e.g., closing windows and doors) will also be included in the notification.

Recreation

- PDF-REC-1: If a treatment activity would require temporary closure of a public recreation area or facility, GSNR will coordinate with the owner/manager of that recreation area or facility. If temporary closure of a recreation area or facility is required, GSNR will work with the owner/manager to post notifications of the closure at least 2 weeks prior to the commencement of the treatment activities. Additionally, notification of the treatment activity will be provided to the Administrative Officer (or equivalent official responsible for distribution of public information) of the county(ies) in which the affected recreation area or facility is located.
- PDF-REC-2: For operations occurring on public lands, GSNR shall require utilization of signage and coordination with local user groups where appropriate to redirect recreation activities to safe areas during project implementation, a minimum of one week prior to treatment activities beginning at or directly adjacent to recreation sites.
- PDF-REC-3: GSNR shall require protection, repair, and restoration of any unintended damage to recreation site infrastructure (e.g., dispersed sites, trailheads, signs) caused by the project activities to pre-work conditions.

Transportation

- PDF-TRF-1: Prior to initiating vegetation treatment activities, GSNR will work with the agency(ies) with jurisdiction over affected roadways to determine if a Traffic Management Plan (TMP) is needed. A TMP will be needed if traffic generated by the project would result in obstructions, hazards, or delays exceeding applicable jurisdictional standards along access routes for individual vegetation treatments. If needed, a TMP will be prepared to provide measures to reduce potential traffic obstructions, hazards, and service level degradation along affected roadway facilities in accordance with applicable jurisdictional standards..

2.4.3 "Mill Residuals"

Subject to the constraints set forth in this section, GSNR will procure and utilize residual biomass material resulting from by-products of commercial lumbermills and similar forest products processing facilities operated by third-parties unaffiliated with GSNR. Such mill residuals generally consist of secondary, residual materials generated from forest products manufacturing, including, but not limited to, sawdust, wood chips, shavings, bark, sanderdust, and trimmings, regardless of the source of primary materials. As with Harvest Residuals, the harvest activities and subsequent processing that generates Mill Residuals would occur regardless of GSNR's proposed project.

GSNR's activities to obtain Mill Residual feedstock consist of the transportation of feedstock from the originating forest products facility to GSNR's wood pellet production facility. Mill Residuals are typically delivered by wholly-owned or contracted commercial trucks and trailers controlled by the forest products facility. The originating facility usually retains ownership of the material during transport, with title passing to GSNR upon delivery and acceptance at GSNR's facility. GSNR may alternatively contract directly with commercial trucking firms to pick up and haul Mill Residuals from a particular forest product facility to GSNR's facility. Mill Residuals are anticipated to provide approximately 1 percent of the total feedstock utilized at both the proposed Lassen and Tuolumne facilities. GSNR's procurement of Mill Residuals will be subject to all of the following constraints:

- GSNR will accept mill residuals only from facilities holding applicable state and/or local permits as a commercial lumbermill and similar forest products processing facility.
- All sources of mill residuals must be approved and under contract with GSNR prior to delivery of feedstock to GSNR. The contract shall expressly require compliance with the provisions of this section and shall prescribe remedies for violation.
- Each source of mill residuals must submit a certification under penalty of perjury that the mill residuals resulted from operations conducted within the scope and boundaries of, and in compliance with, one or more approved environmental documents (i.e., CEQA, NEPA, or Timber Harvest Plan document, or sister state equivalent), and otherwise in compliance with the provisions of this section. GSNR and GSFA shall be provided with copies of all such environmental documents upon request.
- All Mill Residuals shall conform to the certification requirements of the Sustainable Biomass Program (SBP), and comply with one or more of the following chain of custody programs (selected by GSNR and approved by GSFA):
  - Forest Stewardship Council (FSC);
  - Sustainable Forest Initiative (SFI); or
  - Programme for the Endorsement of Forest Certification (PEFC)

- GSNR shall perform, or cause to be performed, all audits and inspections required as a condition of certification under the above-described programs. Each source of mill residuals must agree to cooperate with such audits or inspections.
- To ensure compliance with the requirements of the above-described programs, each source of mill residuals must submit a certification under penalty of perjury that the mill residuals are not derived from any of the following:
  - Activities not complying with applicable local, national or international legislation on forest management, including but not limited to forest management practices; nature and environmental protection; protected and endangered species; property, tenure and land-use rights for indigenous peoples, local communities or other affected stakeholders; health, labor and safety issues; anti-corruption and the payment of applicable royalties and taxes.
  - Activities where the capability of forests to produce a range of wood and non-wood forest products and services on a sustainable basis is not maintained or harvesting levels exceed a rate that can be sustained in the long term.
  - Activities where forest management does not contribute to the long-term maintenance, conservation or enhancement of biodiversity on landscape, ecosystem, species or genetic levels.
  - Activities where ecologically important forest areas are not identified, protected, conserved or set aside.
  - Activities where the spirit of the International Labour Organization Declaration on Fundamental Principles and Rights at Work (1998) is not met.
  - Activities where the spirit of the United Nations Declaration on the Rights of Indigenous Peoples (2007) is not met.
  - Timber that has been traded at some point in the chain of custody by armed groups or by a civilian administration involved in armed conflict or its representatives, either to perpetuate conflict or take advantage of conflict situations for personal gain ("Conflict timber").
  - Genetically modified trees.
- Mill Residuals will be delivered to GSNR's facilities in trucks and trailers that are licensed, fully insured, in good working order, and conform to all applicable local and state laws and regulations, including on-highway weight limits and emission controls.
- Each delivery of feedstock material to GSNR shall be accompanied by chain of custody documentation as specified by the Executive Director of Golden State Finance Authority or their designee. GSNR shall employ, or cause to be employed, trained staff responsible for accepting feedstock deliveries to review this documentation and ensure compliance with this section.

2.5 Northern California (Lassen) Facility

2.5.1 Location

The proposed Lassen wood pellet processing site is located in Nubieber, California (Lassen County), approximately 3 miles southwest of the census-designated place of Bieber in northwestern Lassen County (see Figure 2-3, Project Location (Lassen)). The Lassen site is located at 653-800 Washington Avenue, Nubieber, California. The production facilities would be located on a parcel approximately 65 acres in size, Assessor's Parcel Number (APN) 001-270-086. Log decking (storage) would occur on approximately 51 acres of the ~225-acre property immediately south of the production site (APNs 001-270-26, 001-270-29, and 013-040-13) (the "woodyard"). The project site is situated

in Township 38 North, Range 7 East, and Sections 28 and 33 of the U.S. Geological Survey Bieber, California 7.5-minute quadrangle. Elevation on the Lassen site is approximately 4,120 feet above mean sea level.

The Lassen location was formerly part of a wood processing sawmill. The buildings from the prior use are located north of the project site, and were separated from the main parcel through a lot line adjustment. The Burlington Northern Santa Fe (BNSF) Railroad forms the eastern boundary of the site. An agricultural chemical company (Helena Agri-Business) and scattered residences are located to the north and west of the site, and to the east of the woodyard property. Agricultural land is located to the east and south. Most of the lands adjacent to the site are under Williamson Act contracts. Primary access to the site is from Babcock Road, which connects to State Route 299.

2.5.2 Existing Conditions

The Lassen site is shown in Figure 2-4, Project Site (Lassen). The northern portion of the project site (north of Babcock Road) was previously part of a sawmill operation, and is currently used to load wood products onto railcars. The site includes railroad siding, a gravel pad, internal roadways, a well pump house and water tower. The water tower is 102 feet tall.

The southern portion of the project site (south of Babcock Road) is undeveloped, consisting of non-native grassland with a mix of annual grasses and forbs.

The project site contains several seasonal wetlands (see Figure 3.3-4). These features collect water seasonally and are discernible from the adjacent upland areas by a distinct change in vegetation. Sic unlined ditches are located throughout the project site. These are unlined, earthen water conveyance systems that were constructed in upland habitat and exhibit a mild break in slope and change in vegetation. Ditches within the project site are generally 5 to 6 feet wide at the top of bank and have an ordinary high water mark width of 1 to 2 feet.

The project site is located within a 100-year floodplain. Therefore, finished grade of structures would need to be above base flood elevation.

The northerly parcel, on which the production facility would be located, is zoned A-1 (General Agriculture District), which is described in Chapter 18.16 of the Lassen County Ordinance Code and is classified as Town Center by the Lassen County General Plan (Lassen County 1999). The southerly parcels, which would be used for feedstock storage, are zoned E-A-A-P (Exclusive Agricultural District – Agricultural Preserve Combining District), described in Chapters 18.66 and 18.82 of the Lassen County Ordinance Code, and is classified as Intensive Agriculture by the General Plan.

2.5.3 Wood Pellet Facility Components

The proposed project would include the construction and operation of a new wood pellet production facility, including a woodyard, green processing area, drying area, pellet mill, project storage, and loadout area. New internal roads for truck access and facility personnel access will be added, including a new road for truck access from Babcock Road at the southwest corner of the site. A new rail spur connecting to the adjacent BNSF Railway line would be added for finished product load out as well as additional rail siding tracks on-site for the storage of full and empty railcars. Other improvements would include new truck scales and a graded area for overflow raw material storage. The proposed site layout showing new project components is included in Figure 2-5, Project Site Plan (Lassen). These project components are also described in further detail below.

The stacker reclaimer, located on the southern end of the site (farther from the highway) would be the tallest structure on site, at 112 feet. Facility buildings would be 40 to 65 feet in height.

The proposed project would consist of several individual facility components to produce the wood pellet product, listed in chronological order (by way of process) and described below. The process flow, including each facility component and its role in the wood pellet production process, is also depicted in Figure 2-6, Process Flow Chart.

Feedstock Receiving

The facility would be designed to produce 700,000 metric tons (MT) per year of industrial wood pellets. To produce this amount of pellets, a higher ratio of green material must be received, to account for drying and for material used in the drying process. The annual green feedstock volume required for this facility is approximately 1,183,890 metric tons, or 1,305,015 US tons .

The proposed wood pellet production facility would receive feedstock in two primary forms: roundwood and residual chips. Roundwood would be delivered to the facility by logging trucks and stored in the woodyard until processed into chips. Residual chips would be delivered in trucks and received using automatic back-on truck dumps. The residuals stream would be made up of chips and small amounts of sawdust. Both feedstock streams would be screened for oversized pieces and would be conveyed to a stacker reclaimer to pile the bulk material for storage.

The proposed project would receive feedstock and biomass fuel consistent with the specifications listed in Table 2-1.

Table 2-1. Feedstock Specifications

Form of Feedstock Received (Annual Percentage By Weight)	
Chips (including Sawdust)	71%
Roundwood	29%
Roundwood (As Received)	
Biomass Length	8 feet to 50 feet
Biomass Diameter	3 inches to 40 inches
Moisture Content	35 - 50%
Bark Content	Up to 12%
Required Capacity	41.2 MT/hour[a]
Residual Chips (As Received)	
Chip Size Distribution (Assumed)	—
> 4 inches	4%
3/8 inches to 4 inches	90%
< 3/8 inches	6%
Chip Moisture Content	35%
Sawdust Moisture Content	50% to 55%
Required Capacity	106.0 MT/hour
Biomass Fuel[b] (As Received)	
Max Particle Size	6 inches
Moisture Content	15% to 40%

Notes:

[a] MT/hour = metric tons per hour.

[b] Biomass fuel refers to miscellaneous waste debris, bark, and other organic matter generated from commercial forestry and forest products operations.

Woodyard

When roundwood feedstock is ready to be processed in the woodyard, a loader would collect roundwood from the storage piles and transfer the logs for processing through a debarker and chipper. The woodyard would also receive the sawmill residuals and forest slash, and these smaller materials would be received by new automated back-on truck dumpers and screened based on particle size. Any material that is grossly out of spec would be rejected through a screening process and used as fuel for biomass furnaces. The processed chips and the residuals would be conveyed to a stacker reclaimer with a capacity of 4,000,000 cubic feet for storage. Biomass fuel and bark from the debarking drum would be conveyed to a storage pile for use as fuel for the dryer. A prefabricated electrical room dedicated to the woodyard equipment would also be installed.

Green Materials Processing

Raw material (green chips) from the woodyard would be conveyed from the stacker reclaimer to the green processing area. The material would be screened based on particle size and all in-spec chips would continue to the dryer. The material that is too large to pass through the screens would be directed to an array of green hammer mills to be reduced to the appropriate size and then conveyed to the dryer.

Drying and Dry Processing

The drying area would consist of a dryer island complete with drum dryer, furnace, air systems, and emissions control. The dryer would use heat from a biomass-fired furnace to reduce the moisture content of the wood chips to approximately 10%, a level suitable for pellet production. Dried material would be conveyed from the dryer to the dry processing area. The material would be screened based on particle size, and all in-spec chips would continue to the pellet mill. The material that does not pass through the screens would be directed to an array of dry hammer mills to be reduced to the appropriate size and then conveyed to the pellet mill.

Pellet Mill

Dried wood chips would arrive at the pellet mill and would be distributed to an array of pellet lines consisting of a conditioning bin, pelletizer, and pellet cooler. The conditioning bin would meter material into the mills to be formed into pellets. After cooling, the pellets would pass through a final screen to ensure that specifications have been met. At full design capacity, the facility could produce up to 700,000 MT per year of I2 industrial grade wood pellets. Per the International Standard for Organization (ISO) wood pellet specification, I2 industrial grade wood pellets are consistent with the specifications listed in Table 2-2.

Table 2-2. I2 Industrial Grade Wood Pellet Specifications

Property	Specification
Density	42-44 lb/ft^3
Moisture Content	7%
Diameter	0.24 to 0.39 inches (6–10 mm)
Length	0.24 to 1.57 inches (6–40 mm)
Durability	≥ 97.5%
Fines Content	≤ 5.0%

Table 2-2. I2 Industrial Grade Wood Pellet Specifications

Property	Specification
Net Calorific Value	≥ 7,100 BTU/lb (16.5 MJ/kg)
Total Ash	≤ 1.5%

Notes: Specifications based on ISO 17225-2:2014(en), Solid biofuels — Fuel specifications and classes — Part 2: Graded wood pellets. lb/ft^3 = pounds (mass) per cubic foot; mm = millimeters; BTU = British thermal unit; MJ/kg = megajoules per kilogram.

It is assumed that about 1% of pellets would be rejected during the screening process. In-spec pellets would continue to the finished product storage while rejects would be collected for reprocessing or use as fuel. A prefabricated electrical room dedicated to the pellet mill equipment would also be installed.

Product Storage and Loadout

Finished pellets would be conveyed from the pellet mill to three 2,500-metric-ton silos for storage and loadout. From the silos, the finished product would be loaded into railcars for transport to the port for shipping. A new rail spur connecting to the adjacent BNSF Railway line and track to store railcars would be added for finished product loadout. Railcars would be combined into 100-car unit trains.[6] 70 trains per year, or approximately one train departing every five days, would depart for the Port of Stockton. (Each unit train has six locomotives, in addition to the 100 freight cars.)

Other On-Site Facilities and Structures

Additional on-site facilities would include an office, maintenance shop, locker rooms, and two guard houses (one at each road entrance). There would also be auxiliary structures and utility systems required for plant operations (e.g., fire suppression, water, compressed air). To control air quality and maintain a safe work environment, a central dust and emissions control system would be installed. This central emissions control system will utilize a Regenerative Catalytic Oxidizer (RCO) to limit VOC emissions to the atmosphere, and will further implement selective noncatalytic reduction (SNCR) for the furnace and dryer systems. (Additional information regarding emissions control at this facility may be found in Chapter 3.2, Air Quality.)

Fire Protection

While the product stream is still green (high in moisture), regular preventative maintenance along with belt speed sensors, motor current sensors, and housekeeping will be used to mitigate fire risk. Once the product stream is dry, spark detectors with chemical suppression are placed at all critical points throughout the process. (See Chapter 3.8, Hazards and Hazardous Materials, for further information.) Additionally, all dry process equipment is outfitted with bearing temperature sensors to monitor and allow any high-temperature issues to be preemptively corrected. Structures, conveyors, and major equipment will be outfitted with fire sprinklers in case of emergency. An underground fire water loop will be included complete with hydrants and firefighting stations in high-risk areas. The pellet storage silos utilize temperature sensors throughout the storage volume that trigger aeration fans to cool any hotspot that may occur, while the chance of any hotspots occurring is greatly reduced through operational controls by keeping residence time in the silos as short as possible. (Additional technical detail regarding the fire protection measures at this site is provided in Chapter 3.8.)

[6] A unit train is a train formed of cars carrying the same material to the same destination. By comparison, a manifest train is made up of different cars (and cargos) with different origins and destinations.

There is currently a water tower on-site that is used to fill water trucks for dust control. Either a new or replacement water storage tank would be required for fire suppression. The new tank would have a capacity of 180,000 gallons, subject to final review by the fire authorities.

A back-up fire pump, rated at 150 horsepower (hp) would be installed in case the site loses power.

2.5.4 Plant Security and Access

The project site would have a separate accessways for haul trucks (from Babcock Road) and employee access (from Washington Avenue), and new internal roads for truck circulation and personnel access would be added. Guard houses would control the truck and personnel access roads. The accessway would be designed to allow for emergency vehicles to access the site in case of fire or emergency event. A full perimeter fence would be constructed around the project site boundary for security.

2.5.5 Construction and Schedule

Construction is assumed to begin in late 2025 and will take approximately 14-18 months. Based on a review of the current structures located on the site, demolition activities are anticipated to generate minimal debris that would require transport to a landfill permitted to accept inert construction and demolition materials. The total area of disturbance would be approximately 192.52 acres. The earthwork largely balances on-site; it is anticipated that approximately 5,220 cubic yards of fill would need to be imported. The earthwork estimate includes raising building foundations above the base flood elevation and construction of a stormwater detention basin, as described in Chapter 3.9, Hydrology and Water Quality. The estimate also accounts for potential on-site wetlands mitigation, as described in Chapter 3.3, Biological Resources. Created wetlands would be designed to balance on-site. Any excess material from created wetlands would be used in raising the building foundations, potentially lowering the need for imported fill.

During typical project-related construction activities, equipment is expected to operate 5 days per week, during the hours of 7:00 a.m. to 5:00 p.m.

2.5.6 Operation

Facility equipment is designed based on 8,040 hours of operations per year. Feedstock would be received at the woodyard 24 hours per day, 5 days per week. This would produce and store enough feedstock for fuel to enable pellet production to operate consistently. Pellet production operations would be active 24 hours per day, 7 days per week, with up to 4 weeks total downtime allotted for planned and unplanned outages once at capacity. After start-up and commissioning, it is expected that it would take 2 years to reach full facility capacity.

The operation schedule is shown in Table 2-3.

Table 2-3. Lassen Operation Schedule

Design Basis	Woodyard Receiving	Woodyard Equipment	Pellet Production	Routine Shutdowns	Unplanned Outages
Shifts	3	3	3	3	—
Hours/Shift	8	8	8	8	—

Table 2-3. Lassen Operation Schedule

Design Basis	Woodyard Receiving	Woodyard Equipment	Pellet Production	Routine Shutdowns	Unplanned Outages
Days/Week	5	7	7	7	—
Total Weeks	**48**	**48**	**48**	**3**	**—**
Total Hours	**5,760**	**8,040**	**8,040**	**504**	**216**

The facility would employ up to 60 people in three shifts during the workday, as shown in Table 2-4.

Table 2-4. Lassen Daily Employees

Shift	Employees
A	28
B	16
C	16
Total	**60**

2.5.7 Utilities

The proposed project would require utilities such as electrical service and water for operation. Utilities required for the proposed project are listed in Table 2-5 below.

Table 2-5. Utility Summary

Utility	Provider	Details
Electrical	PG&E (Current)	142,677,840 kWh/year
Propane	Local Supplier	Natural gas service would be unavailable to the site. On-site propane storage (75,000 gallons) would be required for emissions control and other stationary equipment.
Water	Groundwater	Onsite wells would provide both potable and process water. Approximately 32 gpm average would be required for use in the process. Annual water demand would be approximately 47 acre-feet.
Process Wastewater	On-Site Treatment	Process wastewater generated on site would be recycled to the dryer system.
Sanitary Sewer	On-Site Treatment	The project would include a septic tank system.
Stormwater	On-Site Treatment	A stormwater drainage system would be installed to direct run off to an on-site detention pond.

Notes: kWh = kilowatt-hours.

The project site is not served by wet utilities. Water for the pellet process and employee needs would be provided by on-site groundwater welsl. The process water is recaptured as steam and recycled into the process. A septic system would be installed to meet non-process wastewater demands. Stormwater would be addressed onsite with the construction of an on-site detention basin.

Electrical service will be provided from the nearest substation located approximately four miles northeast of the project site. This substation is presently operated by Surprise Valley Electrification Corporation (SVEC), and use of this substation will therefore require a wheeling or similar arrangement between PG&E and SVEC.

2.6 Central Sierra Nevada (Tuolumne) Site

2.6.1 Location

The proposed Tuolumne wood pellet processing site is located at 12001 La Grange Road approximately 9 miles southwest of the community of Jamestown, in Tuolumne County, California, and in the western foothills of the Sierra Nevada Mountain Range (see Figure 2-7, Project Location (Tuolumne)). The Tuolumne site is located immediately southeast of the junction of State Route 108 and La Grange Road. The site is situated in Township 1 South, Range 13 East, and Sections 14 and 23 of the U.S. Geological Survey Tuolumne, California 7.5-minute quadrangle. Elevations on the Tuolumne site range from approximately 1,070 feet above mean sea level in the northwest corner of the site to 1,140 feet above mean sea level in the eastern portion of the site. The Tuolumne site occurs within the Upper Stanislaus River watershed.

The Tuolumne location is a previously developed site that was formerly a wood processing mill, used by the former owner, Sierra Pacific Industries, for finished bark and colored mulch processing. Prior to Sierra Pacific Industries ownership, the facility was an operational sawmill run by Louisiana Pacific. A wood shaving plant owned by American Wood Fibers is located adjacent to the west side of the site, and two residences are located adjacent to the northwest corner of the site. Agricultural land is located to the north, east, and south. A majority of the adjacent lands are under Williamson Act (California Land Conversation Act) contracts, restricting them to agricultural or related use. Primary access to the site is from La Grange Road, which connects to CA-120 northwest of the site. The site is bordered by Sierra Northern Railroad to the west that travels along La Grange Road and intersects near the southwestern project site boundary.

2.6.2 Existing Conditions

The Tuolumne site is partially developed with existing structures and other features generally concentrated within the center of the site, as shown in Figure 2-8, Project Site (Tuolumne). This includes buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with the former mill. Currently, 9.6 acres of the total 58.56 acres of the project site are paved. The site has two existing accessways: one for truck access at the southwest area of the site and one for employee access at the northwest area of the site, both from La Grange Road.

The majority of the undeveloped areas of the project site consist of annual grassland with some young blue oak shrubs. Blue oak woodland is concentrated in the northwestern portion of the project site. There are two patches of riparian woodland in the northern portion of the project site. The project site is surrounded by widely scattered rural development and open space, generally also composed of scattered oak woodland and annual grassland.

The project site contains a variety of aquatic resources, including wetland and non-wetland waters. There are two freshwater emergent wetlands and two seasonal wetlands located in the northern and southern portions of the site. These features are discernible from the adjacent upland areas by a distinct change in vegetation. There is one vernal pool in the southeastern corner of the project site. An ephemeral drainage at the southern edge of the project site conveys overflow from a vernal pool and directs it through a culvert south of the project site. A freshwater pond

in the northern portion of the project site is fed by two seasonal drainages originating east to northeast of the project site. Additionally, there are four humanmade detention basins constructed throughout the project site to collect and store run-off: one in the southern portion of the site, one in the northeastern portion of the site, and two located near the mid-west portion of the site. One perennial drainage is located near the southern portion of the project site, and one intermittent drainage occurs in the northeast corner of the project site.

The current 58.56-acre site was once part of a larger mill site that included the 8.39-acre parcel to the southwest and two smaller (1.48-acre and 1.43-acre) parcels to the northwest. A wood shavings plant was constructed on the 8.39-acre parcel adjacent to the southwest under a Site Development Permit (307) granted in 1990. This wood shavings plant is now owned and operated by American Wood Fibers. The two smaller parcels each contain a single-family residence, built in 1969 as caretaker housing for the mill, and have since been sold for residential housing.

The site is zoned M-2 (Heavy Industrial), which is described in Section 17.40.020 of the Tuolumne County Ordinance Code and is classified as Heavy Industrial by the Tuolumne County General Plan (Tuolumne County 2018).

2.6.3 Wood Pellet Facility Components

The proposed project includes construction and operation of a new wood pellet production facility, including a woodyard, green processing area, drying area, pellet mill, project storage and loadout area. New roads for truck access and mill personnel access will be added, including a new truck access from La Grange Road at the southeast corner of the site. A new rail spur connecting to the adjacent Sierra Northern Railway line as well as additional rail siding tracks on site for the storage of full and empty railcars will be added for finished product loadout. Other improvements will include repurposing existing truck scales and a graded area for overflow raw material storage. The proposed site layout is shown in Figure 2-9, Project Site Plan (Tuolumne). These project components are also described in further detail below.

The stacker reclaimer would be the tallest structure on site, with a central structure 72 feet high, and a boom with a maximum height of 107 feet. Facility buildings would be 30 to 35 feet in height.

The proposed project would consist of several individual facility components to produce the wood pellet product, listed in the order in which they process material from receiving to finished product loadout and as described below in greater detail. The process flow, including each facility component and its role in the wood pellet production process, is also visualized in Figure 2-6, Process Flow Chart, provided in Section 2.5.3.

Feedstock Receiving

The facility would be designed to produce 300,000 metric tons (MT) per year of industrial wood pellets. To produce this amount of pellets, a higher ratio of green material must be received, to account for drying and for material used in the drying process. The annual green feedstock volume required is approximately 548,294 metric tons (604,390 US tons).

The proposed wood pellet production facility would receive feedstock in two primary forms: roundwood and residual chips. Roundwood would be delivered to the facility by logging trucks and stored in the woodyard until processed into chips. Residual chips would be delivered in trucks and received using automatic back-on truck dumps. The residuals stream would be made up of chips and small amounts of sawdust. Both feedstock streams would be screened for oversized pieces and would be conveyed to a stacker reclaimer to pile the bulk material for storage.

The proposed project would receive feedstock and biomass fuel consistent with the specifications listed in Table 2-6.

Table 2-6. Feedstock Specifications

Form of Feedstock Received (Annual Percentage By Weight)	
Chips (including Sawdust)	54%
Roundwood	46%
Roundwood (As Received)	
Biomass Length	8 feet to 50 feet
Biomass Diameter	3 inches to 40 inches
Moisture Content	35 - 50%
Bark Content	Up to 12%
Required Capacity	31.6 MT/hour[a]
Residuals (As Received)	
Chip Size Distribution (Assumed)	—
> 4 inches	4%
3/8 inches to 4 inches	90%
< 3/8 inches	6%
Chip Moisture Content	35%
Sawdust Moisture Content	55%
Required Capacity	39.6 MT/hour
Biomass Fuel[b] (As Received)	
Max Particle Size	6 inches
Moisture Content	15% to 40%

Notes:
[a] MT/hour = metric tons per hour.
[b] Biomass fuel refers to miscellaneous waste debris, bark, and other organic matter generated from commercial forestry and agriculture.

Woodyard

When roundwood feedstock is ready to be processed in the woodyard, a loader would collect roundwood from the storage piles and transfer the roundwood for processing through a de-barker and chipper. The woodyard would also receive the sawmill residuals and forest slash, and these smaller materials would be received by new automated back-on truck dumpers and screened based on particle size. Any material that is grossly out of specification would be rejected and used as fuel for biomass furnaces. The processed chips and the residuals would be conveyed to a stacker reclaimer with a capacity of 2,000,000 cubic feet for storage. Biomass fuel and bark from the debarking drum would be conveyed to a storage pile for use as fuel for the dryer. A prefabricated electrical room dedicated to the woodyard equipment would also be installed.

Green Materials Processing

Raw material (green chips) from the woodyard would be conveyed from the stacker reclaimer to the green processing area. The material would be screened based on particle size and all in-spec chips would continue to the dryer. The material that is too large to pass through the screens would be directed to a green hammer mill to be reduced to the appropriate size and then conveyed to the dryer.

Drying and Dry Processing

The drying area would consist of a dryer island complete with drum dryer, furnace, air systems, and emissions control. The dryer would utilize heat from a biomass-fired furnace to reduce the moisture content of the wood chips to approximately 10%, a level suitable for pellet production. Dried material would be conveyed from the dryer to the dry processing area. The material would be screened based on particle size and all in-spec chips would continue to the pellet mill. The material that does not pass through the screens would be directed to an array of dry hammer mills to be reduced to the appropriate size and then conveyed to the pellet mill.

Pellet Mill

Dried wood chips would arrive at the pellet mill and would be distributed to an array of pellet lines consisting of a conditioning bin, pelletizer, and pellet cooler. The conditioning bin would meter material into the mills to be formed into pellets. After cooling, the pellets would pass through a final screen to ensure that specifications have been met. At full design capacity, the facility could produce up to 300,000 MT per year of I2 industrial grade wood pellets. Per the International Standard for Organization wood pellet specification, I2 industrial grade wood pellets are consistent with the following specifications listed in Table 2-7.

Table 2-7. I2 Industrial Grade Wood Pellet Specifications

Property	Specification
Density	42 lb/ft^3 to 44 lb/ft^3
Moisture Content	7%
Diameter	0.24 inches to 0.39 inches (6–10 mm)
Length	0.24 inches to 1.57 inches (6–40 mm)
Durability	≥ 97.5%
Fines Content	≤ 5.0%
Net Calorific Value	≥ 7,100 BTU/lb (16.5 MJ/kg)
Total Ash	**≤ 1.5%**

Notes: Specifications based on ISO 17225-2:2014(en), Solid biofuels — Fuel specifications and classes — Part 2: Graded wood pellets. lb/ft^3 = pounds (mass) per cubic foot; mm = millimeters; BTU = British thermal unit; MJ/kg = megajoules per kilogram.

It is assumed that about 1% of pellets would be rejected during the screening process. In-spec pellets would continue to the finished product storage while rejects would be collected for reprocessing or use as fuel. A prefabricated electrical room dedicated to the pellet mill equipment would also be installed.

Product Storage and Loadout

Finished pellets would be conveyed from the pellet mill to two 1,550-metric-ton silos for storage and loadout. From the silos, the finished product would be loaded into railcars for transport to the port for shipping. A total of 3000 railcars, with a capacity of 100 metric tons, per year would be required to transport material to the Port of Stockton. These cars would be added to other cargo types (such as box cars) to form a “manifest” train. Between 12 and 14 railcars would be added on to each manifest train (an average of 13 per day), approximately 240 days per year.

Other On-Site Facilities and Structures

Additional on-site facilities would include an office, maintenance shop, locker rooms, and a guard house. There would also be auxiliary structures and utility systems required for plant operations (e.g., fire, water, compressed air). To control air quality and maintain a safe work environment, a central dust and emissions control system would be installed, and will further implement selective noncatalytic reduction (SNCR) for the furnace and dryer systems. (Additional information regarding emissions control at this facility may be found in Chapter 3.2, Air Quality.)

Fire Protection

While the product stream is still green (high in moisture) regular preventative maintenance along with belt speed sensors, motor current sensors, and housekeeping will be used to mitigate fire risk. Once the product stream is dry, spark detectors with chemical suppression are placed at all critical points throughout the process. (See Chapter 3.8, Hazards and Hazardous Materials, for further information.) Additionally, all dry process equipment is outfitted with bearing temperature sensors to monitor and allow any high-temperature issues to be preemptively corrected. Structures, conveyors, and major equipment will be outfitted with fire sprinklers in case of emergency. An underground fire water loop will be included complete with hydrants and firefighting stations in high-risk areas. The pellet storage silos utilize temperature sensors throughout the storage volume that trigger aeration fans to cool any hotspot that may occur, while the chance of any hotspots occurring is greatly reduced through operational controls by keeping residence time in the silos as short as possible. (Additional technical detail regarding the fire protection measures at this site is provided in Chapter 3.8.)

A back-up fire pump, rated at 150 horsepower (hp) would be installed in case the site loses power.

2.6.4 Plant Security and Access

The project site currently has two accessways from La Grange Road: One for truck access on the south side of the parcel and one for employee access located on the northerly portion of the site. New internal roads for truck circulation and mill personnel access would be added. A new guard/scale house would control the truck access road. Both accessways would be designed to allow for emergency vehicles to access the site in case of fire or emergency event. A full perimeter fence would be constructed around the project site boundary for security. A new rail spur connecting to the adjacent Sierra Northern rail line and track to store 45 railcars would be added for finished product loadout.

2.6.5 Construction and Schedule

Construction is assumed to begin in late 2026 and will take approximately 14-18 months. The existing structures, associated with the prior mill facility, would be demolished. Cut and fill for the site is estimated to be 256,660 cubic yards cut and 141,176 cubic yards fill (net export of 115,484 cubic yards). The total area of disturbance would be approximately 46 acres.

During typical project-related construction activities, equipment is expected to operate 5 days per week, during the hours of 7:00 a.m. to 5:00 p.m.

2.6.6 Operation

Facility equipment is designed based on 8,040 hours of operations per year. Feedstock would be received at the woodyard 24 hours per day, 5 days per week. This would produce and store enough feedstock for fuel to enable pellet production to operate consistently. Pellet production operations would be active 24 hours per day, 7 days per week, with up to 4 weeks total downtime allotted for planned and unplanned outages once at capacity. After start-up and commissioning, it is expected that it would take 1 year to reach full facility capacity.

The operation schedule is shown in Table 2-8.

Table 2-8. Tuolumne Operation Schedule

Design Basis	Woodyard Receiving	Woodyard Equipment	Pellet Production	Routine Shutdowns	Unplanned Outages
Shifts	3	3	3	3	—
Hours/Shift	8	8	8	8	—
Days/Week	5	7	7	7	—
Total Weeks	**48**	**48**	**48**	**3**	**—**
Total Hours	**5,760**	**8,040**	**8,040**	**504**	**216**

The facility would employ up to 51 people in three shifts during the workday, as shown in Table 2-9.

Table 2-9. Tuolumne Daily Employees

Shift	Employees
A	25
B	13
C	13
Total	**51**

2.6.7 Utilities

The proposed project would require utilities such as electrical service and water for operation. Utilities required for the proposed project are listed in Table 2-10 below.

Table 2-10. Utility Summary

Utility	Provider	Details
Electrical	PG&E	94,807,680 kWH/year
Propane	Local Supplier	Natural gas service would be unavailable to the site. On-site propane storage (30,000 gallons) would be required for emissions control and other stationary equipment.
Water	Groundwater	An onsite well would provide both potable and process water. Approximately 17 gpm average would be required for use in the process Annual water demand would be approximately 25 acre-feet.

Table 2-10. Utility Summary

Utility	Provider	Details
Process Wastewater	On-Site Treatment	Process wastewater generated on site would be recycled to the dryer system.
Sanitary Sewer	On-Site Treatment	The project would include a septic tank system.
Stormwater	On-Site Treatment	A stormwater drainage system would be installed to direct run off to an on-site detention pond in the southeast corner or existing permitted discharge point on the west side of the property.

Note: kWh = kilowatt-hours.

The project site is not served by wet utilities. Water will be provided by the on-site groundwater well. The process water is recaptured as steam and recycled into the process. The existing septic system will be refurbished, and expanded as needed, to meet the non-process needs of the facility. Stormwater is currently detained in two existing on-site basins, one on the south side, and one in the northeast area of the site. The site would continue to rely on these basins for stormwater detention.

An upgraded electrical connection to the grid, with service provided by PG&E will be required for the project, as further detailed in Chapter 3.15, Utilities and Service Systems.

2.7 Port of Stockton

2.7.1 Location

Finished pellets would be transported by rail from both the Lassen and Tuolumne facilities to the Port of Stockton, California (see Figure 2-10, Port Location). The proposed GSNR facility would be located in the West Complex of the Port, formerly known as Rough and Ready Island.

2.7.2 Existing Conditions

The Port of Stockton is an active deep water port. In 2022, Port activity included 278 ship calls and 4.4 million tons of import and export cargo. The West Complex, also known as Rough and Ready Island, is a former naval communication station (and previously, a naval supply annex). The property was approved for transfer to the Port of Stockton in 1966 for the benefit of maritime trade. The property was transferred in 2000.

The West Complex is 1,459 acres in size. It has 7 berths (labeled 14 through 20), with 6000 linear feet of docks, 630,000 square feet of transit sheds, and approximately 5 million square feet in warehouse space. Surface access to the West Complex is provided by Navy Drive Bridge and a parallel rail bridge on the west side, connecting to the main port, and the Port of Stockton Expressway Bridge to the south – the Expressway ultimately connects to Highway 4. The proposed GSNR facility would be located in the northwest quarter of the West Complex, on a relatively undeveloped site bordered by Davis Ave., Boone Dr., Edwards Ave., and Lipes Dr. The project site include a concrete parking lot in the southeast corner.

2.7.3 Facility Components

The proposed project would include the construction and operation of a new wood pellet storage and loadout facility, including a rail unloading system, two storage domes, covered conveyance to berth, and a ship loadout system. Additional rail sidings would be constructed to serve the facility. The proposed site layout showing new project components is included in Figure 2-11, Project Site Plan (Port). These project components are also described in further detail below.

The proposed project would consist of several individual facility components to receive, store, and load out the wood pellet product, listed in the order from receiving to loadout and as described below in greater detail.

Product Receiving

Finished pellets would be delivered to the site by rail. Approximately 10,000 rail cars (each holding 100 MT of pellets) would arrive at the Port per year.

Pellets would be unloaded from closed hopper-type railcars. A single truck dump capable of unloading one bottom hopper trailer would also be installed. Pellets from each unloading system would pass through respective hoppers with dust control before being conveyed to storage domes.

Product Storage

Finished pellets from the unloading systems would be conveyed to two storage domes complete with high-capacity pellet aeration systems and dust control systems. Each storage dome would store up to 35,000 MT of product. The domes would be approximately 140 feet in height, with auxiliary structures on top of the domes reaching a total height of 151 feet. At time of ship loadout, pellets would be reclaimed from the storage domes and conveyed through covered conveyors to the ship loadout system.

Product Loadout

At time of ship loadout, pellets would be reclaimed from the storage domes by gravity and conveyed through covered conveyors to the ship loadout system. A mobile ship loader with jump conveyors would be used so as not to permanently impede port traffic on and around the dock area. Dust control systems would also be installed. Approximately 29 cargo ships, each carrying 35,000 MT of product, would be used each year to transport the pellets to various overseas international markets.

Other On-Site Facilities and Structures

Additional on-site facilities would include an office, maintenance shop, and quality control lab. There would also be auxiliary structures and utility systems required for plant operations (nitrogen, service water, fire water, potable water, compressed air, and sewer). To control air quality and maintain a safe work environment, a series of dust control systems would be installed. Fire and explosion protection would be incorporated in this area.

Fire Prevention

The two storage domes will utilize temperature sensors, moisture sensors, and multi-gas detectors to monitor the pellet storage piles. Protocols to minimize the time in storage will be implemented to lower the risk of fire

considerably. In the event any of the dome instrumentation triggers there will be a nitrogen deluge system installed that will flood the domes with nitrogen, displacing the oxygen supply. Additionally, the following fire monitoring and suppression system will be used:

- All conveyors will have a linear temperature sensing cable to monitor product temperature along the length of the belt.
- Transfer points will have infrared sensors (several per chute) to detect any high temperature particles.
- Each of the above detection methods can trigger fire water nozzles to spray the product stream.

Additional technical detail regarding the fire protection measures at this site is provided in Chapter 3.8, Hazards and Hazardous Materials.

2.7.4 Plant Security and Access

The Port of Stockton is a secured facility. Only authorized employees and visitors would have access to the site.

2.7.5 Construction and Schedule

Construction is assumed to begin in late 2024 and will take approximately 14-18 months. No demolition of structures is required, although the existing parking lot may be removed. The area of disturbance would be 12.9 acres.

During typical project-related construction activities, equipment is expected to operate 5 days per week, during the hours of 7:00 a.m. to 5:00 p.m.

2.7.6 Operation

Facility equipment is designed on the basis of 8,040 hours of operational availability per year, with the exception of the loadout equipment, which would operate 2,400 hours per year. Pellet receiving operations will be 24 hours per day, 7 days per week, with up to 4 weeks total downtime allotted for planned and unplanned outages once at capacity.

The operation schedule is shown in Table 2-11. The normal shift size would be four (4) employees in the A shift (day shift), and two (2) employees each in the B and C shifts.

Table 2-11. Operation Schedule

Design Basis	Pellet Receiving	Pellet Loadout	Routine Shutdowns	Unplanned Outages
Products	I2 Pellets	I2 Pellets	N/A	N/A
Shifts	3	3	3	—
Hours/Shift	8	8	8	—
Days/Week	7	3	7	—
Total Weeks	**~48**	**~33**	**3**	**—**
Total Hours	**8,040**	**2,400**	**504**	**216**

2.7.7 Utilities

The proposed project would require utilities such as electrical service and water for operation. Utilities required for the proposed project are listed in Table 2-12 below.

Table 2-12. Utility Summary

Utility	Provider	Details
Electrical	Port of Stockton	12,060,000 kWh annually (0.7 MW load).
Service Water	Port of Stockton	Operation would require approximately 675,360 gpy (2.07 AFY) for service water (non-potable). All service (non-potable) water uses would have an average demand of 84 gallons per hour, or 1.4 gpm. Maximum flow demand for non-potable water would by 66 gpm (excluding fire flow).
Fire Water	Port of Stockton	Existing fire hydrants would be used. For purposes of fire flow, the maximum non-potable flow would be between 1,500 and 3,940 gpm.
Potable Water	Port of Stockton	Operation would require approximately 50,966 gpy (0.16 AFY) for potable water. Potable water demand would be an average of 6.3 gallons per hour, or 0.1 gpm. Maximum potable flow would be 11 gpm.
Sanitary Sewer	Port of Stockton	Approximately 3 gpm.
Stormwater	On-Site Treatment	A stormwater drainage system would be installed to direct run off.

Notes: kWh – kilowatt-hours; MW = megawatts; gpm = gallons per minute; AFY = acre-feet per year.

2.8 Project Approvals

GSFA is the lead agency under the California Environmental Quality Act. The GSFA Board of Directors, consisting of forty elected California county supervisors, has ultimate responsibility for approving and supervising the proposed project. The proposed project will be carried out jointly as a public-private partnership between GSFA and GSNR, with GSFA providing approval, supervision, and financing, and GSNR executing project operations. The public-private partnership agreement between GSFA and GSNR will include, as enforceable terms, all of the commitments and obligations of GSNR as described in this EIR, including but not limited to the Mitigation Measures, Project Design Features, Site Design Features, and feedstock constraints set forth in Section 2.4.

GSFA's responsibilities for the proposed project include:

- Creating GSNR as a nonprofit corporation, and appointing two members of its Board of Directors. (The other current directors are appointed by GSFA's affiliate, RCRC.)
- GSFA's Executive Director serves as President of GSNR, with executive responsibility for all of GSNR's operations. (All of GSNR's staffing is provided by GSFA and its affiliate, RCRC.)
- Subcontracting responsibilities under the MSA to GSNR through the public-private partnership agreement, establishing conditions for the exercise of those functions, and overseeing GSNR's performance.
- Approving Supplemental Project Agreements under the MSA, and subcontracting those treatment projects to GSNR, including establishing conditions for performance of that work and overseeing GSNR's activities.
- Providing startup funding to GSNR, consisting of an $11.75 million loan to GSNR (to fund feasibility studies and other predevelopment activities).

- Providing conduit financing for implementation of the Forest Resiliency Demonstration Project, through issuance of bonds.
- Approving all sources of harvest residuals procured and used by GSNR, and all biomass-only thinning projects undertaken by GSNR (as further described in Section 2.4).

The GSFA Board of Directors will determine whether the project proceeds, and under what conditions.

Table 2-13 provides a list of responsible agency project permits.

Table 2-13. Responsible Agency Project Permits and Approvals

Agency	Permit	Purpose	Discretionary?
Tuolumne Facility			
Tuolumne County Board of Supervisors	Development Agreement	Facilitate property development	Yes
Tuolumne County Community Development	Site Development Permit	Construction of new buildings	Yes
Tuolumne County Building and Safety Division	Building Permit(s)	Any structures on site	No
Tuolumne County Air Pollution Control District	Authority to Construct	Permission to construct facility that may emit air pollutants	Yes
	Permit to Operate	Permission to operate stationary source of air pollutants	Yes
U.S. Environmental Protection Agency	Title V Operating Permit	A permit under Title V of the Clean Air Act is required if the facility qualifies as a "major source" of hazardous air pollutants. The permit is typically processed concurrently with the local Authority to Construct/Permit to Operate.	Yes
Tuolumne County Environmental Health	Hazardous Materials Business Plan	If storage of liquid or solid hazardous materials exceeds certain amounts	No
	Aboveground/Underground Storage Tanks; Spill Prevention Plan	If petroleum products will be stored on site and exceeds certain amounts	No
Regional Water Quality Control Board	General Permit for Discharges of Storm Water Associated with Construction Activity	Coverage under general permit for disturbance of 1 or more acre of land; preparation of stormwater pollution prevention plan	No
	General Permit for Discharges of Storm Water Associated with Industrial Activity	Wood product manufacturing uses are typically covered under the general permit	No
	Water Discharge Report	Required if site development will impact waters of the state	Yes

Table 2-13. Responsible Agency Project Permits and Approvals

Agency	Permit	Purpose	Discretionary?
California Department of Fish and Wildlife	Lake and Streambed Alteration Agreement (1602 Permit)	Required if site development will impact waters of the state	Yes
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit	Required if site development will require filling of any of the jurisdictional wetlands on the property.	Yes
Agency	**Permit**	**Purpose**	**Discretionary?**
Lassen Facility			
Lassen County Board of Supervisors	Development Agreement	Facilitate property development	Yes
Lassen County Planning and Building Services	Site Development Permit	Construction of new buildings	Yes
	Use Permit	Wood product manufacturing uses	Yes
	Building Permit(s)	Any structures on site	No
Lassen County Air Pollution Control District	Authority to Construct	Permission to construct facility that may emit air pollutants	Yes
	Permit to Operate	Permission to operate stationary source of air pollutants	Yes
U.S. Environmental Protection Agency	Title V Operating Permit	A permit under Title V of the Clean Air Act is required if the facility qualifies as a "major source" of hazardous air pollutants. The permit is typically processed concurrently with the local Authority to Construct/Permit to Operate.	Yes
Lassen County Environmental Health	Hazardous Materials Business Plan	If storage of liquid or solid hazardous materials exceeds certain amounts	No
	Aboveground/Underground Storage Tanks; Spill Prevention Plan	If petroleum products will be stored on site and exceeds certain amounts	No
Regional Water Quality Control Board	General Permit for Discharges of Storm Water Associated with Construction Activity	Coverage under general permit for disturbance of 1 or more acre of land; preparation of stormwater pollution prevention plan	No
	General Permit for Discharges of Storm Water Associated with Industrial Activity	Wood product manufacturing uses are typically covered under the general permit	No
	Water Discharge Report	Required if site development will impact waters of the state	Yes
California Department of Fish and Wildlife	Lake and Streambed Alteration Agreement (1602 Permit)	Required if site development will impact waters of the state	Yes
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit	Required if site development will require filling of any of the	Yes

Table 2-13. Responsible Agency Project Permits and Approvals

Agency	Permit	Purpose	Discretionary?
		jurisdictional wetlands on the property	
Port Facility			
Port of Stockton	Lease Agreement	Ground lease and construction of improvements.	Yes
Feedstock Acquisition Permits and Approvals			
U.S. Forest Service	Supplemental Project Agreement(s) (including similar stewardship contracts)	Conducting fuel reduction activities on U.S. Forest Service lands under the MSA	Yes
U.S. Fish and Wildlife Service	ESA Incidental Take Statement or Permit/Habitat Conservation Plan	Required if fuel reduction activities may adversely affect a *federally* listed threatened or endangered species (e.g., spotted owl)	Yes
California Department of Fish and Wildlife	CESA Incidental Take Permit/Natural Community Conservation Plan	Required if fuel reduction activities may adversely affect a *California* listed threatened or endangered species	Yes
	Lake and Streambed Alteration Agreement ("1602" Permit)	Required for any activity that will alter the bed, channel, or bank—of any stream (e.g., certain stream crossings)	Yes
U.S. Army Corps of Engineers	Clean Water Act Section “404” Permit	Required if in-forest activities will require discharge of fill material into streams (e.g., certain stream crossings)	Yes
State Historic Preservation Officer	National Historic Preservation Act Section 106 Concurrence	Federal agencies issuing permits that may affect historic resources must consult with the State Historic Preservation Officer	No
California Department of Forestry and Fire Protection	Timber Harvest Plan	Required for certain activities on *nonfederal* land that involve commercial harvest of timber, including some fuel reduction activities (i.e., if the byproducts are sold)	Yes
State Agency Land Managers (California State Parks, California Department of Fish and Wildlife, State Lands Commission, Caltrans, etc.)	Memorandum of Understanding	Required to conduct fuel reduction on agency-managed lands	Yes

2.9 References

CAL FIRE (California Department of Forestry and Fire Protection). 2021. Fire Incidents Database. Accessed May 10, 2021. https://www.fire.ca.gov/incidents/

Lassen County. 1999. *Lassen County General Plan 2000.* September 1999. Accessed February 28, 2022. http://www.lassencounty.org/government/resources/planning-and-building-services.

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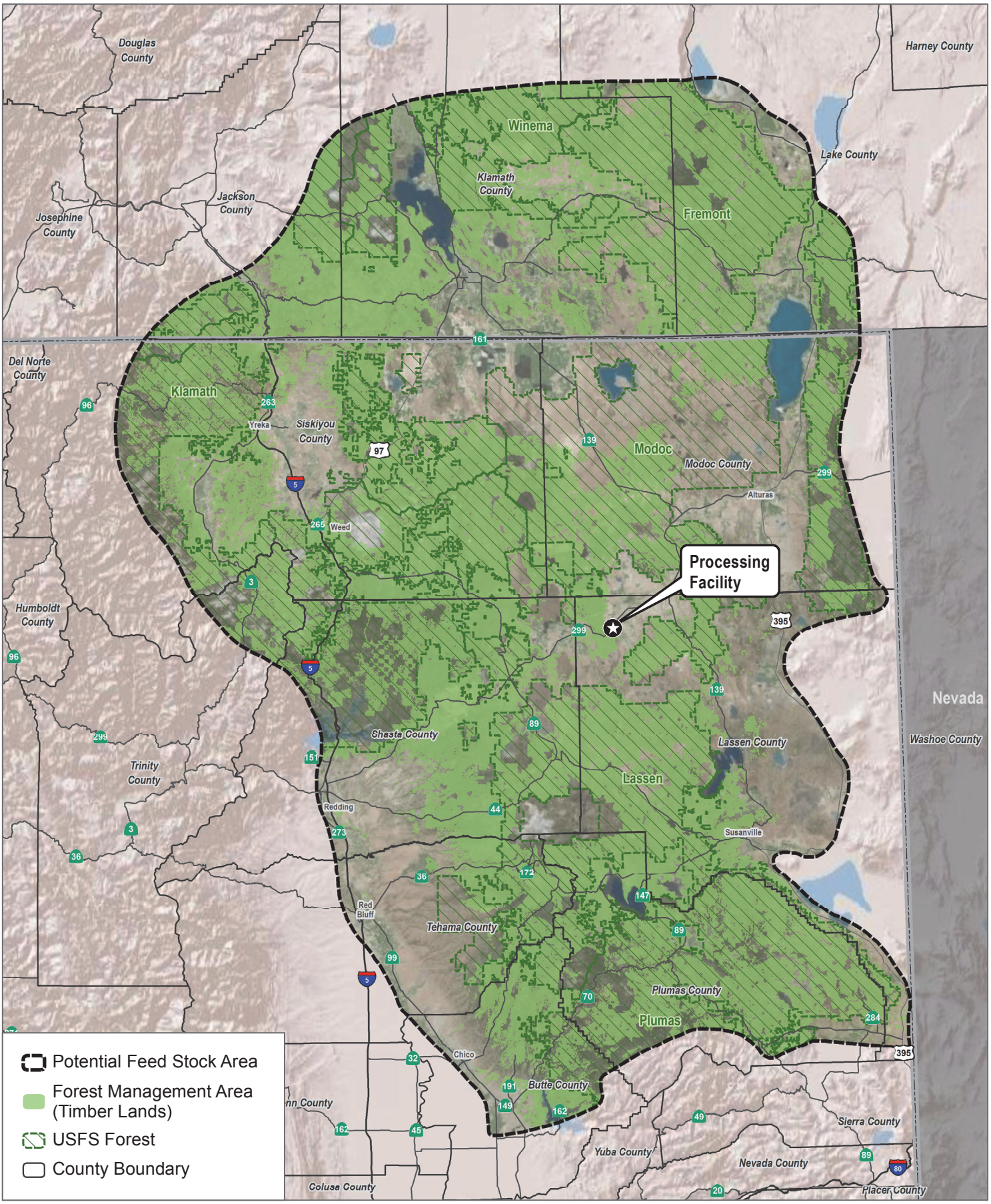

SOURCE: Bing Maps 2023

DUDEK

0 12.5 25 Miles

FIGURE 2-1

Working Area (Lassen Site)

Golden State Natural Resources Forest Resiliency Demonstration Project

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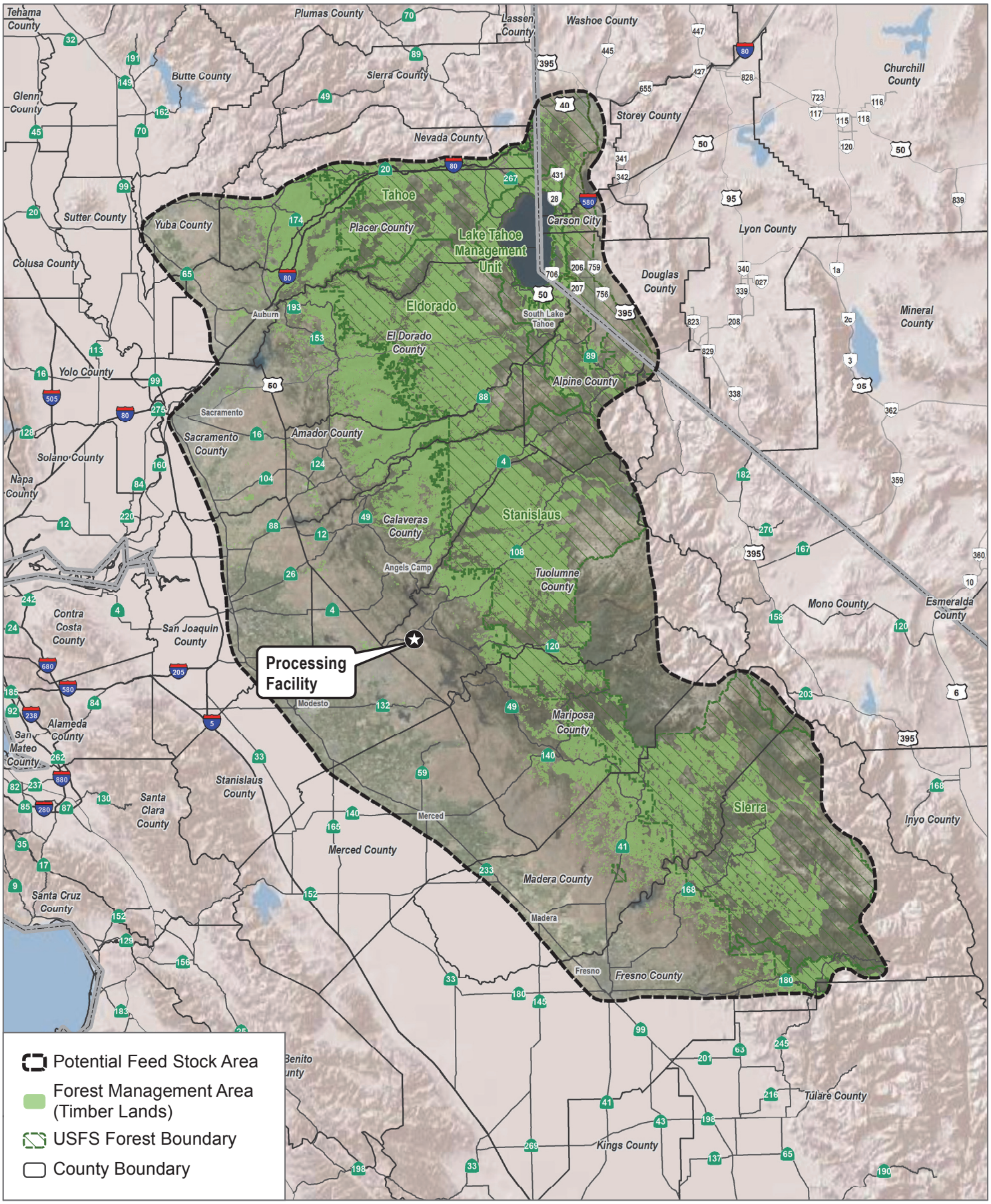

SOURCE: Bing Maps 2023

DUDEK

0 12.5 25 Miles

FIGURE 2-2

Working Area (Tuolumne Site)

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps 2020, Lassen County 2015

DUDEK

0 1,000 2,000 Feet

FIGURE 2-3

Project Location (Lassen Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps 2020, Lassen County 2015

DUDEK

0 500 1,000 Feet

FIGURE 2-4

Project Site (Lassen Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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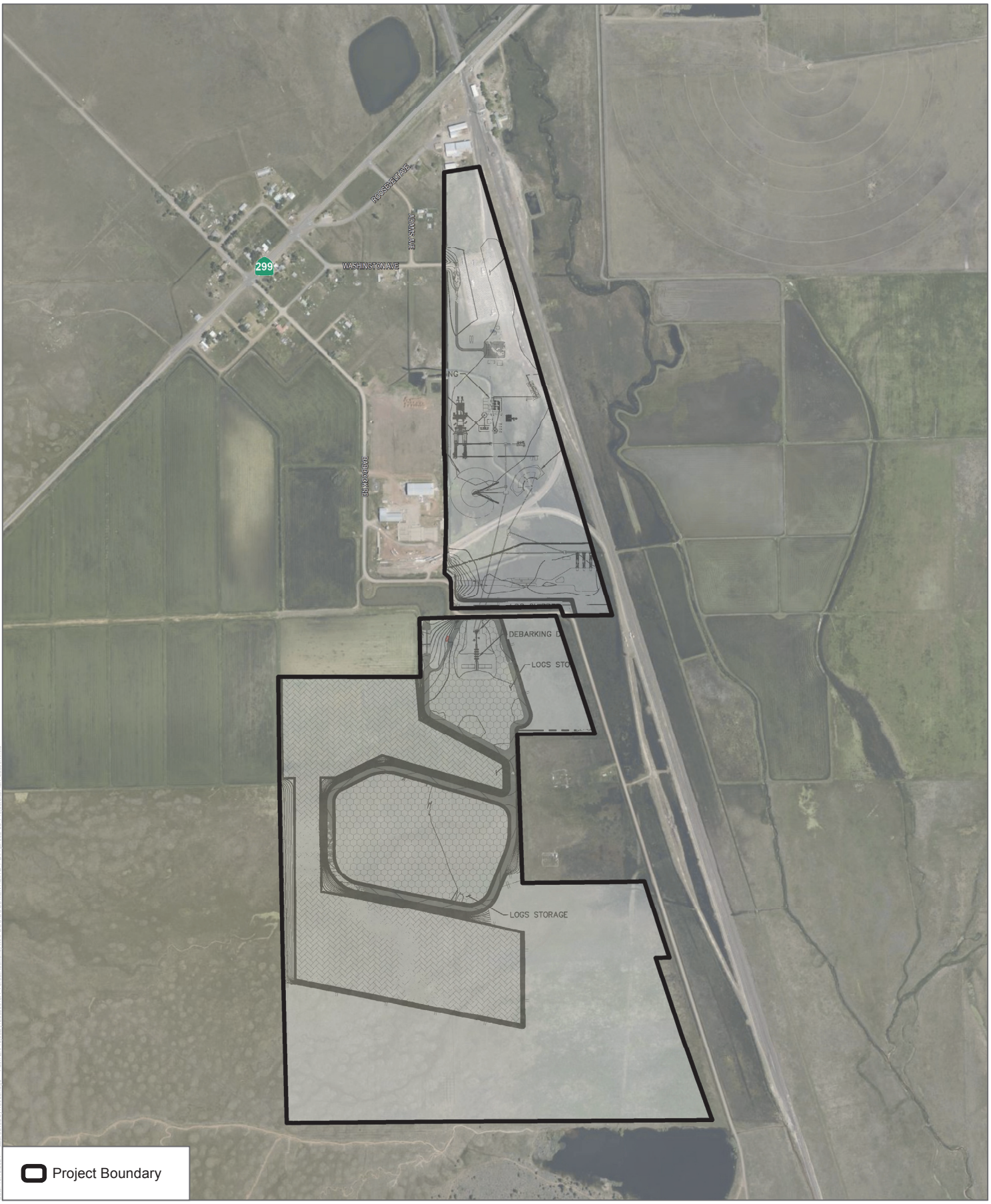

SOURCE: Bing Maps 2020, Lassen County 2015

DUDEK

0 500 1,000 Feet

FIGURE 2-5

Project Site Plan (Lassen Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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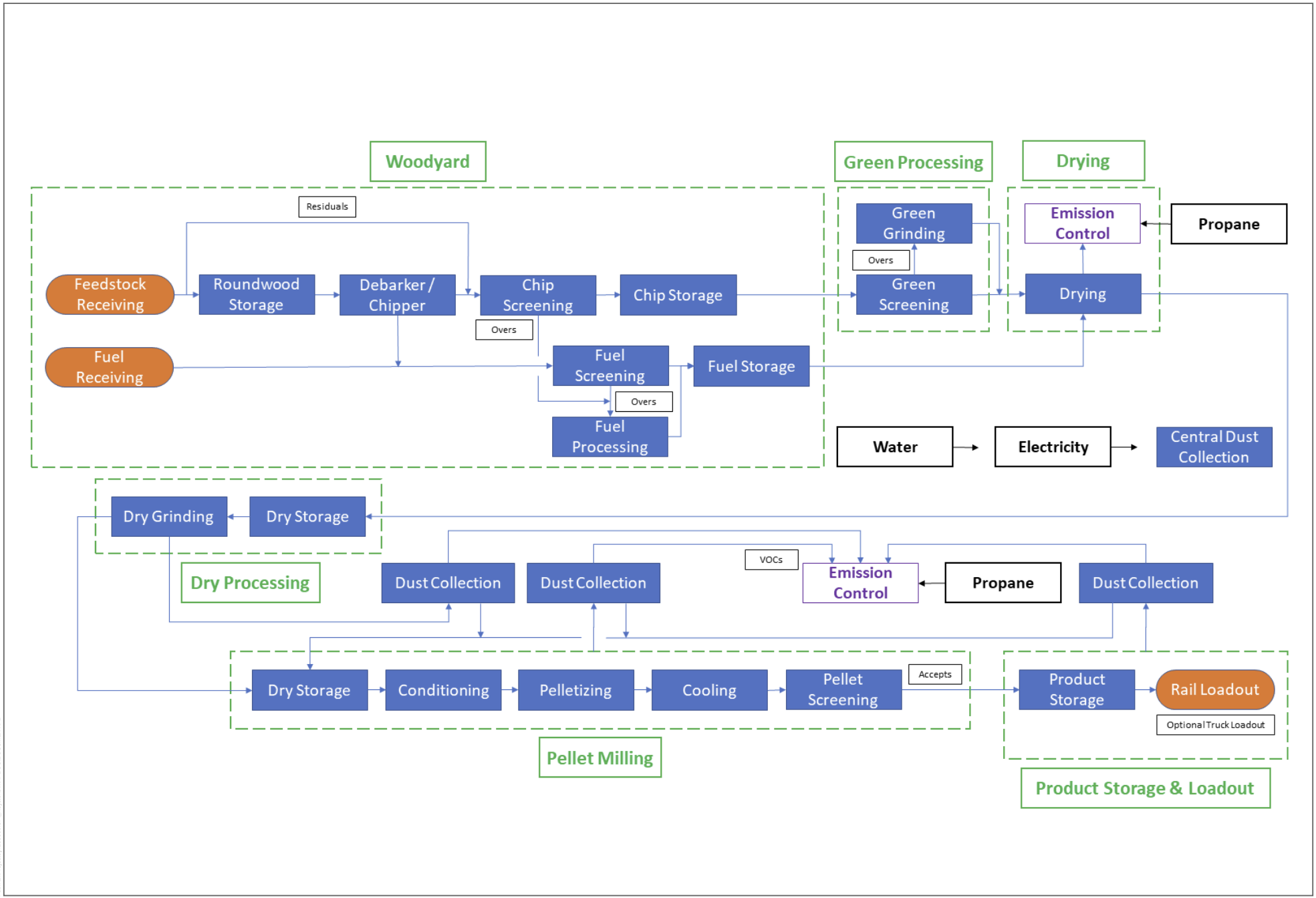

FIGURE 2-6

Process Flow Chart

Golden State Natural Resources Forest Resiliency Demonstration Project

DUDEK

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SOURCE: USGS 7.5-Minute Series Keystone Quadrangle

DUDEK

0 500 1,000 Feet

FIGURE 2-7

Project Location (Tuolumne Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps (Accessed 2020), Tuolumne County 2020

DUDEK

0 145 290 Feet

FIGURE 2-8

Project Site (Tuolumne Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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SOURCE: Bing Maps (Accessed 2020), Tuolumne County 2020

DUDEK

0 162.5 325 Feet

FIGURE 2-9

Project Site Plan (Tuolumne Facility)

Golden State Natural Resources Forest Resiliency Demonstration Project

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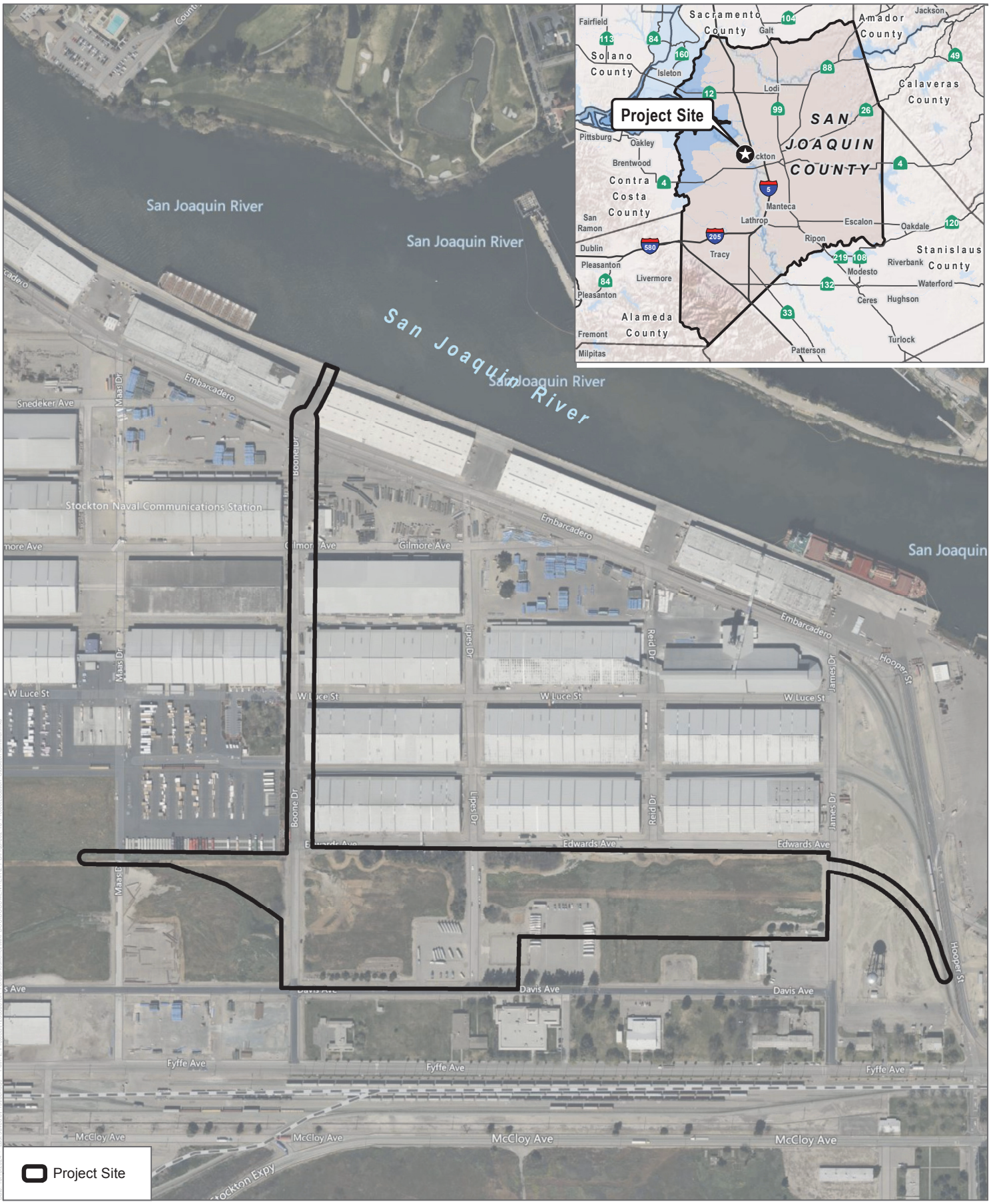

SOURCE: Bing Maps 2023, San Joaquin County 2021

FIGURE 2-10

Project Location (Port Rough Terminal, Port of Stockton)

Golden State Natural Resources Forest Resiliency Demonstration Project

DUDEK

0 250 500 Feet

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SOURCE: Bing Maps 2023, San Joaquin County 2021

DUDEK

0 250 500 Feet

FIGURE 2-11

Project Site Plan (Port Rough Terminal, Port of Stockton)

Golden State Natural Resources Forest Resiliency Demonstration Project

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