

CEQA Initial Study/ Mitigated Negative Declaration

Toto Ranch/Tunitas Creek Open Space Preserve Rangeland Management Plan Project

October 2019

Prepared by:



Midpeninsula Regional Open Space District
330 Distel Circle
Los Altos, California 94022-1404
Contact: Aaron Peth (650) 691-1200

With technical assistance from:



450 Lincoln Avenue, Suite 103
Salinas, California 93901
Contact: Wendy Young (831) 239-7910

This document is printed on recycled paper with 30 percent post-consumer content.

Table of Contents

Acronyms and Abbreviations	v
Document Preface	vii
Section 1 Project Description	1
1.1 Project Overview	1
1.2 Project Location	1
1.3 Project Area History and Background	2
1.4 Environmental Setting	3
1.4.1 Topography	3
1.4.2 Soils	3
1.4.3 Vegetation	4
1.4.4 Water Sources	4
1.4.5 Roadways	5
1.4.6 Fencing	5
1.4.7 Vegetation and Wildlife	6
1.4.8 Farmstead Area	6
1.4.9 Animal Stocking Rates	7
1.4.10 Surrounding Land Uses	7
1.5 Proposed Project Components	8
1.5.1 Toto Ranch RMP Implementation	8
1.5.2 Pond Management	14
1.5.3 Avoidance and Minimization Measures and Best Management Practices	15
Section 2 Initial Study Checklist	57
2.1 Project Information	57
2.2 Environmental Factors Potentially Affected	59
2.3 Lead Agency Determination	60
2.4 Evaluation of Environmental Impacts	61
2.4.1 Aesthetics	62
2.4.2 Agriculture and Forestry Resources	65
2.4.3 Air Quality	69
2.4.4 Biological Resources	74
2.4.5 Cultural Resources	112
2.4.6 Energy	117
2.4.7 Geology and Soils	119
2.4.8 Greenhouse Gas Emissions	125
2.4.9 Hazards and Hazardous Materials	128
2.4.10 Hydrology and Water Quality	132

2.4.11	Land Use and Planning	137
2.4.12	Mineral Resources	139
2.4.13	Noise.....	141
2.4.14	Population and Housing.....	144
2.4.15	Public Services	145
2.4.16	Recreation	147
2.4.17	Transportation.....	149
2.4.18	Tribal Cultural Resources	152
2.4.19	Utilities and Service Systems	154
2.4.20	Wildfire	157
2.4.21	Mandatory Findings of Significance.....	160
2.5	Summary of Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures	162
Section 3	List of Preparers	171
3.1	Lead Agency.....	171
3.2	Consultants.....	171
Section 4	References	173

Exhibits

Exhibit A. Toto Ranch Regional Location Map	35
Exhibit B. Aerial Image of Toto Ranch with Topography	37
Exhibit C. Toto Ranch – Farmstead Area (Agricultural and Residential Lease Areas)	39
Exhibit D. Toto Ranch – Farmstead Area (Agricultural and Residential Lease Areas)	41
Exhibit E. Toto Ranch Soils Map	43
Exhibit F. Toto Ranch – Current Infrastructure	45
Exhibit G. Proposed Roadway Improvement	47
Exhibit H. Toto Ranch – Proposed Infrastructure	49
Exhibit I. Aerial Photo and Photo Location Map	51
Exhibit J. Toto Ranch Constraints Map	53
Exhibit K. Toto Ranch Obscured Special-Status Species Locations	55

Tables

Table 1A. RMP – Recommendations and BMPs	17
Table 1B. RMP – Monitoring and Adaptive Management Measures	27
Table 2. Existing Permits and Guiding Documents – Recommendations and Requirements	29
Table 3. Estimated Construction Daily Maximum Air Pollutant Emissions.....	72
Table 4. Estimated Pond Management Maximum Air Pollutant Emissions	73
Table 5. Estimated Total Construction GHG Emissions	127
Table 6. Estimated Annual Pond Management GHG Emissions	127
Table 7. Vibration Source Levels for Construction Equipment	143
Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures.....	163

Appendices

Appendix A. Rangeland Management Plan	
Appendix B. Existing Permits/Guidance	
Appendix C. Air Quality	
Appendix D. Biological Resources	
Appendix E. Biological Resources Regulatory Setting	

This page intentionally left blank.

Acronyms and Abbreviations

AB	Assembly Bill
ABAG	Association of Bay Area Governments
ATCM	airborne toxics control measures
AUM	Animal Unit Month
BAAQMD	Bay Area Air Quality Management District
Basin	San Francisco Bay Area Air Basin
BMP	Best Management Practice
CAA	Clean Air Act
Cal-IPC	California Invasive Plant Council
CCAA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geological Survey
CH ₄	methane
CNDDDB	California Natural Diversity Database
CO ₂	carbon dioxide
CRLF	California red-legged frog
CSA	Community Supported Agriculture
DTSC	Department of Toxic Substance Control
EECAP	Energy Efficiency Climate Action Plan
EOP	Emergency Operations Plan
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
GIS	geographic information system
HFC	hydrofluorocarbon
IPaC	Information for Planning and Consultation
IPM	Integrated Pest Management
IS	initial study
LCP	Local Coastal Program
Midpen	Midpeninsula Regional Open Space District
MIG	Management Intensive Grazing
MLD	Most Likely Descendent
MND	mitigated negative declaration
MRZ	Mineral Resource Zone
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NO _x	nitrogen oxides
NWIC	Northwest Information Center
PFC	perfluorinated carbon
PM ₁₀	particulate matter measuring no more than 10 microns in diameter
PM _{2.5}	fine particulate matter measuring no more than 2.5 microns in diameter

POST	Peninsula Open Space Trust
PRC	Public Resources Code
Project	Toto Ranch/Tunitas Creek Open Space Preserve Rangeland Management Plan Project
PUMP	Preliminary Use and Management Plan
RDM	residual dry matter
RMP	Toto Ranch/Tunitas Creek Open Space Preserve Rangeland Management Plan
ROG	reactive organic gases
SF ₆	sulfur hexafluoride
SFGS	San Francisco garter snake
SMARA	Surface Mining and Reclamation Act of 1975
SO _x	sulfur oxides
SRA	State Responsibility Area
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Services

Document Preface

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared for the proposed Toto Ranch/Tunitas Creek Open Space Preserve Rangeland Management Plan Project (Project), in accordance with the California Environmental Quality Act (CEQA)(Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 at seq.), by the Project proponent and CEQA Lead Agency (State CEQA Guidelines Section 15063[a]), Midpeninsula Regional Open Space District (Midpen).

The primary intent of this document is to (1) determine whether Project implementation would result in potentially significant impacts to the environment, and (2) incorporate mitigation measures into the Project design, as necessary, to eliminate or reduce the Project's potentially significant impacts to a less than significant level.

In accordance with State CEQA Guidelines Sections 15064(d) and 150701, projects that have the potential to result in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment must undergo analysis to disclose potential significant effects. The provisions of CEQA apply to California governmental agencies at all levels, including local agencies, regional agencies, state agencies, boards, commissions and special districts.

CEQA requires preparation of an Initial Study (IS) for a discretionary project to determine the range of potential environmental impacts of that project and to define the scope of the environmental review document. As specified in the CEQA Guidelines, Section 15064(f)(2), the lead agency may prepare a Mitigated Negative Declaration (MND) if, in the course of the IS analysis, it is recognized that the project may have a potentially significant impact on the environment, but that implementation of specific mitigation measures would reduce potentially significant impacts to a less than significant level.

As the lead agency for the proposed Project, Midpen has the principal responsibility for conducting the CEQA environmental review to analyze the potential environmental effects associated with Project implementation.

During the review process, it was determined that potential impacts would be reduced to a less than significant level with the inclusion of avoidance and minimization measures, and implementation of mitigation measures for impacts that could not be avoided or minimized. Midpen has incorporated mitigation measures to reduce or eliminate any potentially significant Project-related impacts. Therefore, an IS/MND has been prepared for the proposed Project.

Note: This Project has not been approved or denied. It is being reviewed for environmental impacts only. Approval of the Project can take place only after the MND has been adopted.

Public Review

The IS/MND will be circulated for a 30-day public review period from October 11, 2019, to November 12, 2019.

Comments regarding this IS/MND may be made in writing and submitted to Aaron Peth, Planner III, Midpeninsula Regional Open Space District, 330 Distel Circle, Los Altos, California 94022-1404 or by email to apeth@openspace.org. The public Board of Directors meeting to adopt the IS/MND will be held on Wednesday, January 22nd, 2020 at the District Administrative Office, located at 330 Distel Circle, Los Altos, California 94022.

Comments should focus on the proposed finding that the Project would not have a significant effect on the environment because revisions or mitigation measures have been made or agreed upon by the Project proponent. If the commenter believes that the Project may have a significant environmental effect, it would be helpful to identify the specific effect, explain why the effect would occur, and why it would be significant.

Section 1 Project Description

1.1 Project Overview

The proposed Project (or Project) includes implementation of the Toto Ranch/Tunitas Creek Open Space Preserve Rangeland Management Plan (RMP) and supporting infrastructure improvements and management practices throughout the 987-acre Toto Ranch (Project area). Proposed activities include practices to guide grazing, fence and gate installation and/or repairs, road repairs and maintenance, water infrastructure improvements, pond management, avoidance and minimization measures, and monitoring and adaptive management.

The RMP, prepared by the Midpeninsula Regional Open Space District (Midpen) in July of 2018, is included by reference in **Appendix A**. As stated in the RMP, Midpen's goal is to "manage District land with livestock grazing that is compatible with public access, to maintain and enhance the diversity of native plant and animal communities, manage vegetation fuel for fire protection, sustain the local agricultural economy, and preserve and foster appreciation for the region's rural agricultural heritage,"

1.2 Project Location

Toto Ranch (Ranch) is located near the coast in unincorporated San Mateo County, California, approximately nine miles south of the City of Half Moon Bay and one mile north of the unincorporated community of San Gregorio. Toto Ranch is within the California Coastal Zone (**Exhibit A**). Toto Ranch is bordered by State Route 1 (Cabrillo Highway) and the Pacific Ocean to the west, and by Tunitas Creek and Dry Creek to the north. Refer to **Exhibits A and B**.

Toto Ranch is owned by Midpen and the land has been designated with four assessor's parcel numbers totaling approximately 987 acres, which have been further delineated as follows (refer to **Exhibit C**).

- Residential Lease Area (12 acres) is the area near the center of Toto Ranch where the existing lessee resides and has a ranch house, metal-sided barn, wooden barn, and several small outbuildings and sheds.
- Agricultural Lease Area (34 acres) is the area where the existing lessee raises a variety of domestic livestock that includes horses, chickens, pigs, goats, sheep, alpacas, and milk cows on the north and south sides of the Residential Lease Area.
- Livestock Grazing Area (941 acres) is the remaining area of Toto Ranch where cattle graze.

Most of the proposed management activities included in the RMP are within the Livestock Grazing Area. Although some of the proposed infrastructure improvements and pond management activities extend into the Agricultural and Residential Lease Areas (also collectively called the Farmstead Area), all other land management activities in these areas are

ongoing existing activities and are not included in the proposed Project, except to the extent that they affect the Livestock Grazing Area.

1.3 Project Area History and Background

The Project area has been continuously grazed for over 120 years. The following information about the Project area history is from the RMP (**Appendix A**), as well as the Patch, a Redwood City-Woodside publication (January 11, 2013).

The property was originally owned by Alexander Gordon, a state assembly member, who in 1872 built Gordon's Chute near the mouth of Tunitas Creek for sliding farm goods from the top of the cliffs to ships anchored offshore.

In the late 1800s, the Machado family, originally from Portugal, settled the property and ranched on the property for nearly 100 years. The property was historically grazed with Holstein dairy cows, and many of the hillsides and ridgetops were dryland farmed with hay and oats.

In the late 1970s, the Scutchfield family acquired the property, and cattle grazing continued while farming operations ceased. In 2008–2009, Peninsula Open Space Trust (POST) purchased the property from the Scutchfield family. At the time, the property was at risk for potential subdivision and development into private luxury estates.

In 2012, Midpen purchased the property from POST and added it to the Tunitas Creek Open Space Preserve with an agricultural conservation easement, held to date by POST, in place covering the entire property. The Project area is located within the Coastside Protection Area, an area that was annexed into the boundaries of Midpen in 2004. Midpen is committed to protecting coastal watersheds and agricultural lands, and preserving the rural character of the lands that it manages within this area, as well as working with interested public agencies, officials and interested organizations to solicit input throughout the planning process for the property. The project is also subject to the mitigation measures that were identified in the CEQA Environmental Impact Report that was prepared for the Coastside Service Plan in 2004.

In November of 2014, the Midpen Board approved the Preliminary Use and Management Plan (PUMP) for Toto Ranch that provides the framework for allowed uses within the Project Area, including rangeland management, resource management, wildfire fuel management, public use limitations and future planning efforts for the lands.

To date, grazing operations have continued with the existing residential/grazing tenant, the Markegard family, who has leased the land since the late 1980s and has resided on the Ranch (separate residential lease). The Ranch is currently used primarily for grass-fed beef cattle production on the productive and accessible grasslands. The tenant also produces a number of other agricultural commodities including pasture pork, chickens, eggs, goats, lambs, and turkeys

that are marketed through a Community Supported Agriculture (CSA) purchasing program. A small number of dairy cows are maintained for milk production as part of a cooperative Herd Share arrangement. The tenant hosts agricultural workshops and field days on the Ranch throughout the year. In addition to cattle, a number of horses and llamas/alpacas/emus are kept on the property and currently graze the grasslands outside of the Farmstead Area.

In 2018, Midpen completed the RMP, with the assistance of Koopmann Rangeland Consulting. As described further in Section 1.5.1, the RMP includes management recommendations and best management practices for all grazing areas, and specifically livestock grazing operations and rangeland management, to help ensure the sustainability of agricultural production while protecting rangeland health, soil stability, water quality and the control of invasive vegetation to cooperatively conserve and enhance habitat for wildlife. The intent is for the RMP to be a living document, subject to update as conditions in the Project area change, every 10 years or more often in the event there are significant changes in use, management or ownership.

1.4 Environmental Setting

The following section provides an overview of the environmental setting and land uses within the Project area. Additional information relative to the existing conditions for each environmental topic is provided described Section 2.4, Evaluation of Environmental Impacts.

1.4.1 Topography

Toto Ranch is north-northwest facing, and topography primarily ranges from gently rolling to moderately steep slopes with two steep canyons that run south-north into the Tunitas Creek stream corridor. The level to gently rolling areas of Toto Ranch support annual grasslands with heavy coyote brush encroachment and coastal scrub habitat. The steeper canyon areas are comprised of dense brush and riparian corridors. Eucalyptus and Monterey Cypress are present in the Farmstead Area (**Exhibits C and D**). There is also a large, dense, eucalyptus stand east of the Agricultural Lease Area. Elevation ranges from 20 feet near Tunitas Creek in the northwest corner to 885 feet on the ridge top along the south border.

1.4.2 Soils

Toto Ranch is comprised of fourteen (14) soil series types (USDA Soil Conservation Service 1985) identified on the soils map produced by Midpen (**Exhibit E**). The majority of the ranch (49 percent) is comprised of Tierra loam/Tierra clay loam and Colma loam (27 percent). Gazos loam and Lobitos loam soils are found within the riparian corridors and steep brush covered slopes above the riparian corridors on the Ranch. The remaining soils are present in a very limited capacity, primarily located within the Tunitas Creek riparian corridor along the extreme northern property boundary. Colma and Tunitas loams comprise the majority of the upland grassland and coastal scrub habitat areas suitable for livestock grazing on Toto Ranch. Steep,

densely vegetated riparian corridors and canyons provide little palatable forage for grazing livestock, but can provide shaded areas for loafing, particularly on the fringe areas adjacent to the grazeable grassland and coastal scrub habitats.

1.4.3 Vegetation

The overall conditions of the vegetation (grassland and scrub habitats) within the Livestock Grazing Area range from good to excellent, depending on the forage type and amount and presence of invasive vegetation. Infestations of coyote brush and invasive thistles have historically reduced the quality of range conditions by outcompeting desirable vegetation and shading out seedlings of desirable vegetation on much of the Project area, resulting in rangeland conditions that vary from poor to excellent throughout Toto Ranch.

The majority of the Project area is comprised of rolling open grasslands/coastal scrub, heavily influenced by coyote brush encroachment. The steep drainages and riparian corridors are comprised of dense brush/woody vegetation and willows. A large stand of eucalyptus trees is present just east and south of the Agricultural Lease Area. Overall, the vegetation diversity and level of desirable vegetation on the Project area supports an abundant, diverse wildlife population while providing highly productive grazing value.

1.4.4 Water Sources

Toto Ranch drains south to north into Dry Creek and Tunitas Creek, along the northern perimeter of the Project area, totaling approximately 9,000 feet of perennial stream frontage. Tunitas Creek is a direct tributary to the Pacific Ocean.

Toto Ranch has historically lacked a reliable year-round water supply, particularly under drought conditions. This affects the water supply for residential use and grazing operations. Livestock water within the Agricultural Lease Area and adjacent pastureland is provided through a number of springs, ponds, wells, water tanks, and water troughs (**Exhibit F**). Water troughs in the pastures and corrals are supplied via two wells on the ridge near the southern property boundary. One well is pumped via a solar pump, and the second well is pumped via a windmill. Water is collected in one 2,500-gallon and two 5,000-gallon water storage tanks near the wells, using gravity flow to convey the water via pipe to troughs in and around the Agricultural Lease Area.

In addition to the developed water systems, a network of 14 ponds and seasonal wetlands provide stock water throughout the remainder of Toto Ranch, ranging from 0.01 acres to 0.75 acres. Water availability is mostly seasonal (there are two perennial ponds), and water levels are particularly constrained under drought conditions. Livestock prefer to drink out of troughs and tend to rely on these features around the Agricultural Lease Area during late summer and fall months.

A number of natural springs are present, but not currently developed to provide stock water. Management recommendations include the development of these sources for use in grazing operations. Refer to **Appendix A** (page 47 of the RMP) for a description of this recommendation.

Livestock do not have access to Tunitas Creek or Dry Creek as a result of fencing and natural barriers, and creeks are not considered viable water sources for the livestock operation.

Residential water for the Agricultural Lease and Residential Lease Areas is provided via a natural spring located on the ridge to the south of the Agricultural Lease Area. The water is collected in a 5,000-gallon water storage tank and then pumped to the house.

1.4.5 Roadways

The main entrance to Toto Ranch is accessed by Cabrillo Highway that creates the west property boundary of the Project area for approximately 1.2 miles (**Exhibit F**). The main entrance is a paved/gravel driveway. The paved areas of the driveway are in good condition; however, the gravel sections are in poor condition due to the development of potholes. There are no erosion or sedimentation issues associated with the main driveway that result in water quality issues within Toto Ranch.

Throughout Toto Ranch, most of the dirt roadways are in fair to good condition, though minimally maintained. Most ranch roads are minimally graded with native vegetation ground cover present. There are three areas within the existing roadways that have been identified for improvement. These areas have been impacted by surface flows coming off the roads, creating incisions and resulting in erosion (**Exhibit G**). Winter rains will continue to cause damage to the road surface and potentially transport sediment into local streams. There are also areas that are overgrown with brush, creating hazardous conditions for vehicle access.

1.4.6 Fencing

The property boundary of Toto Ranch is fenced with “New Zealand style” (high tension, smooth wire) fencing and natural barriers (**Exhibit F**). Interior pasture fencing has divided the ranch into five main pastures with numerous additional small pastures around the Agricultural Lease Area. Interior pasture fencing is comprised of “New Zealand style” fences in varying condition, barbed wire fences, and natural barriers. Natural slope, rock, and brush barriers have been used historically to contain cattle in many places on the Ranch.

The lessee has installed a Management Intensive Grazing (MIG) system consisting of approximately 60 small grazing paddocks, constructed of temporary electric fencing, west of the Agricultural Lease Area, within the Livestock Grazing Area. The MIG is designed for high-intensity, short duration grazing as cattle are regularly rotated between paddocks during the “green” growing season, typically February through June.

1.4.7 Vegetation and Wildlife

The RMP provides detailed descriptions of vegetation and wildlife resources within Toto Ranch. Refer to **Appendix A** (Vegetation Description, page 18, and Wildlife, page 23, of the RMP). The existing conditions of these resources are included in Section 2.4.4, Biological Resources, of this document.

1.4.8 Farmstead Area

The Farmstead Area includes the Agricultural Lease Area and Residential Lease Areas. Existing infrastructure in the Farmstead Area includes: utility and access easements, agricultural buildings, corrals and congregation areas, water sources (including residential and for agricultural land uses), and roads. Refer to **Appendix A** (Improvements, page 12 of the RMP) for additional detail. The Farmstead Area has not been included in the RMP, as the purpose of the RMP is to provide a framework for managing rangeland pastures and grazing within Toto Ranch. The Farmstead Area is developed and supports the residential and agricultural land uses for the lessee. The conditions within the Farmstead Area are therefore not described further in this document. In the future, an Agricultural Production Plan will be prepared for the Farmstead area. As part of the adoption of the Agricultural Production Plan, additional CEQA review will be completed if required.

Within the Agricultural Lease Area, livestock infrastructure includes adequate perimeter fencing, livestock water troughs, a functional corral/processing facility, and “cow tight” interior pasture fencing. Water troughs around the Agricultural Lease Area and front pastures are fed via a windmill-powered well and residential water is provided via a natural spring just south of the Agricultural Lease Area. Rangeland Conditions

The RMP identifies 941 acres of rangeland pastures on Toto Ranch (excluding the Farmstead Area). Of these 941 acres, approximately 60 percent (546 acres) are annual grasslands and/or grassland-coastal scrub, which have historically been farmed, and more recently grazed with cattle.

Rangeland conditions, including forage quality and quantity (annual production), play a key role in determining carrying capacity for pastures. This information can then be used to quantify animal stocking rates for the entire Project area. Forage quality and quantity vary across the Project area based on soil type, topography, aspect, invasive vegetation, and water availability. In general, forage quality is good with a high abundance of palatable, nutritious grasses and forbs.

Palatable forage production ranges widely across the Project area, excluding the steeper, wooded slopes and dense brushy canyons that offer no forage potential. Forage production is slightly lower around rocky outcroppings or eroded slopes, as the soil tends to be shallow, limiting rooting and nutrient/water uptake by plants. Palatable forage production is also reduced by the presence of invasive vegetation such as distaff thistle and coyote brush, which occurs throughout

the Project area. Highly palatable annual grasses and low growing forbs comprise the majority of vegetation available for grazing livestock.

1.4.9 Animal Stocking Rates

The RMP provides a detailed analysis of methodology for determining stocking rates for Toto Ranch. Refer to **Appendix A** (Capacity for Conducting Agricultural Uses, page 31 of the RMP). To establish the optimum stocking rate/carrying capacity, existing infrastructure, forage production, soil quality, water availability, and available space were evaluated in light of other goals, including the protection of ecological resources. For Toto Ranch, the estimated stocking rate for an average forage production year is 632.0 Animal Unit Months (AUMs) or 53.0 animal units year-round, but this would significantly increase with a reduction in coyote brush in the grasslands. Stocking rates for Toto Ranch will vary annually based on available forage and water and should be adjusted accordingly based on current and forecasted conditions and available resources.

Through the RMP, it was determined that Toto Ranch could support approximately:

- 80 cows or 320 ewes year-round during a favorable production year (957.6 AUMs)
- 53 cows or 212 ewes year-round during an average production year (632.0 AUMs)
- 31 cows or 124 ewes year-round during an unfavorable production year (365 AUMs)

AUM levels are maximums and derived under the formulas in the RMP. It is up to the tenant to ensure that the health and safety of the grazing animals are maintained. Unusual conditions (e.g. extended drought or lower level of forage than anticipated) may require that fewer animals be grazed. Midpen's highest goal is to maintain the long-term ecological health of the rangeland.

Additional stocking rates for various livestock combinations and environmental conditions (e.g., soils, forage production, drought) are provided in **Appendix A** (Tables 4, 5, and 6 in the RMP). These estimated stocking rates may increase in the future if vegetation management to reduce coyote brush encroachment is implemented. Coyote brush is well established in many of the steeper canyons and has expanded into the ridgetops and open grassland areas over time. Coyote brush encroachment in the grasslands has reduced forage production by 50 to 80 percent in many pastures. A coyote brush management plan is currently being developed for Midpen preserves and will include Toto Ranch.

1.4.10 Surrounding Land Uses

Toto Ranch is located within coastal San Mateo County along the inland side of State Route 1 (**Exhibits A and B**). The area is located within the California Coastal Zone, regulated through the Local Coast Program (LCP) that has been developed for San Mateo County, and is in an area that has been designated as the Coastside Protection Area, an area that was annexed into Midpen boundaries in 2004.

The surrounding rural landscape is dominated by established ranches used primarily for beef cattle production and row crop production. Vegetable crop, hay and cut flower operations are also scattered throughout the area. The region has undergone a recent increase in poultry, grass-fed meat, egg production and local creameries.

The lands that border Toto Ranch to the north, south and east includes are primarily grazed rangeland with associated residential/farm buildings. The land to the north also includes a number of small residential lots and small farm fields in addition to grazed rangelands. State Highway 1 and the Pacific Ocean border Toto Ranch to the west.

1.5 Proposed Project Components

The proposed Project includes the following primary components.

1. Toto Ranch RMP Implementation
 - a. Grazing Recommendations
 - b. Fence Repairs and Installation
 - c. Road Repair and Maintenance
 - d. Water Infrastructure Improvements
 - e. Monitoring and Adaptive Management
2. Pond Management
3. Avoidance and Minimization Measures

1.5.1 Toto Ranch RMP Implementation

Overview and Existing Guidance Documents

The Toto Ranch RMP has been prepared in accordance with conservation grazing goals. This entails Midpen managing lands with livestock grazing that is protective of natural resources and compatible with public access, maintains and enhances the diversity of native plant and animal communities, manages vegetation fuel for fire protection, helps sustain the local agricultural economy, and preserves and fosters appreciation for the region's rural agricultural heritage. The RMP was developed by Midpen to provide a framework around which resource managers, land managers, and grazing lessees can make rangeland management decisions on Toto Ranch, while implementing adaptive management changes to achieve the goals of the RMP and other relevant resource management plans over time. As such, the RMP is a living document that is anticipated to be updated every ten years, or sooner to accommodate a significant change in land use, management practices, or land ownership.

The RMP addresses rangeland management practices for:

- soil and water conservation,
- erosion control,

- pest management,
- nutrient management,
- water quality protection, and
- vegetation and wildlife habitat protection.

The RMP (**Appendix A**) includes specific recommendations and BMPs that are part of the proposed Project, included as **Table 1A**, and Monitoring and Adaptive Management recommendations, included as **Table 1B**, in Section 1.5.3, Avoidance and Minimization Measures.

Additionally, the rangeland management practices would be conducted in accordance with several existing permits and guidance documents (listed below). The existing permits and guidance documents are described in **Appendix B**, and the recommendations and requirements that are part of the proposed Project are included in **Table 2** in Section 1.5.3, Avoidance and Minimization Measures.

- CDFW Streambed Alteration Agreement Notification No 1600-2012-0444-R3 (2018)
- Basic Policy of the Midpeninsula Regional Open Space District (1999)
- California Land Conservation (Williamson Act) Contract (Planning File No. AP 84-4, Board of Supervisors Resolution No. 46568, recorded in San Mateo County Records as Document No. 85015218 on February 15, 1985)
- Service Plan for the San Mateo Coastal Annexation Area (2002)
- San Mateo Coastal Annexation Draft Environmental Impact Report (2002)
- Midpeninsula Regional Open Space District's Resource Management Policies (2018)
- Midpeninsula Regional Open Space District's Integrated Pest Management Program Guidance Manual (2014)
- Midpeninsula Regional Open Space District's Integrated Pest Management Program Environmental Impact Report (2014)
- Midpeninsula Regional Open Space District's Preliminary Use and Management Plan (2012)
- Regulations for Use of Midpeninsula Regional Open Space District Lands (2014)
- Midpeninsula Regional Open Space Toto Ranch Bat Roost and Acoustic Survey (2018)
- RWQCB Waste Discharge Requirements and Water Quality Certifications for Routine Maintenance Activities for Mid-Peninsula Open Space District, Order No. R2-2010-0083 (2010)
- USFWS Intra-Service Biological Opinion on the issuance of a 10(a)1(A) permit to the Midpeninsula Regional Open Space District for the San Francisco Garter Snake and California Red-Legged Frog Habitat Enhancement Projects at their Open Space Preserves in San Mateo and Santa Clara counties, California (2016)
- USFWS Native Endangered and Threatened Species Recovery Permit (2016)

A. Grazing Recommendations

The RMP includes grazing recommendations to be implemented by Midpen and the grazing tenant for the Livestock Grazing Area of Toto Ranch to guide livestock grazing operations and rangeland management throughout the Project area.

The RMP identifies several sets of goals for Toto Ranch that influenced the development of the grazing recommendations provided therein. These included Midpen Ownership and Management Goals and are based on the desire to maintain specific land uses and environmental conditions, as well as existing management plans and documents previously approved by Midpen that apply to Toto Ranch (refer to **Appendix A**, page 4 of the RMP). The RMP also outlines specific goals and objectives for grazing management at Toto Ranch, and these are called RMP Goals and Objectives (refer to **Appendix A**, page 6 of the RMP). Both sets of goals are provided below.

The RMP is part of an integrated approach to vegetation management that is consistent with Midpen's Integrated Pest Management (IPM) Program to control invasive vegetation, with a focus on woolly distaff thistle, French broom, onion grass and coyote brush. Biological, chemical, cultural, manual and mechanical control measures may be implemented that include, but are not limited to, timed grazing, hand digging, herbicide application, reseeding and burning/torching.

The RMP includes various management recommendations that are designed to guide the use of grazing as one of the tools available to Midpen in vegetation management and agricultural heritage preservation. The goals of these recommendations, as stated in the RMP, are to: "ensure the sustainability of agricultural production on Toto Ranch while protecting rangeland health, soil stability, water quality and the control of invasive vegetation to cooperatively conserve and enhance habitat for wildlife". Recommendations and best management practices from the RMP are summarized in **Table 1A**.

Coyote brush is well established in many of the steeper canyons of Toto Ranch, and has expanded into the ridgetops and open grassland areas over time. Coyote brush encroachment in the grasslands has reduced forage production by 50 to 80 percent in many pastures. The lessee has attempted mechanical control of the coyote brush by mowing, primarily in the front pastures (Pastures 1 and 2 in **Exhibit F**) between the Agricultural Lease Area and Cabrillo Highway. The mowing has reduced the size of the individual plants but has done little to reduce the quantity and percent cover of the coyote brush. A strategic plan to control coyote brush is currently being developed separate of the RMP for Toto Ranch, will be analyzed under the IPM CEQA EIR compliance process, and therefore has not been analyzed as part of the Project.

The following grazing recommendations are based on the Midpen Ownership and Management Goals and are incorporated into the Project.

- One grazing lessee would operate the lands with a multi-year grazing lease.
- The Agricultural Lease Area would be managed under a separate lease than the Livestock Grazing Area and would define specific uses within the Agricultural Lease Area.
- Grazing of cattle would continue on the Livestock Grazing Area of Toto Ranch, and would not include the Agricultural Lease Area.
- Cattle loading and off-loading, and all processing of cattle, would occur only within the corral within the Agricultural Lease Area.
- All domestic livestock production (horses, donkeys, goats, llamas, alpacas, pigs, emus, chickens and turkeys) would occur only within the Agricultural Lease Area, with the exception of horses used for cattle operations within the Livestock Grazing Area. These would be limited to a maximum of seven (7) total horses.
- The seven (7) working ranch horses would be permitted to graze in Pastures 1–3 (**Exhibit F**) during the dry months; typically, April – October.
- Toto Ranch would be grazed year-round, dependent upon available forage and livestock water, with cattle rotated between the five (5) existing pastures. If available forage and/or stock water is not adequate to support grazing livestock, cattle would temporarily be removed from Toto Ranch, and grazing would be restricted to seasonal use only.
- Water use would be prioritized for cattle grazing within the Livestock Grazing Area, under the RMP, with secondary water use available to domestic livestock within the Agricultural Lease Area.
- Lands would be managed utilizing livestock conservation grazing that is protective of natural resources and compatible with public access.
- The diversity of native plant and animal communities would be maintained and enhanced.
- Vegetation would be managed for fuel for fire protection.
- Toto Ranch would be managed to help sustain the local agricultural economy.
- Management of Toto Ranch would preserve and foster appreciation for the region’s rural agricultural heritage.

In order to meet the Goals and Objectives of the RMP, the plan contains the following elements that were identified based on the overall conservation grazing goals of Midpen.

- Describe appropriate historic, current, and potential future agricultural uses.
- Inventory existing agricultural resources, including soils, water sources, grassland vegetation, forage quality and production, croplands and infrastructure.
- Determine capacity for conducting viable agricultural uses.
- Establish provisions for minimizing erosion and transport of potential pollutants into creeks

- Provide a list of Best Management Practices (BMPs) for climate related impacts, grazing standards, invasive species management, water resources and conservation.
- Provide specific guidance for the conduct of agricultural uses that complies with the restrictions contained in the Easement. The plan will include, as appropriate, Animal Unit Equivalents (AUE), ranch forage production estimates, available forage, crop production estimates, and capacity for any other agricultural uses described in the RMP.

B. Fence Repair and Installation

Fencing improvements are included in the RMP, as shown in **Exhibit H**, and would be implemented over time. All fence improvements include wildlife friendly fencing, using 4 strand barbed wire with a smooth bottom. The proposed fencing improvements include:

- Replacement of the entirety of the West Property Boundary Fence,
- Replacement of the entirety of the South Property Boundary Fence,
- Installation of a Cross Fence in Field 3,
- Removal of the old fence/unused fence/MIG, and
- Potential fencing of the stock ponds as an adaptive management strategy for California red-legged frog (CRLF).

C. Road Repair and Maintenance

Most of the roads throughout Toto Ranch are in good condition and do not require maintenance. The following areas have been identified in the RMP for roadway repairs (**Exhibit G**). The two (2) sections of road that show signs of rutting/gully activity would be repaired to maintain the integrity and protect downstream water quality. In Field 3, a culvert or ford crossing would be installed in a riparian habitat and minor grading/brushing would be required to make the road passable.

Additionally, as described under D below, the Project includes the installation of a new waterline adjacent to or under the driveway that provides access to the Agricultural Lease Area. Because Midpen is planning improvements to the driveway (formerly called Starr Hill Road) as part of a separate future project, the waterline would be installed at that time to minimize ground disturbance. Roadway improvements and installation of the waterline would include restoration of the surface contours and fabric of the road to its original grade elevation, travel direction, and overall character.

Any improvements to other roadways, including the driveway that provides access to the Agricultural Lease Area, are not included within the RMP, and therefore impacts have not been analyzed.

D. Water Infrastructure Improvements

Water infrastructure improvements would enhance livestock distribution and overall forage utilization, as well as extend the grazing season, which is currently affected by the lack of stock

water during summer and fall months (**Exhibit H**). The proposed water infrastructure improvements include:

- Replacing the plastic water troughs in and around the Agricultural Lease Area,
- Installing a new waterline adjacent to or under the driveway that provides access to the Agricultural Lease Area,
- Installing a new waterline and trough north of the Agricultural Lease Area,
- Improving the Field 3 water system, including the spring, solar powered pump, tank, pipe and troughs,
- Ensuring wildlife escape ramps are present in all troughs, and
- Adhering to Midpen's wildlife friendly spring development designs.

These improvements are designed to provide additional water sources in the smaller pastures formed through cross fencing to provide smaller grazing areas and additional grazing rotational flexibility. The addition of water troughs would provide more water source storage capacity. Additional pond management actions would also be included on Toto Ranch, but are not included in the RMP. These actions are further discussed below in Section 1.5.2, Pond Management.

E. Monitoring and Adaptive Management

The RMP outlines a monitoring program for Toto Ranch to ensure that the implementation of the RMP management recommendations and BMPs are achieving the goals and objectives identified in the plan. The results of monitoring observations can be used as a guideline for adaptive management changes, as needed. A summary table of the monitoring protocols and criteria, with timing recommendations and photo monitoring points, is included in **Table 1B** and **Exhibit I**.

As described above, the RMP includes management goals and objectives, specific actions to achieve them, and relevant guidance documents to ensure the actions and Project are implemented in accordance with existing requirements. Specific actions include, but are not limited to, fence repairs, road repairs, and water infrastructure improvements. These practices and Projects would improve the ability of Midpen and the grazing tenant/lessee to access and manage the property, while protecting the land from excess erosion and other impacts.

However, because habitats and sensitive resources are widely distributed throughout the Project area, implementation of the different management techniques prescribed in the RMP must be considered and administered thoughtfully (**Exhibits J and K**). Sensitive resources include: erodible soils, locations of special-status species, wetlands and other natural water features and their associated riparian zones, steep slopes, and existing or potential locations of cultural resources. The locations of sensitive resources, including areas with multiple resources and/or constraints, must be identified, and management techniques and timing adjusted in order to ensure the protection of these resources and areas.

An opportunities and constraints analysis was conducted to identify the locations of sensitive resources and higher-constrained areas on a map of Toto Ranch using Midpen's existing geographic information system (GIS) files. ArcMap 10.6 was used to overlay the locations of all sensitive resources, and a spatial analysis was used to identify areas with numerous sensitive species, sensitive resources, or importance. Although no formal weighting process was used in the analysis, general knowledge of the resources and their importance were used in conjunction with the spatial analysis to determine areas in which grazing or other RMP-identified activities should be eliminated or constrained. The results of these analyses have been taken into account in both the Project description and in the impact analysis within this document.

The results of this analysis have been used and would continue to be used to implement the RMP over time throughout Toto Ranch and to determine future improvement Projects. This analysis would also be used to determine appropriate avoidance and minimization measures, and applicable mitigation measures that would be required to minimize and avoid environmental impacts. Relevant topics are discussed within the appropriate resource analyses, including biological resources, geology, and hydrology.

1.5.2 Pond Management

Pond management practices were not specifically included in the RMP but are necessary to support RMP implementation, because currently seasonal ponds dry up mid-summer and cattle cannot graze those pastures.

Improvements to stock ponds would enhance habitat for special-status species and improve the overall water function throughout Toto Ranch. The proposed stock pond management activities include:

- Installing and/or improving inlet and/or outlets,
- Reconstructing berms to modify the hydroperiod of the water body,
- Recontouring the shape and depth of ponds, including sedimentation removal;
- Connecting ponds to existing or new water infrastructure, including troughs, pumps, water lines and other facilities to move water from ponds to serve cattle or bypass water outside of an approved diversion season,
- Installing cattle exclusion fencing,
- Treating invasive species, as necessary, and/or
- Decommissioning ponds.

The construction window for these repairs would be from August 15 to October 15 (if wet) to minimize potential impacts to CRLF and would occur over the course of several years.

In the event that pond management would result in a net loss of wetlands through the decommissioning of smaller stock ponds or seasonal catchments when restoring natural drainage within Toto Ranch, Midpen would be required to mitigate all wetland impacts at a

minimum ratio of 1:1, in compliance with permits that have been obtained from the USACE, USFWS, RWQCB and CDFW. This may be achieved through implementation of avoidance and minimization measures, or the expansion/enhancement of another existing pond. Informal consultation would be required by the agencies prior to the implementation of decommissioning activities to ensure that both the acreage and function of wetlands within Toto Ranch was preserved.

1.5.3 Avoidance and Minimization Measures and Best Management Practices

RMP - Recommendations and Best Management Practices

As described above in Section 1.5.1, Toto Ranch RMP Implementation, the proposed Project includes the avoidance and minimization measures listed in **Table 1A** based on specific recommendations and BMPs listed in the RMP.

Existing Permits and Guidance Documents – Recommendations and Requirements

The proposed Project includes the avoidance and minimization measures listed in **Table 2** based on existing permits and guidance documents.

Construction & Management BMPs

Implementation of the specific Projects identified in the RMP may require the preparation of a Stormwater Pollution Prevention Plans (SWPPP) as the combined area that would be impacted through the proposed improvement projects may be over one acre in size (2009-0009-DWQ Construction General Permit¹). If the area of impact for any proposed project improvements was less than one acre in size, all improvement activities undertaken at Toto Ranch would be required to implement the BMPs in accordance with the *San Mateo Countywide Water Pollution Prevention Program Construction BMPs program (June 2014 edition)*. Construction specifications would include the following BMPs to control erosion, sediment and stormwater pollution, whether implemented through a project SWPPP or through County BMPs.

- All exposed and un-compacted surfaces (e.g., staging areas, soil piles and graded areas) would either be watered two times a day or covered with mulch, straw, or other dust control cover.
- All haul trucks transporting soil, sand, or other loose material off site would be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be collected and removed at least once per day. The use of dry power sweeping is prohibited. All vehicle speeds on unpaved roads would be limited to 15 miles per hour.

¹ State Water Resources Control Board, Storm Water Program, Section II.C.2 of 2009-0009-DWQ Construction General Permit as amended by 2010-0014-DWQ & 2012-0006-DWQ.
https://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

- Idling times would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measures (ATCM) Title 13, Section 2485 of California Code of Regulations).
- All construction equipment would be maintained and properly tuned in accordance with manufacturer's specifications. All equipment would be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Hand tools would be used when possible.

The use of gas and diesel-powered vehicles within vegetated areas poses a fire risk. The following BMPs would be implemented to reduce the fire ignition risk throughout specific Project implementation at Toto Ranch (Midpen, 2002).

- All equipment to be used during construction and maintenance activities must have an approved spark arrestor.
- Grass and fuels around construction sites where construction vehicles are allowed to be parked would be cut or reduced.
- Mechanical construction equipment that may cause an ignition would not be used when the National Weather Service issues a Red Flag Warning for the San Francisco Bay Area, unless prior approval is provided by CAL FIRE.
- Hired contractors would be required to:
 - Provide water and/or fire extinguishers to suppress potential fires caused by the work performed.
 - Remind workers that smoking is prohibited at the work site and on any Midpen lands per contract conditions and Midpen Ordinances.
 - Maintain working ABC fire extinguishers on all vehicles in the work area.
 - Contact CAL FIRE for emergency response in the event of a fire.

The RMP includes a suite of management recommendations and BMPs that are designed to guide the use of grazing as one of the tools available to Midpen in vegetation management and agricultural heritage preservation. The goals of the recommendations and BMPs, as stated in the RMP, are to, “ensure the sustainability of agricultural production on the Ranch while protecting rangeland health, soil stability, water quality and the control of invasive vegetation to cooperatively conserve and enhance habitat for wildlife.” Detailed descriptions of these recommendations are available in the RMP and are summarized in **Table 1A**.

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
Vegetation Prescriptions	<ul style="list-style-type: none"> • Leave prescribed levels of RDM 	<ul style="list-style-type: none"> • Support seed bank • Minimize soil erosion and sedimentation • Protect water quality • Reduce invasive plants 	<ul style="list-style-type: none"> • All rangeland/ pasture • All seasons 	<ul style="list-style-type: none"> • 0%–30% slopes: 2–3 in or 800–1,000 lbs/acre (ave) • >30% slopes: 3–4 in or 1,00–1,200 lbs/acre 	<ul style="list-style-type: none"> • No significant areas of bare soil, especially on steep slopes or near riparian corridors
Grazing Season	<ul style="list-style-type: none"> • Light to moderate rotational grazing regimes (short duration) • Limited by available stock water • Rotation determined by standing forage (See Vegetation Prescriptions) • Rotation a combination of sheep and cattle may enhance forage utilization 	<ul style="list-style-type: none"> • Enhance biodiversity • Enhance aesthetics • Enhance forage production 	<ul style="list-style-type: none"> • All rangeland/ pasture • All seasons 	<ul style="list-style-type: none"> • Stable/ enhanced stock water supply (especially in summer and fall) • Standing forage (see Vegetation Prescriptions) 	<ul style="list-style-type: none"> • If water supply is limited, implement seasonal grazing regime (restrict grazing during dry months) or partial seasonal grazing regime with higher stocking rates during the winter and spring and reduced stocking during summer and fall
Water Supply	<ul style="list-style-type: none"> • Provide clean, cool water for livestock in troughs (galvanized and concrete, not plastic) • Reduce the direct livestock consumption of streams and stock ponds as water sources • Monitor water infrastructure (i.e., pipes, fixtures, troughs, solar pump, windmill, wells, storage tank) and maintain as necessary • Install wildlife escape ramps in all troughs • Water should be prioritized for cattle and sheep (not horses, alpacas, chickens, etc. or irrigation of pastures) • Field 3 spring/water improvements (install solar-powered pump, storage tank, and water 	<ul style="list-style-type: none"> • Livestock health • Reduce erosion potential along creeks and around stock ponds • Reduce impacts to aquatic and riparian habitat and species • Minimize impacts on wildlife (from drowning in water troughs) or loss of habitat from spring development • Improve ability to rotate cattle 	<ul style="list-style-type: none"> • All troughs and water infrastructure • Reduce the use of all stock ponds and streams • Field 3 (spring improvements) 	<ul style="list-style-type: none"> • Stable/ enhanced Stock water supply (especially in summer and fall) • Choris' popcorn flower habitat and population enhancement 	<ul style="list-style-type: none"> • Reduce impacts to Choris' popcorn flower from construction of infrastructure Projects; improve habitat for this species with properly timed rotational grazing

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
	<p>troughs) to allow properly timed grazing for Choris' popcorn flower</p> <ul style="list-style-type: none"> Adhere to District's wildlife friendly spring designs 	<ul style="list-style-type: none"> Improve stability of water sources Maximize water source and availability Enhance Choris' popcorn flower population 			
Stockponds	<ul style="list-style-type: none"> Routine maintenance (e.g., desilting and vegetation management) Maintain spillway(s) and berm of stock ponds Analyze and monitor condition of stock ponds Decommission smaller stock ponds or seasonal catchments, when appropriate, and restore natural drainage Enhance ponds where possible to support successful breeding (all life stages) of California red-legged frog (CRLF) and San Francisco garter snake (SFGS) populations Maintain permits for stock pond maintenance activities 	<ul style="list-style-type: none"> Maintain water storage capacity Provide wildlife habitat Provide water source for wildlife Restore natural drainages and protect riparian habitat Protect downstream water bodies from sedimentation Extend life of stock ponds Enhance habitat for aquatic species (including CRLF and SFGS) 	<ul style="list-style-type: none"> All rangeland/ pasture stock ponds 	<ul style="list-style-type: none"> Quality and quantity of stock pond water supply Condition of stock ponds CRLF and SFGS habitat enhancement 	<ul style="list-style-type: none"> Reduced capacity of stock ponds requires desilting Disrepair of stock pond spillways and berms indicates need for maintenance/repairs Damage to vegetation and banks of on-stream stock ponds indicates that a pond shall be removed Habitat assessment of ponds for CRLF and SFGS will indicate the need for pond management (fencing, grazing regime change, etc. See CRLF and SFGS Management, below)
Supplemental Feed	<ul style="list-style-type: none"> Place water and supplemental feed/mineral stations on ridge tops and upland areas, away from water sources and riparian features Supplemental forage shall be certified "weed free", and proof of certification, in the form of 	<ul style="list-style-type: none"> Promotes even use/distribution of the pastures by livestock Prevents localized impacts from livestock (e.g., soil 	<ul style="list-style-type: none"> All rangeland/ pastures and Agricultural Lease Area 	<ul style="list-style-type: none"> Amount of standing forage (see Vegetation Prescriptions) 	<ul style="list-style-type: none"> Supplemental feed should be considered under drought conditions (low RDM) Uneven grazing of pastures (areas of low

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
	<p>a copy of the California Department of Food and Agriculture Form 66-079 "Certificate of Quarantine Compliance", shall be requested from the vendor, and inspected by Midpen Natural Resources Department staff prior to feeding</p> <ul style="list-style-type: none"> Supplemental feeding should not be used to extend the grazing season beyond the guidelines for prescribed RDM levels in the pastures. 	<p>compaction, trampling, erosion)</p> <ul style="list-style-type: none"> Prevents the introduction and spread of seed from invasive plants into pastures 		<ul style="list-style-type: none"> Soil conditions that indicate livestock are not using the entire pasture 	<p>and high RDM within the same pasture) indicates that feed/mineral stations may need to be moved to encourage grazing of entire pasture</p>
Fencing and Corrals	<ul style="list-style-type: none"> Maintain quality, functional infrastructure (i.e., fencing, gates, corrals) Install new mesh wire fencing for sheep (if sheep are included in the livestock operations) Confine sheep to predator-proof pens or paddocks at night Wire fencing on western and southern boundary should be replaced with barbed wire fencing as the existing fence fails, using Midpen specifications for livestock fencing Install new section of barbed wire fencing southeast of the Agricultural Lease Area to split Field 3 into two separate pastures (by bisecting pond TC-06) to facilitate rotational grazing to benefit Choris' popcorn flower and CRLF (See Proposed Infrastructure for fence alignment) Remove old fencing that does not function as a pasture barrier 	<ul style="list-style-type: none"> Increase ease of livestock handling for grazing rotation and controlling access to riparian corridors and other sensitive habitats/areas Decrease injury to livestock while ensuring containment in proper pastures Enhance Choris' popcorn flower habitat Protect/enhance CRLF habitat (emergent vegetation) 	<ul style="list-style-type: none"> All rangeland/ pastures and Agricultural Lease Area 	<ul style="list-style-type: none"> Condition of fencing 	<ul style="list-style-type: none"> Fencing in disrepair indicates need for repair or replacement Failure to contain livestock within specified pastures indicates need for fence repair or replacement Condition of rangeland/pasture, soil, riparian areas, and stock ponds may indicate a need for additional fencing to exclude livestock or change pasture configuration to balance grazing pressure Injuries to livestock or wildlife indicates need to change fencing materials or location

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
Herd Health	<ul style="list-style-type: none"> Implement herd health program, including vaccinations, deworming, and additional nutrients 	<ul style="list-style-type: none"> Livestock productivity and health Preventative care 	<ul style="list-style-type: none"> All livestock 	<ul style="list-style-type: none"> Herd health must be maintained at all times 	<ul style="list-style-type: none"> Diseased or injured animals must be treated by a veterinarian or other qualified technician
Ranch Roads	<ul style="list-style-type: none"> Maintain roads, including cleaning ditches and culverts, grades, water diversions, and water bars (especially during winter months) Mow vegetation on road surfaces (as opposed to grading) Road repair at two road sections (see Exhibit G in the RMP for locations) Repair main gravel driveway between State Route 1 and the Agricultural Lease (potholes) 	<ul style="list-style-type: none"> Maintain access to pastures for grazing operation, maintenance, restoration, recreation, and emergency response Minimize water flow and erosion on and adjacent to road surfaces Decrease spread of invasive plants along road cuts and grades 	<ul style="list-style-type: none"> All rangeland/ pastures and Agricultural Lease Area 	<ul style="list-style-type: none"> Condition of roads and adjacent areas Condition of culverts Soil erosion 	<ul style="list-style-type: none"> Conditions that indicate erosion and instability of roads indicates the need for maintenance (e.g., gullies and rills, ponded water, “washboard” road surfaces, washed out areas, potholes, slips or slides)
Drought Preparedness	<ul style="list-style-type: none"> Maintain clean, reliable water source(s) Maintain increased water storage capacity Develop additional water sources if feasible (e.g., springs and wells) If water yield increases, add water tanks for increased water storage Lower stocking rates to below recommended carrying capacity to extend grazing season and retain forage until new forage sprouts Grass banking (retain forage in a designated pasture by minimizing or eliminating grazing pressure in late spring and summer) Store and feed supplemental forage (e.g., hay) that can be fed to livestock to supplement natural forage during a drought 	<ul style="list-style-type: none"> Alleviate impacts of drought, including lack of forage, lack of water, herd health, mineral deficiencies, and lack of production Meet vegetation prescriptions during drought Maintain quality of pastures during drought Maintain soil health during drought 	<ul style="list-style-type: none"> All rangeland/ pastures and Agricultural Lease Area 	<ul style="list-style-type: none"> Water quality Water availability Forage quality Forage availability Livestock health and forage utilization 	<ul style="list-style-type: none"> None. These management activities should be implemented as directed upon adoption of the RMP.

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
	<ul style="list-style-type: none"> • Provide mineral/protein supplements to increase forage utilization, herd health, and overall productivity of livestock 				
Pathogen Reduction and Risk Management	<ul style="list-style-type: none"> • Prevent fecal contamination of creeks and other water features • Restrict livestock access to Tunitas Creek, Dry Creek, and perennial tributaries to both water courses • Maintain a natural vegetative buffer of no less than 30 ft from top of bank in Tunitas Creek, Dry Creek, and perennial tributaries • Restrict pasture swine rearing to flat pens in Agricultural Lease area • Maintain a 100 ft vegetative buffer between swine and perennial streams • Control runoff and leaching from stockpiled manure, confined livestock, and corral facilities • Maintain a 100 ft vegetative buffer between corrals and perennial streams • Control flies and rodents in the Agricultural Lease area according to the District's Integrated Pest Management (IPM) program • Remove excess fecal waste from livestock within the confined livestock pens and corrals to reduce fly and insect presence • Provide off-stream livestock water sources (e.g., water troughs) to reduce use of streams by livestock • Implement comprehensive livestock husbandry program that includes appropriate and timely vaccinations and deworming 	<ul style="list-style-type: none"> • Reduce the transmission of pathogens between livestock, humans, and wildlife • Reduce the contamination of water ways • Vegetative buffer will trap pathogens before they reach water bodies 	<ul style="list-style-type: none"> • All rangeland/ pastures and Agricultural Lease Area 	<ul style="list-style-type: none"> • Water quality • Presence of pathogens and pests • Cleanliness of animal pens and pastures • Location of manure piles • Location of water sources 	<ul style="list-style-type: none"> • None. These management activities should be implemented as directed upon adoption of the RMP.

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
California Red-Legged Frog Management	<ul style="list-style-type: none"> • Time grazing to enhance aquatic and upland habitat for CRLF (vegetation management and cover and water quality) • Repair eroding or leaking dams and spillways, remove excessive silt and vegetation, and control non-native predators • Provide upland refuges and dense vegetation for predator protection • Do not eliminate burrowing rodent populations, and if rodent control is needed, do not use methods that would harm aestivating CRLF • Provide alternative water sources (water troughs) that will alleviate pressure, and therefore impacts, on existing stock ponds. Some use of stock ponds by cattle is beneficial for CRLF. • Adjust grazing intensity to enhance aquatic habitat by altering the timing and/or stocking rates of pastures with CRLF-occupied ponds. Follow recommendations in water supply above to enhance CRLF habitat by providing a sufficient inundation period for restoration (Dec-Sept). • When removing sediment and/or restoring ponds, provide a variation of water depths and vegetation cover for all CRLF life stages (deep center and shallow edges). • Manage emergent vegetation (cattails and other vegetation) so that density does not degrade habitat quality for CRLF. • Water troughs must be fitted with wildlife escape ramps 	<ul style="list-style-type: none"> • Provides cover, nutrient levels, water depth, and turbidity conducive to CRLF breeding and subsistence 	<ul style="list-style-type: none"> • All rangeland/ pastures • Stock ponds • Creeks and streams 	<ul style="list-style-type: none"> • Water quality • Condition of stock ponds • Condition of creeks • Condition of emergent vegetation • Condition of riparian vegetation • Condition of upland vegetation • Presence of small mammal burrows and other upland refugia (downed logs, rocks, etc.) 	<ul style="list-style-type: none"> • Decrease in water quality (turbidity, nutrient levels, temperature) will require adjustments to grazing regime/access by cattle • Shallow pond depth will necessitate silt removal • Overly dense vegetation must be removed • Overly trampled pond edges will require adjustments to grazing regime/access by cattle • Over-grazed emergent and riparian vegetation will require adjustments to grazing regime/access by cattle

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
San Francisco Garter Snake Management	<ul style="list-style-type: none"> • Benefits from same management of grazing in upland areas and around springs and stock ponds as CRLF because they utilize the same habitat • Because CRLF is the main prey, increases in CRLF population also benefits the SFGS • Manage upland habitat for a mosaic of open grassland, brush, and downed woody debris 	<ul style="list-style-type: none"> • Provides adequate escape habitat during frog mating season (Dec-Mar) and during SFGS breeding season (Mar-Jun and Sep-Oct) • Provides reliable food source (CRLF) 	<ul style="list-style-type: none"> • All rangeland/ pastures and Agricultural Lease Area • Stock ponds • Creeks and streams 	<ul style="list-style-type: none"> • Water quality • Condition of stock ponds • Condition of creeks • Condition of emergent vegetation • Condition of riparian vegetation • Condition of upland vegetation • Presence of small mammal burrows and other upland refugia (downed logs, rocks, etc.) • Presence of upland habitat mosaic (grassland and shrub) 	<ul style="list-style-type: none"> • Decrease in water quality (turbidity, nutrient levels, temperature) will require adjustments to grazing regime/access by cattle • Shallow pond depth will necessitate silt removal • Overly dense vegetation must be removed • Overly trampled pond edges will require adjustments to grazing regime/access by cattle • Over-grazed emergent and riparian vegetation will require adjustments to grazing regime/access by cattle
Choris' Popcorn Flower Management	<ul style="list-style-type: none"> • Implement a seasonal grazing program that is compatible with and provides habitat benefit to Choris' popcorn flower • Improve water management to provide additional water sources for cattle, protecting 	<ul style="list-style-type: none"> • Enhance habitat and population of Choris' popcorn flower 	<ul style="list-style-type: none"> • All rangeland/ pastures where Choris' popcorn 	<ul style="list-style-type: none"> • Choris' popcorn flower habitat and population enhancement 	<ul style="list-style-type: none"> • Adjust grazing regime (timing, amount of days grazed) from recommendations if blooming and seed production schedules are

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
	<p>habitat around springs for Choris' popcorn flower</p> <ul style="list-style-type: none"> • Reduce annual/non-native vegetation through timed livestock grazing prior to blooming period (graze in Dec-Feb in advance of Mar-Jun blooming period) • Grazing can continue after seeds are released (July) • Reduce trampling from foot traffic, livestock, and road use • Prohibit placement of manure or compost within 50 feet of popcorn flower habitat areas • Implement a monitoring program for Choris' popcorn flower in accordance with Midpen guidance documents and other similar monitoring programs in progress district wide 		<p>flower occur</p>		<p>different from expected dates</p> <ul style="list-style-type: none"> • If trampling occurs, provide temporary exclusionary fencing to protect plants
<p>Invasive Plant Control</p>	<ul style="list-style-type: none"> • Develop integrated approach for identifying and treating invasive plants that impact forage production and grassland health (i.e., coyote brush, yellow star thistle, wooly distaff thistle, Italian thistle, bull thistle, onion grass) • Contain weed infestation to current extent (prevent spread of invasive plants) • Comply with Midpen's Integrated Pest Management (IPM) program, Integrated Pest Management Plan (IPMP) BMPs, and the federal injunction to protect CRLF from impacts from specific chemical pesticides • Meet 2–3-inch RDM goals for Vegetative Prescriptions (see above) • Apply selective broadleaf herbicide in the spring to control purple star thistle and wooly 	<ul style="list-style-type: none"> • Increase and/or maintain forage productivity • Increase and/or maintain livestock productivity • Increase and/or maintain wildlife habitat value (forage quality) 	<ul style="list-style-type: none"> • All rangeland/ pastures and Agricultural Lease Area 	<ul style="list-style-type: none"> • Extent of invasive plant infestation • Establishment (new infestations) of invasive plants • Sufficient levels of RDM (see Vegetation Prescriptions, above) 	<ul style="list-style-type: none"> • None. These management activities should be implemented as directed upon adoption of the RMP.

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
	<p>distaff thistle; follow up with manual removal of late sprouts in summer</p> <ul style="list-style-type: none"> • Remove and bag wooly distaff thistle plants at least 5 in below soil surface before flowering • Mow invasive thistles with high branching patterns in late spiny or early flowering stages • Prioritize thistle removal where risk of seed spread is high (e.g., road sides, cattle trails, and loafing areas) • Use weed wrenches to remove French broom plants; prevent seed bank from forming • Feed certified weed free hay to prevent the introduction of invasive plants • Do not import outside soil or fill material • Clean vehicles and ranch equipment as needed to prevent the importation of invasive plant seeds from infested areas • Contact the local Natural Resource Conservation Service (NRCS) for funding and technical assistance with IPMP • For onion grass, remove foliage close to the ground at 3–5-week intervals, maintain natural forage cover, and fertilize native vegetation (to outcompete onion grass), only under the direction of Natural Resources Staff • Measures identified in the Coyote Brush Management Plan that is currently being developed my Midpen would be implemented at Toto Ranch. 				

Table 1A. RMP – Recommendations and BMPs

Name of Recommendation/ BMP	Description	Expected Outcomes	Location/ Application	Parameters/ Criteria	Contingency/Mitigation
Additional Livestock Production	<ul style="list-style-type: none"> • Additional domestic livestock (Sheep, goats, chickens, pigs, llamas/alpacas, and horses) shall be confined to the Agricultural Lease area • Confine small domestic livestock to pens or barns at night to minimize the risk of predation • Dairy operations are not supported by current infrastructure and may not occur • Breeding, training, raising and selling horses (Horse Operations), and boarding outside horses are not permitted on Toto Ranch. 	<ul style="list-style-type: none"> • Minimize erosion • Minimize risk of pathogen and pest infestation • Maintain rangeland/pasture quality • Maintain water quality 	<ul style="list-style-type: none"> • All rangeland/ pastures and Agricultural Lease Area • All livestock 	<ul style="list-style-type: none"> • Presence of additional livestock 	<ul style="list-style-type: none"> • None. These management activities should be implemented as directed upon adoption of the RMP.
Miscellaneous (pulled from other sections of the RMP)	<ul style="list-style-type: none"> • Within the Agricultural Lease Area, the lessee may grow vegetable crops and/or tree crops for personal use. Prior to the lessee planting vegetable crops or imported trees, all crops must be approved by Midpen’s Natural Resources Department. • Prior to planting a vegetable garden, the lessee must be pre-approved by Midpen staff. Vegetable gardens and/or small orchards would be located within the Agricultural Lease Area in areas that would not result in downstream water quality impacts, or decrease the grazing capacity of Toto Ranch. • All soils associated with potted plants and/or trees that test positive for phytophthora would be prohibited within Toto Ranch. • Cultivated farming operations would not be permitted on Toto Ranch. 	<ul style="list-style-type: none"> • Minimize erosion • Minimize water usage • Minimize spread of pathogens and pest species • Maintain water quality • Maintain quality of rangeland/forage 	<ul style="list-style-type: none"> • Agricultural Lease Area • Entire property 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None. These management activities should be implemented as directed upon adoption of the RMP.

Table 1B. RMP – Monitoring and Adaptive Management Measures

Monitoring Parameter	Description	Timing
RDM	<p>Forage and livestock distribution trends to ensure appropriate RDM remains on the ground</p> <p>RDM levels shall be recorded using pounds per acre, and measurements may be calculated or ocular estimates can be used. The prescribed RDM standard for moderate grazing is an average minimum of 800–1,000 pounds per acre of dry matter (two to three inches of standard RDM) on slopes of 0%–30%, and 1,000–2,000 pounds per acre of dry matter (three to four inches of standing RDM) on slopes greater than thirty percent. Leaving prescribed levels of RDM on the ground surface would provide a grassland seed crop for the following season, minimize the risk for soil erosion and sedimentation, and protect water quality.</p>	<p>Fall at sites that exemplify the average RDM level in a pasture (not burned areas, roads, corrals, sites with low soil fertility, water sources, feeding sites, areas subject to damage by wildlife (feral pigs) and areas that have been recently cultivated.</p>
Livestock Infrastructure (water systems, gates, fencing)	<p>Condition of livestock infrastructure, including water systems, gates and fencing, to ensure conformity with the terms of the easement and to improve rangeland and grazing management practices.</p> <p>Infrastructure – Conditions of infrastructure relevant to the grazing and/or agricultural operations (water troughs, tanks, fencing, irrigation lines) would be observed, noting location, current condition and the needs for adjustments or repairs.</p> <p>Access Road Observations – The conditions of roads, including surface condition, vegetation cover, culverts, recent maintenance or grading, and water diversion measures would be noted. Any signs of erosion, rutting or gullyng on road surfaces or below the roads would be noted, particularly downstream of channel crossings.</p>	<p>Yearly</p>
Non-Native Invasive Vegetation	<p>Non-native invasive vegetation with an emphasis on location, distribution and abundance of plant species.</p> <p>Invasive Species Observed - This would include a list of observed invasive plant species noting relative abundance, location and density, noting any differences from the prior year.</p> <p>Describe methods use for the previous year that were implemented for treatment or control of invasive species (grazing, herbicide application, mowing, etc.) and vegetation response to treatment methods.</p>	<p>Twice a year – spring and summer (based on phenology of invasive species present)</p>
Stock Ponds	<p>Ensure aquatic habitat for special-status wildlife species is free of invasive predators such as fish and/or bullfrogs (this information is already collected as part of Midpen Districtwide CRFL monitoring for permit requirements and can be submitted for this purpose).</p>	<p>Yearly – late winter/early spring</p>

Table 1B. RMP – Monitoring and Adaptive Management Measures

Monitoring Parameter	Description	Timing
Native Vegetation/Habitats	<p>Desirable vegetation including native grasses, wildflowers and trees with an emphasis on location, distribution and abundance.</p> <p>Plant Communities Observed - This would include a list of plant communities observed within view of the photo point (e.g., annual grassland, woodlands, wetlands, etc.), with any measurable trends or transition between plant community types from the prior year (Exhibit I)</p> <p>Annual point line monitoring for species composition in addition to RDM monitoring is recommended in Pastures 1–3 to monitor potential changes in vegetation guilds.</p>	Twice a year – spring and late fall
Agricultural Practices (excluding grazing)	Describe any impacts, positive or negative, observed as a result of agricultural practices (farming and/or grazing).	Yearly - late fall
Restoration Projects	Monitor and report vegetation that was planted or seeded as part of restoration or remediation work (where applicable) with an emphasis on location, distribution, abundance and survival rate.	Yearly – spring
Climate Change	Natural climatic changes (drought, floods, fire, etc.), geologic process, and biologic cycles beyond the land owner’s control should be noted and described, as applicable.	Yearly
Grazing Management	<p>Monitor and report stocking rates, herd type and duration of grazing should be noted where applicable.</p> <p>Monitor and report condition of rangeland pastures that are grazed by horses.</p>	Yearly
Soil Erosion	Areas that are at risk for erosion or where soil loss has occurred as a result of surface water flow, wind, fire or human activity. These sites may include gullies, bare ground exposure, landslides, ruts or notable surface runoff. Historic activity would be noted in comparison to existing conditions, and recommended soil protection measures would be identified and implemented in compliance with existing permit requirements.	Yearly – late winter/early spring
Photo Points	Baseline photos and photo-monitoring points have been established in Attachment A of the RMP (photo point locations are shown in Exhibit I); a sample photo monitoring form has been included under Exhibit G of the RMP. The Grazing Annual Checklist shown in Exhibit J shall be used to record annual findings.	Yearly – fall prior to first rainfall
Wildlife	Wildlife species that are observed at the location of the photo points, including information about the species and relative abundance shall be noted. Observations of special-status species shall be reported to Midpen to be included in annual reporting to applicable reporting agencies (photo point locations are shown in Exhibit I).	Twice a year – winter and summer

Table 2. Existing Permits and Guiding Documents – Recommendations and Requirements

Avoidance and Minimization Measures (By Resource)	Documents That Contains the Measure									
	CDFW SAA	MPROSD BMPs for Avoid, and Minimize .for Bat Species	San Mateo Coastal Annex. EIR	Service Plan for San Mateo Coastal Annex. Area	MPROSD Resource Management Policies	MPROSD IPM Program Guidelines	MPROSD IPM Program EIR	Regulations for Use of MPROSD Lands	RWQCB Waste Discharge and Water Qual Cert	USFWS 10(a)(1)(A) Recovery Permit and Associated Biological Opinion
1. Ponds and Wetlands										
1A. Pond Monitoring and Annual Work Plan	X				X					X
1B. Pond Berm Repairs/Maintenance	X									X
1C. Pond Outlet Repairs/Maintenance	X									X
1D. Pond Basins Repairs/Maintenance	X									X
1E. Pond Trash Cleanup	X									X
1F. Preconstruction Surveys Prior to Pond Maintenance, Enhancement, and Creation	X									X
1G. Implementation of Pond Maintenance, Enhancement, and Creation Activities								X		X
2. Creeks and Streams										
2A. Preconstruction Surveys Prior to Maintenance, Enhancement, and Construction In and Near Creeks and Streams	X									X
2B. Culvert Replacement	X									X
2C. Culvert Repair/Maintenance	X							X		X
2D. Minor Culvert Relocation Where the Road or Trail Is Not Also Being Relocated	X									X
2E. Removal of Existing Culverts or Replacement with Rolling Dips Or Fords	X									X

Table 2. Existing Permits and Guiding Documents – Recommendations and Requirements

Avoidance and Minimization Measures (By Resource)	Documents That Contains the Measure									
	CDFW SAA	MPROSD BMPs for Avoid, and Minimize .for Bat Species	San Mateo Coastal Annex. EIR	Service Plan for San Mateo Coastal Annex. Area	MPROSD Resource Management Policies	MPROSD IPM Program Guidelines	MPROSD IPM Program EIR	Regulations for Use of MPROSD Lands	RWQCB Waste Discharge and Water Qual Cert	USFWS 10(a)(1)(A) Recovery Permit and Associated Biological Opinion
2F. New Culvert Installation (Non-Stream Crossing Culverts)	X									X
2G. Ford and Swale Replacement, Repair or Maintenance (Includes Drain Lenses and Causeways)	X									X
2H. Bank Stabilization, Replacement, Repair, and Maintenance	X							X		X
2I. Implementation of Maintenance and Enhancement Activities Near Creeks and Streams					X				X	X
2J. Integrated Pest Management Associated with the Use of Chemicals In and Near Creeks and Streams					X	X	X		X	
3. Trail Construction and Maintenance (Project-Related)										
3A. Routine Trail Maintenance					X			X		X
3B. Vegetation Removal for Trail Maintenance			X		X		X			X
3C. Trail Construction and Siting			X		X			X		X
3D. Trail Drainage and Erosion Control	X									X
3E. Minor Trail Relocation	X							X	X	X
3F. Trail Closures and Restricting Use					X			X		
3G. Permanent Trail Closure			X					X		
3H. Exclusion Fencing for Federally-Listed Species										X
3I. Vegetation Removal to Maintain Trails, Roads or Staging Areas	X									X

Table 2. Existing Permits and Guiding Documents – Recommendations and Requirements

Avoidance and Minimization Measures (By Resource)	Documents That Contains the Measure									
	CDFW SAA	MPROSD BMPs for Avoid, and Minimize .for Bat Species	San Mateo Coastal Annex. EIR	Service Plan for San Mateo Coastal Annex. Area	MPROSD Resource Management Policies	MPROSD IPM Program Guidelines	MPROSD IPM Program EIR	Regulations for Use of MPROSD Lands	RWQCB Waste Discharge and Water Qual Cert	USFWS 10(a)(1)(A) Recovery Permit and Associated Biological Opinion
4. Special-Status Plants										
4A. Preconstruction Special-Status Plant Survey	X				X	X	X			
4B. Choris' Popcorn Flower: Rare Plant Exclusion	X				X	X	X			
5. Salmonids										
5A. General Anadromous Fish Avoidance and Minimization Measures	X					X	X			
5B. Enhance Habitat for Anadromous Fish					X					
5C. Monitor Sensitive Fish Species					X					
5D. Integrated Pest Management In and Near Fish Habitat						X	X			
6. California Red-Legged Frog and San Francisco Garter Snake										
6A. Compliance with Federal Permits for CRLF and SFGS	X									X
6B. Implement Avoidance and Minimization Measures for Ponds and Creeks and Streams	X				X	X	X		X	X
6C. Yearly Work Proposals for CRLF and SFGS Enhancement	X									X
6D. Biological Monitors	X									X
6E. Preconstruction Meeting and Construction Training	X									X
6F. Stop Work Authority for CRLF and SFGS	X									X
6G. CRLF and SFGS Preconstruction Surveys	X									X
6H. Egg Mass Avoidance	X									X

Table 2. Existing Permits and Guiding Documents – Recommendations and Requirements

Avoidance and Minimization Measures (By Resource)	Documents That Contains the Measure									
	CDFW SAA	MPROSD BMPs for Avoid, and Minimize .for Bat Species	San Mateo Coastal Annex. EIR	Service Plan for San Mateo Coastal Annex. Area	MPROSD Resource Management Policies	MPROSD IPM Program Guidelines	MPROSD IPM Program EIR	Regulations for Use of MPROSD Lands	RWQCB Waste Discharge and Water Qual Cert	USFWS 10(a)(1)(A) Recovery Permit and Associated Biological Opinion
6I. Seasonal Work Period in Ponds	X									X
6J. Agency Notification of Enhancement Activities for CRLF and SFGS	X									X
6K. Vegetation Removal by Mechanized Equipment at CRLF and/or SFGS Sensitive Sites	X									X
6L. Vegetation Removal at Ponds	X				X	X	X			X
6M. CRLF and SFGS Exclusion for Sediment Removal with Large Equipment	X									X
6N. No Stockpiling of Vegetation	X									
6O. Vehicle Restrictions	X									X
6P. No Stockpiling of Soil	X									
6Q. Cease Activities for CRLF/SFGS in the Work Area	X									X
6R. CRLF Emergency Salvage and Recovery										X
6S. CRLF and SFGS Reporting Requirements	X									X
6T. Integrated Pest Management in CRLF and SFGS Habitat	X					X	X			X
7. San Francisco Dusky-Footed Woodrat										
7A. SFDW Protection Preconstruction Survey	X					X	X			
8. Special Status Bat Species										
8A. Preconstruction Surveys	X	X				X	X			

Table 2. Existing Permits and Guiding Documents – Recommendations and Requirements

Avoidance and Minimization Measures (By Resource)	Documents That Contains the Measure									
	CDFW SAA	MPROSD BMPs for Avoid, and Minimize .for Bat Species	San Mateo Coastal Annex. EIR	Service Plan for San Mateo Coastal Annex. Area	MPROSD Resource Management Policies	MPROSD IPM Program Guidelines	MPROSD IPM Program EIR	Regulations for Use of MPROSD Lands	RWQCB Waste Discharge and Water Qual Cert	USFWS 10(a)(1)(A) Recovery Permit and Associated Biological Opinion
8B. Tree Removal Associated with Bats	X	X				X	X			
8C. Non-Tree Roost Exclusion Associated with Bats	X	X				X	X			
9. Raptors and Birds										
9A. Nesting Bird Surveys	X					X	X			
9B. Active Nests										
9C. Active Nest Buffers	X					X	X			
9D. Nesting Habitat Removal or Modification	X					X	X			
10. Integrated Pest Management										
10A. Invasive Animal Control						X	X			X
10B. Vegetation Management						X	X		X	X
11. Grazing										
11A. Use Grazing for Vegetation Management					X			X	X	X
11B. Use Grazing for Habitat Enhancement					X			X		X
11C. Grazing by Horses								X		

This page intentionally left blank.

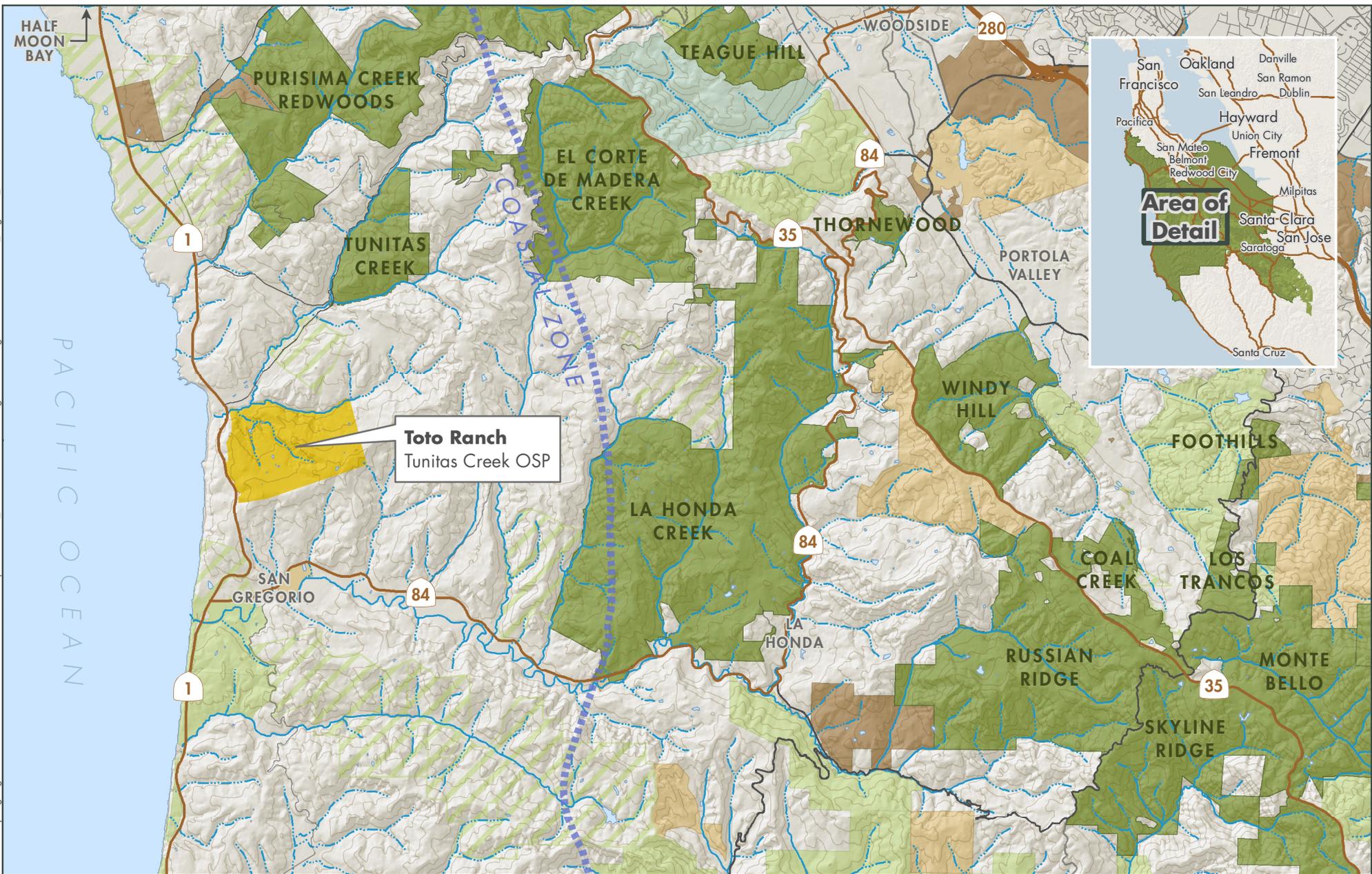


Exhibit A. Toto Ranch Regional Location Map

- Midpeninsula Regional Open Space Preserve (OSP)
- Other Protected Lands
- Private Property
- Watershed Land
- Land Trust
- Other Public Agency
- Toto Ranch
- San Mateo County Coastal Zone



Midpeninsula Regional
 Open Space District
 (MROSD)
 February 2019



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.

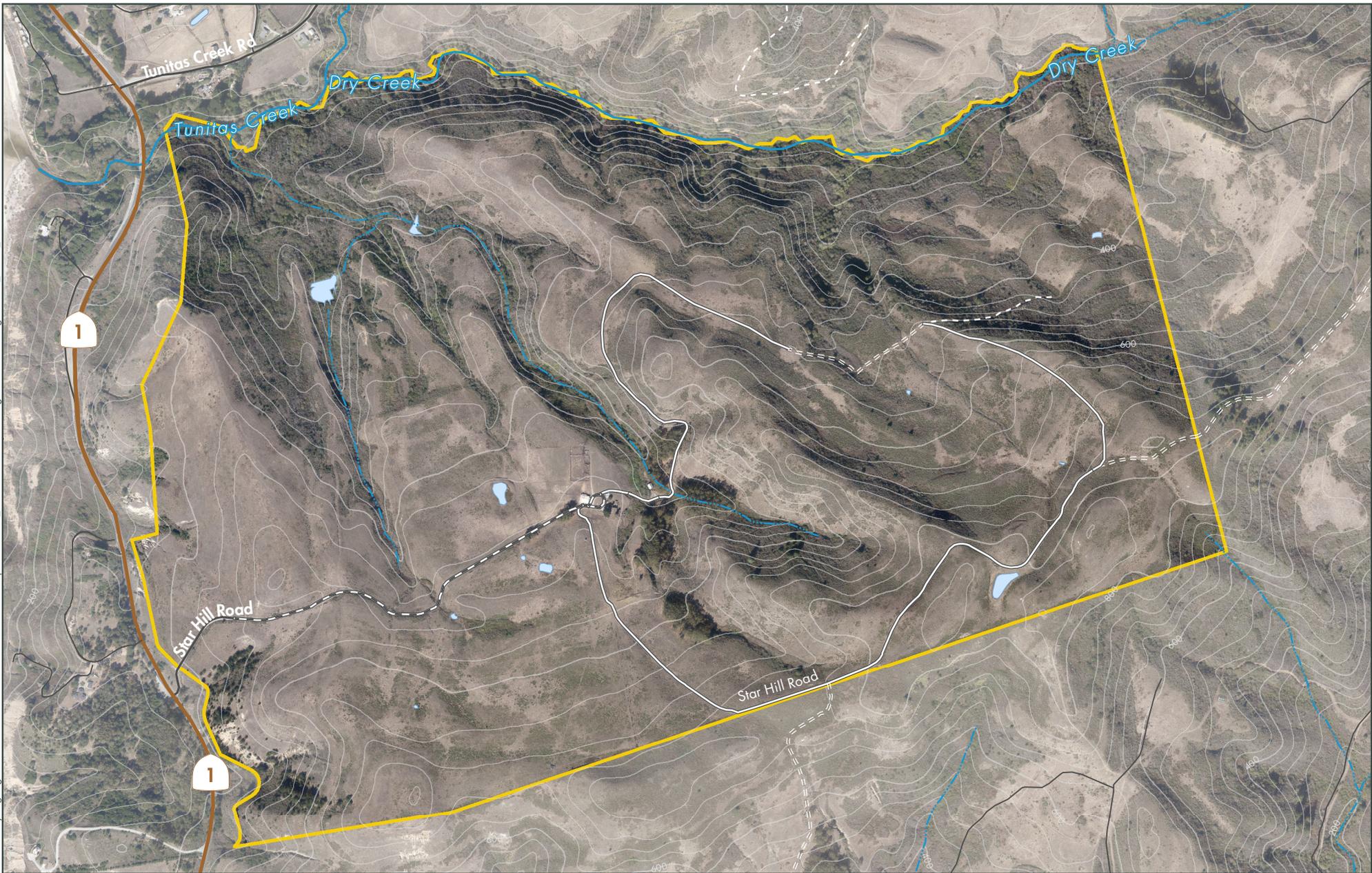


Exhibit B. Aerial Image of Toto Ranch with Topography

 Toto Ranch Property Boundary

Midpeninsula Regional
Open Space District
(MROSD)
February 2019



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.

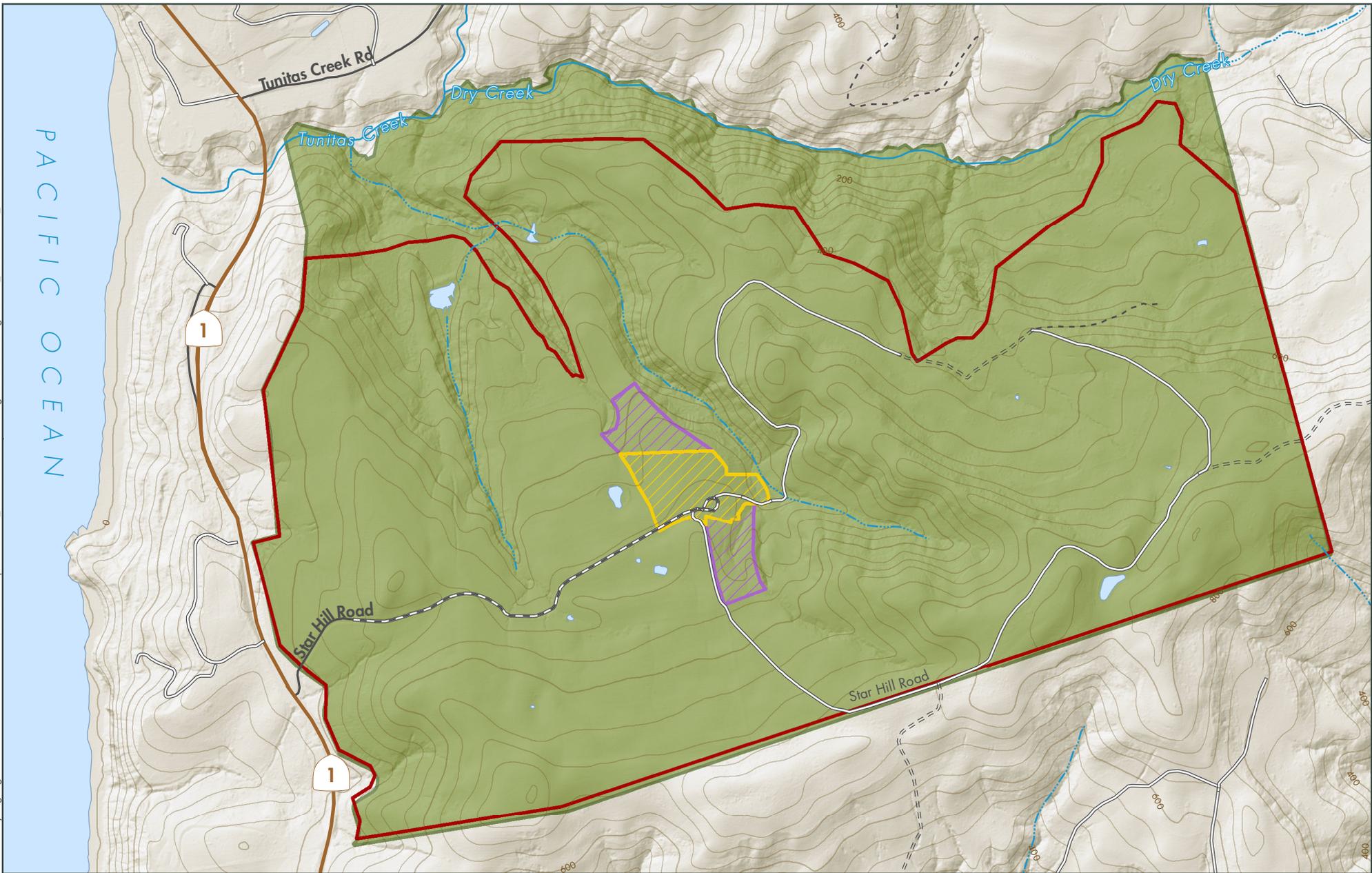


Exhibit C. Toto Ranch - Farmstead Area (Agricultural and Residential Lease Areas)

-  Agricultural Lease Area
-  Residential Lease Area
-  Livestock Grazing Area

-  Paved Road
-  Unpaved All-Season/Seasonal Road
-  Unmaintained Road Width
-  Trail

Midpeninsula Regional
Open Space District
(MROSD)
February 2019



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.

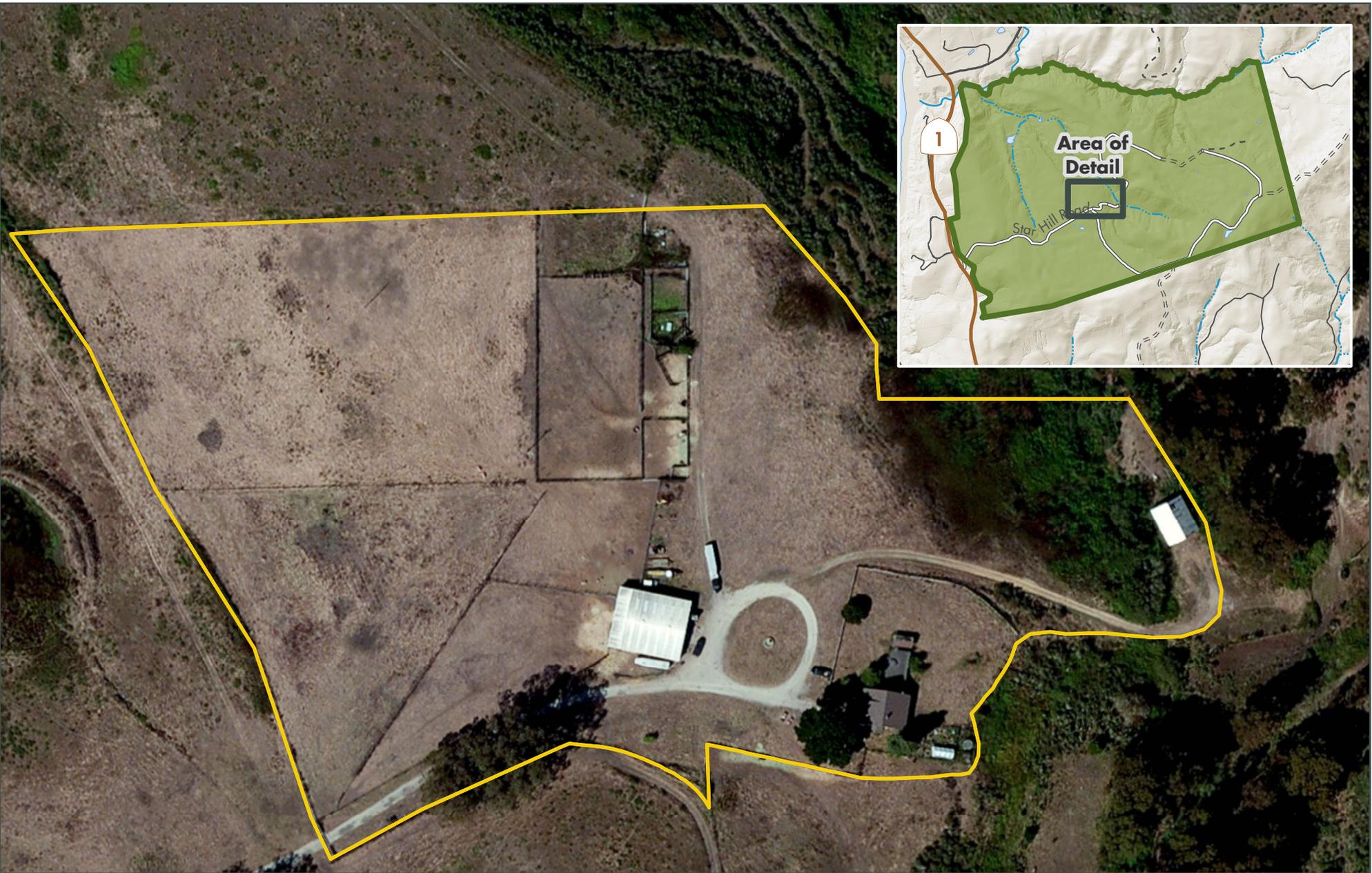


Exhibit D. Toto Ranch - Farmstead Area Aerial (Agricultural and Residential Lease Areas)

 Residential Lease Boundary

Midpeninsula Regional
Open Space District
(MROSD)
August 2017



This page intentionally left blank.

Path: G:\Projects\Tunitas_Creek\TotoRanch\RangelandMonitoringPlan\TR_Soils_20170807.mxd
Created By: ngreig

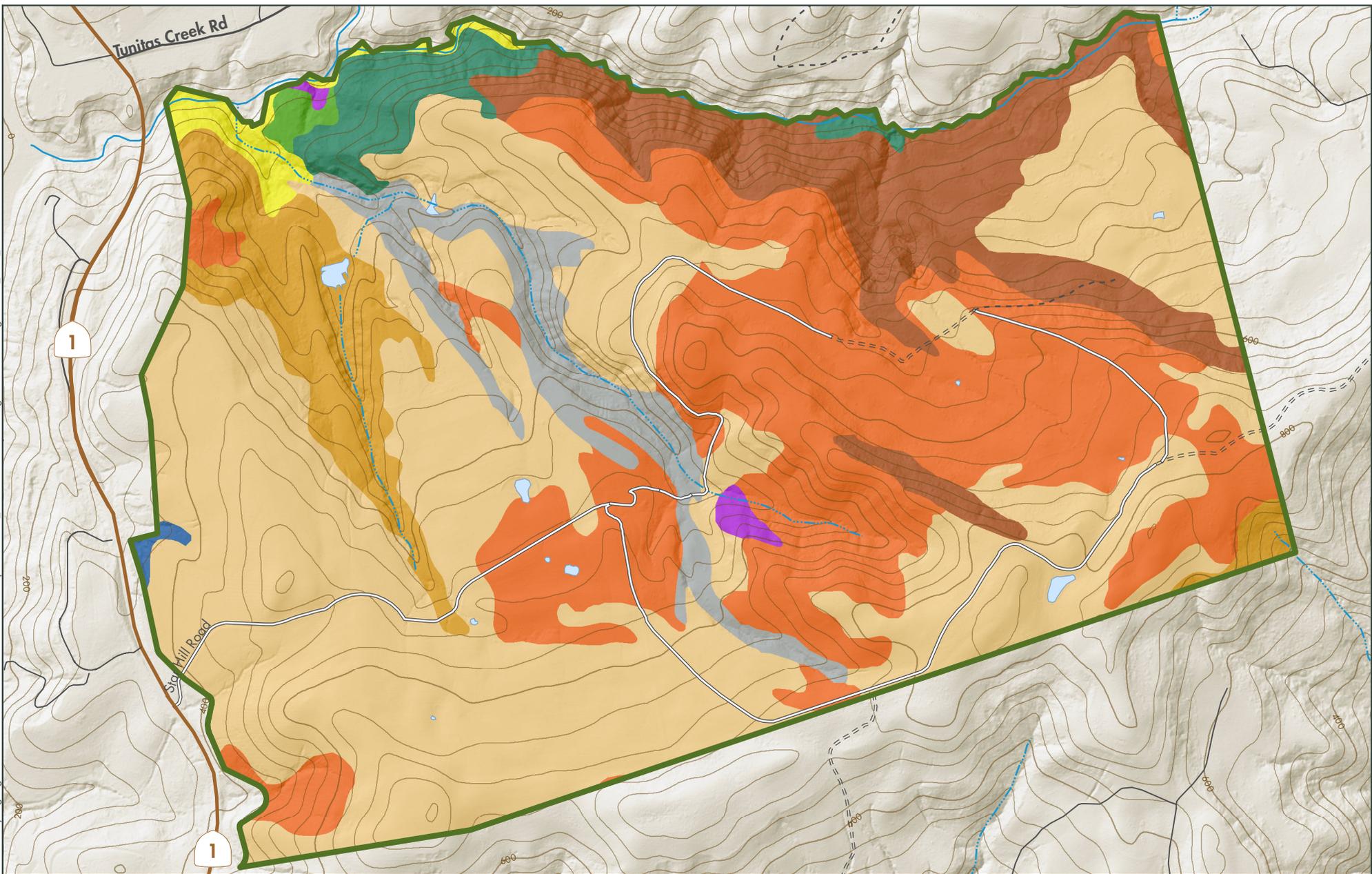


Exhibit E. Toto Ranch - Soils Map

- | | | |
|---|---|---|
|  Colma Loam: 245.89 Acres |  Terra Loam: 438.96 Acres |  Mixed Alluvial Land: 11.15 Acres |
|  Gazos and Lobitos Stony Loam: 23.47 Acres |  Tunitas Loam: 3.52 Acres |  Terrace Escarpments: 1.64 Acres |
|  Gazos Loam: 57.34 |  Watsonville Loam: 3.53 Acres |  Rough Broken Land: 45.65 Acres |
|  Lobitos Loam: 96.31 Acres |  Gazos and Lobitos Soils: 0.0026 Acres | |

Midpeninsula Regional
Open Space District
(MROSD)
August 2017



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.

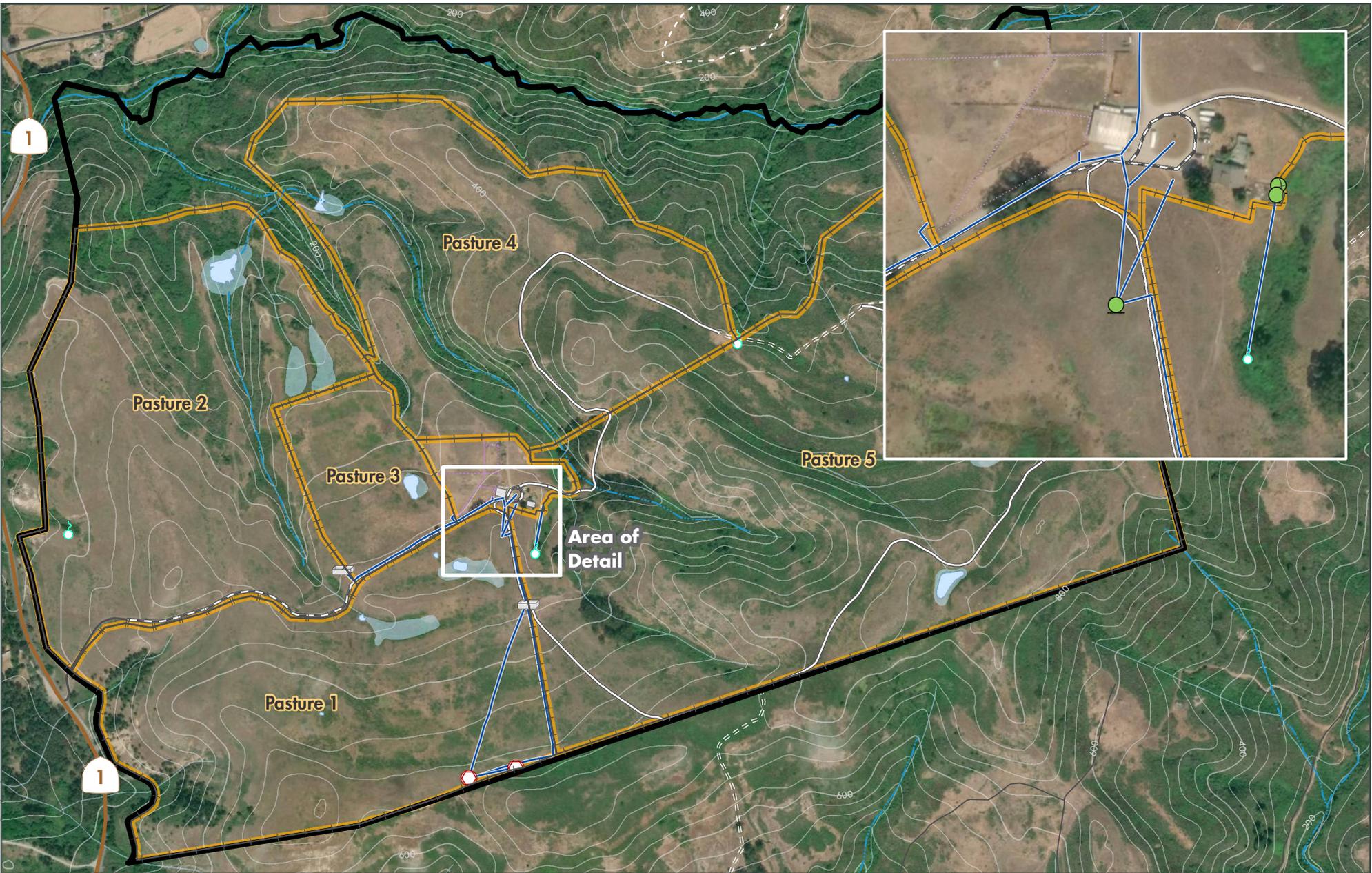


Exhibit F. Toto Ranch - Current Infrastructure

- Water Distribution Line
- Fence or Natural Barrier
- Corral
- Water Tank
- Water Trough
- Well
- Spring

Midpeninsula Regional
Open Space District
(MROSD)
December 2018



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.

Path: G:\Projects\Tunitas_Creek\ToroRanch\RangeLandMonitoringPlan\TR_RoadRepairs_20170807.mxd
Created By: ngreig

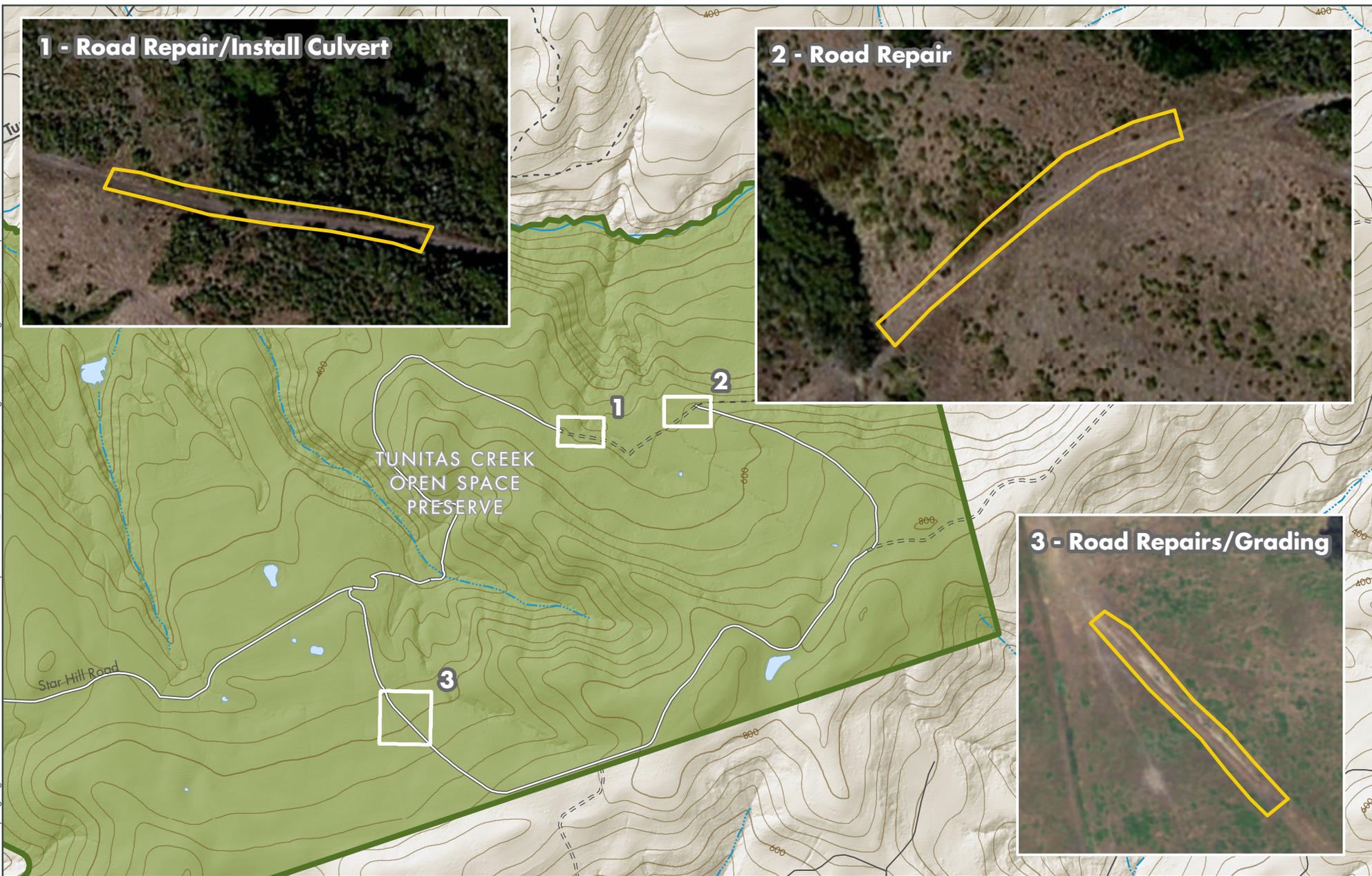


Exhibit G. Proposed Roadway Improvements

 Road Repair Locations

Midpeninsula Regional
Open Space District
(MROSD)
August 2017



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.



Exhibit H. Toto Ranch - Proposed Infrastructure

- | | | | |
|---|--|---|---|
|  | Area Excluded From Rangeland Management Plan |  | Water Trough (Existing/Proposed [Exact Location TBD]) |
|  | Fence (Existing/Proposed) |  | Water Tank (Existing/Proposed [Exact Location TBD]) |
|  | Natural Barrier |  | Spring (Existing/Proposed) |
|  | Water Distribution Line (Existing/Proposed) |  | Well |

Midpeninsula Regional
 Open Space District
 (MROSD)
 December 2018



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.



Exhibit I. Aerial Photo and Photo Location Map

Midpeninsula Regional
Open Space District
(MROSD)
August 2017



This page intentionally left blank.

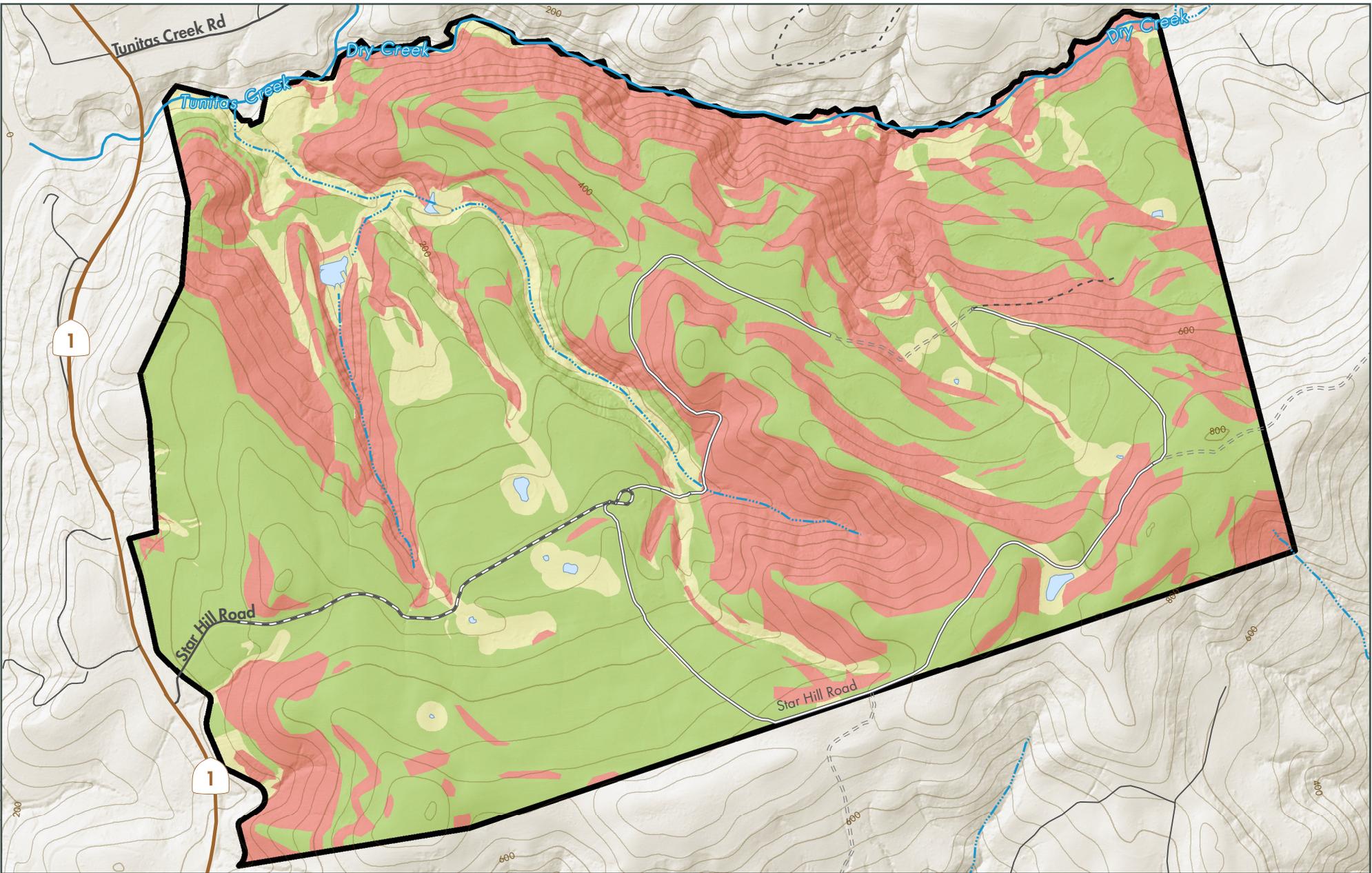


Exhibit J. Toto Ranch Constraints Map

- Constraints not specified
- Drainage features, Proximity to water or Special Status Species, Sensitive soils, Riparian
- Steep areas with eroded soils, severely eroded soils, or drainage features

Midpeninsula Regional
Open Space District
(MROSD)
November 2018



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.

Path: G:\Projects\Tunitas_Creek_TotoRanch\RangelandManagementPlan\CEQA\TR_ConstraintsSpecies_201811105.mxd
Created By: ngreig

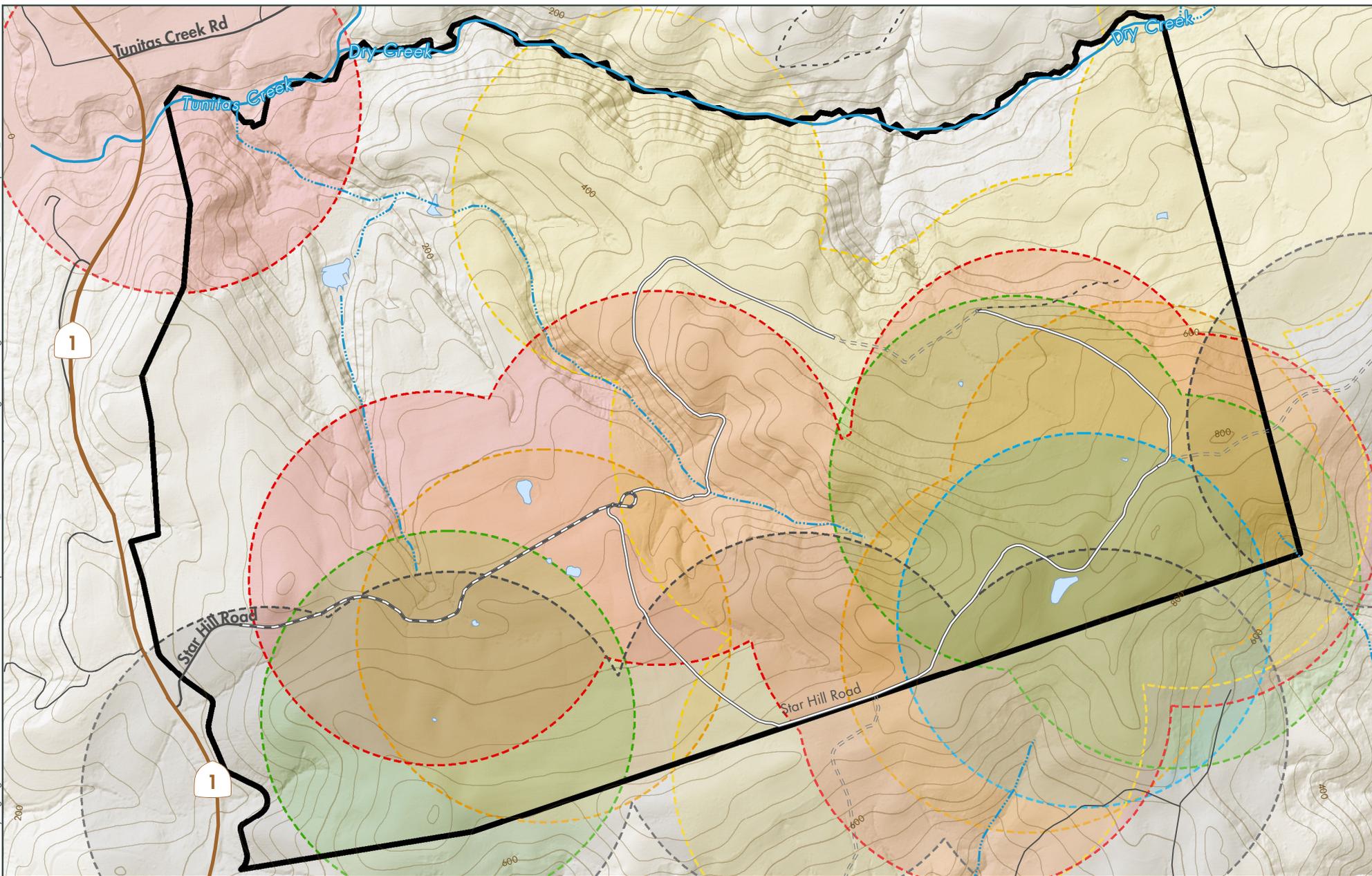


Exhibit K. Toto Ranch Obscured Special Status Species Locations

- | | |
|---|--|
|  Grasshopper Sparrow |  Choris's Popcorn Flower |
|  Burrowing Owl |  California Red-legged Frog |
|  Northern Harrier |  American Badger |

Midpeninsula Regional
Open Space District
(MROSD)
November 2018



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

This page intentionally left blank.

Section 2 Initial Study Checklist

The following discussion of potential environmental effects was completed in accordance with Section 15063 of the CEQA Guidelines to determine if the proposed Project may have a significant effect on the environment.

2.1 Project Information

1. **Project title:** Toto Ranch/Tunitas Creek Open Space Preserve Rangeland Management Plan Project
2. **Lead agency name and address:** Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, California 94022-1404
3. **Contact person name, address, and phone number:** Aaron Peth, Planner III
Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, California 94022-1404
(650) 691-1200/ apeth@openspace.org.
4. **Project location:** 20800 Cabrillo Highway South, Half Moon Bay, San Mateo County, California (**Exhibit A**)

081-060-101; 081-060-100; 081-060-110;
081-060-120
5. **Project sponsor's name and address:** Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, California 94022-1404
6. **General plan designation:** Agricultural Rural
7. **Zoning:** Planned Agricultural District/Coastal Development (PAD/CD)
8. **Description of Project:** Refer to Section 1, Project Description.
9. **Surrounding land uses and setting:** Refer to Section 1.4, Environmental Setting.
10. **Other public agencies whose approval is required:** The implementation of the proposed improvements within Toto Ranch would require approval from:
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
California Coastal Commission
California Department of Fish and Wildlife

San Francisco Bay Area Regional Water Quality
Control Board
County of San Mateo

11. Have California Native American tribes traditionally and culturally affiliated with the Project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

No consultation has been requested. Refer to Section 2.4.18, Tribal Cultural Resources, of this IS/MND for details.

2.2 Environmental Factors Potentially Affected

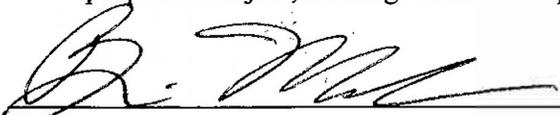
The environmental factors checked below would be potentially affected by the Project, and mitigation measures are required to ensure a potential impact is less than significant.

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

2.3 Lead Agency Determination

On the basis of this initial evaluation:

- I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.


Signature

10/8/19
Date

Brian Malone,
Assistant General Manager, Midpeninsula Regional Open Space District

2.4 Evaluation of Environmental Impacts

This section documents the screening process used to identify and focus upon environmental impacts that could result from this Project. The checklist portion of the IS begins below, with explanations of each CEQA issue topic. CEQA requires that an explanation of all answers be provided along with this checklist, including a discussion of ways to mitigate any significant effects identified. The following terminology describes the potential level of significance of impacts:

- **No Impact** – The analysis concludes that the Project would not affect the particular resource in any way.
- **Less than Significant** – The analysis concludes that the Project would not cause substantial adverse change to the environment without the incorporation of mitigation.
- **Less than Significant with Mitigation Incorporated** – The analysis concludes that it would not cause substantial adverse change to the environment with the inclusion of mitigation agreed upon by the applicant.
- **Potentially Significant** – The analysis concludes that the Project could result a substantial adverse effect or significant effect on the environment, even if mitigation is incorporated. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.

2.4.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Existing Conditions

Toto Ranch is located within the County of San Mateo, just east of the Cabrillo Highway, adjacent to the Pacific Ocean. The Project area borders one (1) mile of the Cabrillo Highway, which has been designated as a state scenic highway along this corridor (Caltrans 2018). The highway supports sweeping views of the Pacific Ocean to the west with rolling grasslands and farmsteads to the east. Refer to **Exhibit A**.

The Project area is considered to have high aesthetic value. The western portion of Toto Ranch may be seen from the Cabrillo Highway, with rolling grasslands and grazed rangelands that are heavily vegetated with coyote brush.

The northern portion of the Project area includes creeks and large stands of riparian vegetation. Dry Creek flows along the northern boundary of the Project area, joining Tunitas Creek that flows south to the confluence, eventually meeting the Pacific Ocean to the west of the Cabrillo Highway.

The remainder of the property is largely rolling grasslands and includes scrub habitat in the areas that are steep and support drainages, with a few stands of nonnative trees including eucalyptus, Monterey cypress and Monterey pine near the Farmstead Area. There are also a number of stock ponds throughout the Project area.

The Farmstead Area includes a residential home and farm buildings with corrals, located at the center of the Project area. These facilities are used by the lessee who manages the Agricultural and Residential Lease Areas to support their personal livestock and agricultural business. Infrastructure within Toto Ranch includes water conveyance pipelines, water tanks, water troughs, wells, pond berms, pumps, unpaved roadways, trails, cattle guards and fencing to divide pastures that are interspersed throughout the Project area. The perimeter of the Project area is

enclosed by New Zealand style fencing, which includes wooden posts connected with smooth wire fencing, and natural barriers, including rocky slopes and dense vegetation. Within the Project area, fencing to establish pastures is largely New Zealand style, with some areas that support barbed wire.

As described in Section 1.3, Project Area History and Background, Toto Ranch is owned by Midpen, an independent special district, and considered public property. In accordance with the PUMP (November 14, 2012), the property is designated as a closed area to the public. However, Midpen allows public access through Ranch Days, workshops and ranch visitation conducted by the tenant consistent with historical use patterns, subject to Midpen's permit requirements. In addition, Midpen allows docent-led hikes upon consideration of compatibility of limited public access with existing on-site factors, including grazing, natural resources, temporary parking and staging needs, and road and trail conditions.

The adjacent properties to the north, east and south of Toto Ranch are primarily rolling hills dominated by grasslands with interspersed residential and farm buildings. Small beaches dot the coastline, accessible by local trails to the west. Some beaches provide public parking and access, while others are accessible only by unofficial footpaths.

Discussion

a. Scenic Vistas. Scenic vistas generally include areas that are designated by a local jurisdiction to have scenic or community value; however, scenic vistas may also include areas that have a high level of viewer sensitivity, such as a lookout point. The Project area provides both intermittent views of the Pacific Ocean from ridgetops throughout the Project area, and unobstructed views of the Pacific Ocean along the entirety of the western Project area boundary. However, these viewpoints are not currently accessible by the public. The Project area provides sweeping views of rolling grasslands from the Cabrillo Highway and other publicly accessible viewpoints.

The San Mateo County General Plan establishes policies that guide land uses and development to protect sensitive views and scenic vistas. Views of the rolling hillsides and grasslands would not be impacted through implementation of the Project, and there would be no structures or changes in land uses that would obstruct views of the Pacific Ocean or adjacent open lands from within the Project area or the Cabrillo Highway. Therefore, this impact would be **less than significant**. No mitigation would be required.

b. Scenic Resources along a Scenic Highway. The Cabrillo Highway has been identified as a state scenic highway for the one (1) mile that borders the Project area to the west. This area has been identified as the Cabrillo Highway Scenic Corridor through the San Mateo County General Plan. It is specified that these areas be protected, to the greatest extent feasible, throughout and following the implementation of a Project.

Project implementation would result in changes largely within the Project area that are not visible from the Cabrillo Highway or other public viewpoints, and that are outside of the area that has been identified as the Cabrillo Highway Scenic Corridor. However, changes in grazing practices and the removal of coyote brush, a non-native invasive plant, would occur along the hillsides that border Cabrillo Highway. Coyote brush may be removed through a variety of techniques, including mowing, mastication (chopping the brush with heavy machinery) and/or prescription fire. The removal and/or management of coyote brush would enhance the grassland habitat and restore views to those historically present along the coastline, enhancing views from the Cabrillo Highway. Although the implementation of coyote brush management activities would temporarily disrupt public views of the hillsides from Cabrillo Highway, implementation of the Project would result in a long-term beneficial impact to scenic resources as the grasslands along the hillsides are improved. Therefore, this impact would be **less than significant**. No mitigation would be required.

c. Visual Character of Site and Surroundings. Project implementation would result in improvements to infrastructure throughout the Project area, including unpaved roadways, fencing, and water conveyance and holding features. These improvements would occur within the Project area and would not be visible from public viewpoints outside of the Project area. Furthermore, views from within the Project area would remain largely unchanged following the improvements to these features, as similar features are currently present throughout Toto Ranch.

As discussed above, the removal of coyote brush within the Project area would restore the rolling grasslands throughout the Project area to more historical conditions, as coyote brush is a highly invasive non-native plant. Although removal activities would temporarily impact public views of the hillsides from the Cabrillo Highway, grasslands would quickly revegetate the hillsides and restore views of and within Toto Ranch. This would result in a long-term beneficial impact to the visual character of Project area. Therefore, this impact would be **less than significant**. No mitigation would be required.

d. New Sources of Light and Glare. Existing sources of light and glare within the Project area are limited to lighting from residential structures and agricultural buildings within the Farmstead Area. Implementation of the Project is not anticipated to introduce any new permanent sources of light into the Project area. All construction activities associated with implementation of specific improvements (e.g., fencing installation, roadway repairs) would be implemented during daylight hours and therefore would not introduce new light into the Project area. Short term increases in glare would occur throughout the implementation of these Projects from the sun reflecting off metallic surfaces of construction equipment. However, this increase in glare would be short term and would be largely unnoticed, as the majority of the Project area is not visible from the Cabrillo Highway or adjacent properties. Therefore, the Project would not create substantial new sources of light or glare within the Project vicinity that would impact day or nighttime views. This impact would be **less than significant**. No mitigation would be required.

2.4.2 Agriculture and Forestry Resources

<p>In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the Project:</p>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d. Result in the loss of forest land or conversion of forest land to non-forest use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Existing Conditions

Throughout the County of San Mateo, there are lands that have been identified as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land on the San Mateo County Important Farmland 2016 map that has been developed by the State Department of Conservation, Division of Land Resource Protection's Farmland Mapping and Monitoring Program. The Project area has been identified as supporting Grazing Land and Other Land on San Mateo County Important Farmland 2016 map.

Grazing Lands are those lands on which the existing vegetation is suited for livestock grazing. Other Lands are those that are not included in any other mapping category and may support a

variety of land uses. The lands within the Project area support brush, riparian areas not suitable for livestock grazing, confined livestock, vegetation around water features, and small water bodies.

The Project area has been identified as a Williamson Act – Non-Prime Agricultural Land. These are lands that have been enrolled under a California Land Conservation Act contract, but do not meet any of the criteria for classification as Prime Agricultural Land. Most of these lands support grazing and/or non-irrigated crops. These lands may also include open space uses which are compatible with agriculture and are consistent with local general plans. On July 16, 2012, the County of San Mateo Planning and Building Department received a request from Midpen for the Non-Renewal of the Williamson Act Contract, prior to the renewal/anniversary date of January 1, 2013. The contract will fully expire for Toto Ranch on December 31, 2021. Until this time, management of the lands will remain in compliance with the requirements of the Williamson Act Contract.

San Mateo County has zoned the Project area as Planned Agricultural District/Coastal Development District (PAD/CD) (County of San Mateo 2018a). This designation includes land uses that support existing and potential agricultural operations to maintain prime agricultural lands and lands suitable for agricultural uses (County of San Mateo 2018b).

Discussion

a. Conversion of Farmland to Non-Agricultural Use. There have been no lands within Toto Ranch that have been identified as Prime Farmland, Unique Farmland or Farmland of Statewide Importance (California Department of Conservation 2016). However, the lands within the Project area have been identified as Grazing Lands and Other Lands. Through implementation of the Project, infrastructure improvements would occur throughout the Project area, and coyote brush would be managed and/or removed from grasslands throughout the Project area. Land uses throughout the Project area would remain unchanged, and there would be no lands that would be used for or converted to non-agricultural purposes. Through the management and/or removal of coyote brush, grazing opportunities for livestock on Grazing Lands would be enhanced throughout the Project area, and there would be a beneficial impact on the quality of grazing that would be provided by the grasslands. Lands that have been identified as Other Lands would continue to support existing uses, and habitats would be enhanced throughout the Project area to support sensitive species (e.g., management of stock ponds for California red-legged frog). Therefore, there would be **no impact**.

b. Conflict with Existing Zoning for Agriculture or a Williamson Act Contract. The Project area has been zoned as Planned Agricultural District/Coastal Development District (PAD/CD). This designation includes land uses that support existing and potential agricultural operations to maintain prime agricultural lands and lands suitable for agricultural uses (County of San Mateo 2018). Implementation of the Project would result in infrastructure upgrades throughout the Project area, and enhancement of grazing lands through the maintenance and/or removal of

coyote brush. Lands within the Project area would therefore continue to be used for agricultural purposes and would be compliant with the existing zoning designation of PAD/CD.

Toto Ranch has been identified as a Williamson Act – Non-Prime Agricultural Land. These are lands that have been enrolled under a California Land Conservation Act contract, but do not meet any of the criteria for classification as Prime Agricultural Land. Through these agreements, San Mateo County enters into contracts with landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses. Toto Ranch would continue to support the existing agricultural and open use land uses following Project implementation. Agricultural infrastructure upgrades and the management and/or removal of coyote brush would enhance grazing opportunities throughout the Project area, and existing land uses would not be changed. Therefore, Project area land uses would remain in compliance with the requirements of the Williamson Act Contract that is in place for Toto Ranch. Furthermore, as discussed above, the Williamson Act Contract has been requested for Non-Renewal by Midpen, and the Contract is set to fully expire on December 31, 2021.

Because agricultural and open space land uses would remain the same following Project implementation, and because the proposed improvement Projects would result in the enhancement of agricultural related infrastructure and grazing lands and thus the quality of the agricultural land uses within Toto Ranch, there would be no conflict with existing zoning or Williamson Act Contract requirements. Therefore, there would be **no impact**.

c. Conflict with Existing Zoning for Forest or Timberland. As described above, the Project area is zoned PAD/CD and includes land uses that support existing and potential agricultural operations to maintain prime agricultural lands and lands suitable for agricultural uses (County of San Mateo 2018). The Project area is not zoned for and does not support forest or timberlands. Although there are riparian corridors that border Dry and Tunitas Creeks along the northern Project boundary and drainages throughout the steep topography of the Project area, there are also stands of nonnative eucalyptus, Monterey cypress and Monterey pine trees within and adjacent to the Farmstead Area. These lands would not be impacted as a result of Project implementation and would continue to support riparian corridors and trees. Therefore, there would be **no impact** on the existing zoning for the Project area, and no conflicts with forest or timberland designations.

d. Result in the Loss or Conversion of Forest Land. As stated above, the Project area does not support forest lands, but there are trees located along riparian corridors and drainages within and adjacent to the Farmstead Area. Through Project implementation, the trees throughout the Project area would be preserved, and there would be no changes in land uses that would impact these trees. Therefore, there would be **no impact** on forest lands throughout the Project area.

e. Result in the Conversion of Farmland or Forest Land to Non-Agricultural or Non-Forest Uses.

As stated above, implementation of the Project would result in infrastructure improvements to support agricultural and grazing practices throughout Toto Ranch, and there would be no conversion of farmlands or forest land to non-agricultural or non-forest land uses. Although there are trees throughout the Project area, primarily near creeks/drainages and the Farmstead Area, the trees throughout the Project area would be preserved through Project implementation, and there would be no changes in land uses that would impact these trees, or convert these lands to areas that would not support trees.

Because implementation of the Project would enhance lands to support agricultural and grazing land uses, and all riparian corridors and stands of trees would remain unchanged as a result of Project implementation, there would be no conversion of farmland or forest land to non-agricultural or non-forest uses, and there would be **no impact**.

2.4.3 Air Quality

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

Existing Conditions

Air Quality Standards and Attainment Status

The federal Clean Air Act (CAA) of 1970 required the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) for six criteria pollutants with states retaining the option to adopt more stringent standards or to include other specific pollutants. The State of California, under the California Clean Air Act (CCAA), has established standards for criteria pollutants that are generally stricter than federal standards. The USEPA has classified air basins (or portions thereof) as being in “attainment,” “nonattainment,” or “unclassified” for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The six criteria pollutants are listed in **Table 3**.

Toto Ranch is located within San Mateo County in the San Francisco Bay Area Air Basin (Basin), under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD is responsible for air monitoring, permitting, enforcement, long-range air quality planning, regulatory development, education and public information activities related to air pollution, as required by the CCAA and Amendments.

The BAAQMD Clean Air Plan is the applicable air quality plan for the Project area. The Basin is in non-attainment for federal and state ozone and PM_{2.5} standards, and state PM₁₀ standards (BAAQMD 2017a). The 2017 Clean Air Plan updates the 2010 Clean Air Plan. As described in the BAAQMD CEQA Guidelines, a Project that does not support the goals of the Clean Air Plan would not be considered consistent with the plan. To fulfill state ozone planning requirements, the 2017 control strategies include all feasible measures to reduce emissions of ozone precursors—reactive organic gases (ROG) and nitrogen oxides (NO_x)—and reduce transport of ozone and its precursors to neighboring air basins. In addition, the Clean Air Plan builds upon

and enhances the BAAQMD efforts to reduce emissions of fine particulate matter and toxic air contaminants (TACs) (BAAQMD 2017a).

Sensitive Land Uses

According to San Mateo County Health Department², sensitive receptors are people or other organisms that may have a significantly increased sensitivity or exposure to contaminants by virtue of their age and health (e.g., schools, daycare centers, hospitals) and status (e.g., sensitive or endangered species). The location of sensitive receptors, which is associated with land uses, must be identified in order to evaluate the potential impact on public health and the environment.

The BAAQMD generally defines a sensitive receptor land uses as residences including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade 12 (K-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. A sensitive receptor also includes long-term care hospitals, hospices, prisons, and dormitories or similar live-in housing (Bay Area Air Quality Management District 2012).

Sensitive receptors within the Project area include the lessees who reside within the Residential Lease Area and workers that support the agricultural practices of the lessee within the Residential Lease and Agricultural Lease Areas.

Discussion

a. Conflict with or Obstruct Implementation of an Air Quality Plan. The BAAQMD Clean Air Plan is the applicable air quality plan for the Project area. The Basin is in non-attainment for federal and state ozone and PM_{2.5} standards, and state PM₁₀ standards (BAAQMD 2017a). The Clean Air Plan strategies that apply to construction activities include compliance with BAAQMD dust control measures (BAAQMD Regulation 6 Rule 6) and CARB emissions standards for construction equipment. BAAQMD Measures MSM-C1 and TR22 apply to construction and farming equipment, but focus on BAAQMD efforts to incentivize equipment upgrades to reduce emissions, rather than requirements for equipment operators.

As described in Section 1.5.3, implementation of the proposed Project includes construction BMPs in accordance with the San Mateo Countywide Water Pollution Prevention Program Construction BMPs Program, which are consistent with applicable BAAQMD and CARB regulations. The diesel-powered equipment associated with Project activities, such as the road repairs and pond management actions, would comply with dust control and emissions reductions requirements of the Clean Air Plan and, therefore, would result in emissions below BAAQMD thresholds. Following construction, the proposed Project would not result in an increase in

² San Mateo County Health Sensitive Receptor Survey. www.smchealth.org/sites/main/files/file-attachments/651311584receptor_survey.pdf

vehicle or energy-related emissions or introduce any new sources of TACs. Therefore, the Project would not conflict with or obstruct the Clean Air Plan, and the impacts to the applicable air quality plan would be **less than significant**. No mitigation would be required.

b. Violate Air Quality Standards or Contribute to an Air Quality Violation. Construction activities would result in temporary increases in air pollutant emissions from vehicle trips and/or construction equipment. Planned Project activities that would require diesel-powered construction equipment or truck trips to import materials include, but are not limited to:

- Roadway repairs,
- New fencing installation,
- Water infrastructure improvements, and
- Pond management activities.

Project construction emissions were estimated using the CalEEMod Model, version 2016.3.2, based on construction information provided by Midpen. Detailed assumptions and modeling data sheets are provided in **Appendix C**. Maximum daily emissions levels associated with construction of the proposed Project are shown in **Table 3** and compared to BAAQMD thresholds. To estimate the worst-case construction emissions, it is assumed that diesel-powered construction equipment would be required for all improvement and pond management Projects.

As shown in **Table 3**, the Project would not generate construction emissions that would exceed the BAAQMD threshold during implementation of any of the improvement Projects or pond management actions. Therefore, implementation of the Project would not have a significant cumulative impact on the attainment and maintenance of ozone or particulate matter NAAQS, and this impact would be **less than significant**.

The BAAQMD does not identify quantitative thresholds for CO or SO_x emissions during construction, and the San Francisco Basin is in attainment for these standards. Construction vehicle related SO_x emissions from Project area improvement and pond management actions would be minimal. Based on the emissions of other pollutants compared to the BAAQMD thresholds, emissions of CO would also be less than significant. Therefore, the proposed Project would result in a **less than significant** impact related to criteria pollutant emissions during construction. No mitigation would be required.

Table 3. Estimated Construction Daily Maximum Air Pollutant Emissions

Improvement	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Pounds per Day (lbs/day)						
Roadway Repairs	1	23	13	<1	3	1
New Fencing	1	6	5	<1	1	<1
Agricultural Lease Water Line	5	50	32	<1	18	6
Field 3 Water System	1	11	11	<1	2	1
BAAQMD Threshold	54	54	--	--	82	54
Significant?	No	No	--	--	No	No

Note: Emission quantities are rounded to the nearest whole number. Exact values are provided in **Appendix C**.

PM10 – Particulate Matter less than 10 microns

PM2.5 – Particulate matter less than 2.5 microns

NO_x – Oxides of Nitrogen

SO_x – Oxides of Sulfur

CO – Carbon Monoxide

VOC – Volatile organic compounds

c. Expose Sensitive Receptors to Substantial Pollutant Concentrations. The proposed Project outlines a plan for continued grazing operations of Toto Ranch that would involve construction of several Project area improvements and pond management actions to support this practice. Within the Project area, the lessees and workers associated with their agricultural business are considered sensitive receptors. Water infrastructure improvements and fencing replacement would occur within close proximity to these receptors throughout Project implementation (**Exhibit H**). Land uses surrounding the Project site include a number of sprawling grazed pastures with associated residences and agricultural related structures. However, no residences are located in the immediate vicinity of an improvement or pond management area. The closest residence to a proposed improvement site is located on Tunitas Creek Road, approximately 900 feet north of the nearest improvement area (fence installation) (**Exhibit H**). Construction related actions that would be required for each improvement Project or pond management action would occur over a relatively short period, ranging from 4-6 weeks at most. As shown in **Table 3**, emissions from the construction of each improvement Project and pond management action would be below BAAQMD thresholds. Therefore, any sensitive receptors that were exposed to Project related emissions as a result of Project improvement or pond management actions would be exposed for a short period of time, and emissions would be minimal. Impacts to sensitive receptors would therefore be **less than significant**. No mitigation would be required.

d. Result in Other Emissions (Odors) Adversely Affecting a Substantial Number of People.

Construction of the proposed improvement Projects and pond management activities would potentially result in odors from diesel construction equipment exhaust. However, all diesel equipment use would be intermittent, and construction activities near existing receptors within the Farmstead Area would be temporary. SO_x is the only criteria air pollutant with a strong, pungent odor (ATSDR 2015). As shown in **Table 3** and **Table 4**, maximum emissions of SO_x would be less than one pound per day throughout improvement Projects or pond management

activities. Following construction, other operational odors, such as those from livestock, would be similar to existing conditions, as the number of cattle utilizing the site would not increase beyond existing conditions. Therefore, the proposed Project would have a **less than significant** impact related to odor. No mitigation would be required.

Table 4. Estimated Pond Management Maximum Air Pollutant Emissions

Pond Size	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Pounds per Day (lbs/day)						
Small Pond	1	5	5	<1	2	1
Very Small Pond	1	5	5	<1	2	1
BAAQMD Threshold	54	54	--	--	82	54
Significant?	No	No	--	--	No	No

Notes: Emission quantities are rounded to the nearest whole number. Exact values are provided in **Appendix C**.

PM₁₀ – Particulate Matter less than 10 microns

PM_{2.5} – Particulate matter less than 2.5 microns

NO_x – Oxides of Nitrogen

SO_x – Oxides of Sulfur

CO – Carbon Monoxide

VOC – Volatile organic compounds

2.4.4 Biological Resources

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

In order to establish a baseline for the natural resources present throughout Toto Ranch, Harris biologists reviewed existing information that was available for the Project area. A field survey was then undertaken to confirm the existing information and evaluate the natural resources present throughout Toto Ranch. The methodology for establishing the environmental setting and the results of research and field survey are provided below.

Existing Data and Field Studies

Existing Reports

Harris biologists conducted interviews with Midpen staff to determine relevant documents and existing field data that was available for Toto Ranch. Information included existing documents and resource maps that included the Project area and adjacent lands, literature on natural

resources in San Mateo County and the greater San Francisco Bay Area, and documents related to general natural resource management that have been previously developed for Midpen, including the following.

- Basic Policy of the Midpeninsula Regional Open Space District (1999)
- San Mateo Coastal Annexation Draft Environmental Impact Report (2002)
- Service Plan for the San Mateo Coastal Annexation Area (2002)
- RWQCB Waste Discharge Requirements and Water Quality Certifications for Routine Maintenance Activities for Mid-Peninsula Open Space District, Order No. R2-2010-0083 (2010)
- Midpeninsula Regional Open Space District's Integrated Pest Management Program Environmental Impact Report (2014)
- Midpeninsula Regional Open Space District's Integrated Pest Management Program Guidance Manual (2014)
- Midpeninsula Regional Open Space District's Resource Management Policies (2018)
- Regulations for Use of Midpeninsula Regional Open Space District Lands (2014)
- USFWS Intra-Service Biological Opinion on the issuance of a 10(a)1(A) permit to the Midpeninsula Regional Open Space District for the San Francisco Garter Snake and California Red-Legged Frog Habitat Enhancement Projects at their Open Space Preserves in San Mateo and Santa Clara counties, California (2016)
- USFWS Native Endangered and Threatened Species Recovery Permit (2016)
- CDFW Streambed Alteration Agreement Notification No 1600-2012-0444-R3 (2018)
- Midpeninsula Regional Open Space Toto Ranch Bat Roost and Acoustic Survey (2018)

Natural Resources Databases

Harris biologists queried natural resource databases for information about special-status species that could occur in or near the Project area, including U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) database, California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDDB), and California Native Plant Society (CNPS) occurrence records for special-status plants and wildlife occurrences within or near the Project area, and other relevant documents or communications from resource specialists. A comprehensive list of special-status species that occur or may occur at Toto Ranch is included in **Appendix D**.

Field Surveys

A reconnaissance level survey of the Project area was conducted on October 19, 2018, by Harris biologists. The entire Project area, including areas identified for improvement Projects in the RMP and stock ponds, were evaluated for the potential to support sensitive biological resources

and potential Projects on these resources. This information was then used to refine the existing information for Toto Ranch that had been reviewed in reports and natural resources databases.

Opportunities and Constraints Analysis

Management goals and objectives for Toto Ranch, as well as specific actions to achieve them, are outlined in the RMP. However, management actions in the RMP are subject to refinement, restrictions, and requirements set forth in other relevant guiding documents (listed above). In addition to management actions, specific Projects have been identified in the RMP that would improve the infrastructure of the property, including erosion control, fencing, watering troughs and pipelines, and road repairs. These improvements would improve the ability of Midpen and the grazing lessee to access and manage the property, while protecting the land from excessive erosion and other impacts.

Because of the wide distribution of habitats and sensitive resources throughout the Project area, implementation of the different management techniques prescribed in the RMP must be considered and administered thoughtfully and strategically. The locations of sensitive resources, including areas with multiple resources and/or constraints, must be identified; and then the management techniques and timing must be adjusted in order to ensure the protection of these resources and areas (i.e., adaptive management).

In order to identify the more highly constrained areas, the locations of sensitive resources were identified on a map of Toto Ranch using Midpen's existing geographic information system (GIS) files. Sensitive resources that were analyzed included erodible soils, steep slopes, locations of special-status species, wetlands and other natural water features, and their associated riparian zones. ArcMap 10.6 was used to overlay the locations of all sensitive resources, and a spatial analysis was used to identify areas with numerous sensitive species, sensitive resources, or geologic hazards (**Exhibits J and K**). Although no formal weighting process was used in the analysis, general knowledge of the resources and their importance were used in conjunction with the spatial analysis to determine areas in which grazing or other RMP-identified activities should be eliminated or constrained. The results of these analyses have been considered for both development of the Project description and the biological resources impact analysis below.

Existing Conditions

A short summary of the vegetation and wildlife species that occur within Toto Ranch that may be located in areas affected by the RMP have been included below. Additional information pertaining to these species is included in the RMP (**Appendix A**). In addition, a list of plant species identified by botanists during field surveys and monitoring over several years is included as **Appendix D**, and a list of bird species encountered by biologists is included in **Appendix D**.

Vegetation

Habitats

Toto Ranch has a diverse assemblage of native and non-native plant species and habitats in the following six habitat types: non-native grassland; coastal prairie; chaparral/scrub; non-redwood forest; perennial and intermittent streams and associated riparian habitat; and marshes, wetlands, ponds, and lakes. Specific descriptions of these habitats, as well as the Farmstead Area (Residential Lease Area and Agricultural Lease Area), are included below. To support consistency with existing Midpen documents, the general habitat headings are the same as those used in the San Mateo Coastal Annexation Draft Environmental Impact Report, which characterizes open areas and habitats in San Mateo for potential annexation by Midpen (2002a). Within the general habitat types, a list of specific habitats that Midpen uses for detailed vegetative mapping (and that are used in their GIS database) is included to provide a reference for maps, monitoring, and other biological documents.

Agricultural Lands

The Farmstead Area is not included in the RMP (**Exhibits C and D**). However, there are a number of management actions in the RMP that may affect the agricultural lands within it, including water infrastructure and fencing improvements; and there are a number of land use practices in this area that may affect neighboring habitats within the Livestock Grazing Area.

The agricultural lands within the Farmstead Area are highly disturbed due to constant use by humans and domesticated animals. The infrastructure, including the residence, barns and other outbuildings, corrals, holding pens, and other fencing, are used to support concentrated agricultural practices. The soils are highly compacted and include fill such as granite base rock, manure and other vegetative and animal waste products are prevalent, and non-native, ruderal plant species dominate this area.

Non-Native Grasslands (California Annual Grassland Series)

Much of California's grasslands are dominated by naturalized annual grasses that were originally introduced by European settlers and livestock. These grass species are typically fast growing with large seed heads and shallow root systems. Annual grasses often co-occur with non-native forb/herbaceous species. Species found in annual grassland habitat include native California poppy (*Eschscholzia californica*) and nonnative wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), rigput brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), wall barley (*Hordeum murinum*), and foxtail fescue (*Vulpia myuros* var. *hirsuta*). Common forbs such as broadleaf filaree (*Erodium botrys*), redstem filaree (*Erodium cicutarium*), turkey mullein (*Croton setiger*), and California bur-clover (*Medicago polymorpha*) are also present in this habitat.

Annual grasslands are found throughout Toto Ranch on the ridges and more gently sloping topography. Encroachment by scrub species, such as coyote bush (*Baccharis pilularis*), occurs in many areas, reducing the amount, quality and quantity of the forage.

Coastal Prairie

Coastal prairie habitat is composed of perennial grasses and tall, temperate perennial graminoids—herbaceous plants that are morphologically similar to grasses. These species typically have long, large root systems, a bunching form, and are adapted to moderate grazing and drought conditions. Common perennial grass species found in this habitat include California oatgrass (*Danthonia californica*), Pacific hairgrass (*Deschampsia cespitosa* ssp. *holciformis*), sweet vernal grass (*Anthoxanthum odoratum*), snakeroot (*Ageratina altissima*), coast gum plant (*Grindelia stricta* var. *platyphylla*), poverty rush (*Juncus tenuis*), common woodrush (*Luzula multiflora*), squawroot (*Conopholis americana*) and fiddle dock (*Rumex pulcher*) (Heady et al. 1977). This habitat typically occurs on ridges and south-facing slopes, and between patches of forest or scrub within valleys and on north-facing slopes (Heady et al. 1977). There is one small pocket of coastal prairie habitat that occurs within Toto Ranch. This habitat is sparse, low-growing, and faces the Pacific Ocean on a gentle slope.

Chaparral/Scrub

Specific chaparral/scrub habitats mapped in Toto Ranch are named for the dominant species present, and include: blue blossom-Jimbrush scrub, chaparral-coastal scrub transition, coastal bluff scrub, chamise chaparral, mesic deciduous shrubs, and coyote brush (including coastal fringe, mesic stands, open stands, xeric stands, and dwarf coyote brush prairie habitat types).

All six of these specific types of chaparral/scrub are dominated by low to moderate-sized shrubs with mesophytic leaves, flexible branches, semi-woody stems growing from a woody base, and a shallow root system (Harrison et al. 1971; Bakker 1972). Some of the species in these habitats show varying degrees of succulence as an adaptation for water conservation. Structure and composition differ among habitat types and stands, and in most cases, shrubs are interspersed with annual herbs and grasses. Coyote brush (*Baccharis pilularis*), chemise (*Adenostoma fasciculatum*), lilac (*Ceanothus* spp.), California coffeeberry (*Frangula californica*), salal (*Gaultheria shallon*), bush monkeyflower (*Mimulus aurantiacus*), California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum*), and common woolly sunflower (*Eriophyllum lanatum*) are common plant species at Toto Ranch. Western bracken fern (*Pteridium aquilinum*), western swordfern (*Polystichum munitum*), cowparsnip (*Heracleum maximum*), Monterey coast paintbrush (*Castilleja latifolia*), yerba buena (*Clinopodium douglasii*), and California oatgrass (*Danthonia californica*) are often present in the understory (Heady et al. 1977). Proximity to the Pacific Ocean and coastline result in consistent exposure to nearly constant winds high in salt content, often resulting in low-growing forms of the species.

At Toto Ranch, most growth and flowering of chaparral/scrub species occur in late spring and early summer but can occur almost year-round.

At Toto Ranch, chaparral/scrub habitats are located both on terraces and in drainages, and can be sparse and low-growing, or dense and tall. More dense stands tend to be on the steep slopes and drainages, and function as riparian and transitional habitat. Chaparral/scrub habitat often occurs on rocky and poorly developed soils. Plant species characteristic of the most common chaparral/scrub types are listed below.

Characteristic Species of Coastal Bluff Scrub Habitats at Toto Ranch include:

- Early hair grass (*Aira praecox*)
- Coast onion (*Allium dichlamydeum*)
- Seaside fiddleneck (*Amsinckia spectabilis* var. *spectabilis*)
- California sea pink (*Armeria maritima* var. *californica*)
- Monterey coast paintbrush (*Castilleja latifolia*)
- Point Reyes Ceanothus (*Ceanothus gloriosus* var. *gloriosus*)
- Coastal California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*)
- Seaside woolly sunflower (*Eriophyllum staechadifolium*)
- Gum plant (*Grindelia stricta*)
- Rough cats-ear (*Hypochoeris radicata*)
- California goldfields (*Lasthenia californica* subsp. *californica*)
- Varied lupine (*Lupinus varicolor*)
- Sea plantain (*Plantago maritima*)
- Leathery polypody (*Polypodium scolopendri*)
- Media sandspurry (*Spergularia maritima*)

Species Characteristic of Chamise Chaparral include:

- Chamise (*Adenostoma fasciculatum*)
- Big berry manzanita (*Arctostaphylos glauca*)
- Woollyleaf manzanita (*Arctostaphylos tomentosa*)
- Whiteleaf manzanita (*Arctostaphylos viscida*)
- Buck brush (*Ceanothus* var. *cuneatus cuneatus*)
- Wartleaf ceanothus (*Ceanothus papillosus*)
- Mountain mahogany (*Cercocarpus betuloides*)
- Bush poppy (*Dendromecon rigida*)
- California buckwheat (*Eriogonum fasciculatum*)
- California yerba santa (*Eriodictyon californicum*)
- Deerweed (*Acmispon glaber*)

- Hollyleaf cherry (*Prunus ilicifolia*)
- Nuttall's scrub oak (*Quercus dumosa*)
- Sugar bush (*Rhus ovata*)
- Laurel sumac (*Rhus laurina*)
- White sage (*Salvia apiana*)
- Black sage (*Salvia mellifera*)
- Ashy spike-moss (*Selaginella cinerascens*)
- Mojave yucca (*Yucca schidigera*)
- Chaparral yucca (*Yucca whipplei*)

Characteristic Species of Coyote Brush Scrub include:

- Coastal mugwort (*Artemisia suksdorfii*)
- Coyote bush (*Baccharis pilularis*)
- "Yankee Point" Carmel ceanothus (*Ceanothus thyrsiflorus* var. *griseus*)
- Seaside daisy (*Erigeron glaucus*)
- Seaside woolly sunflower (*Eriophyllum staechadifolium*)
- Salal bush (*Gaultheria shallon*)
- Common cowparsnip (*Heracleum maximum*)
- Douglas iris (*Iris douglasiana*)
- Orange bush monkeyflower (*Diplacus aurantiacus*)
- Wood rose (*Rosa gymnocarpa*)
- Nootka rose (*Rosa nutkana*)
- Western poison oak (*Toxicodendron diversilobum*)
- Pacific dewberry (*Rubus vitifolius*)
- California huckleberry (*Vaccinium ovatum*)

Non-Redwood Forest

The San Mateo Coastal Annexation (Coastside) Draft EIR (2002a) lists one forest type at Toto Ranch, "Non-redwood forest." Non-redwood forest is a general term and can be made more specific using Midpen's vegetation mapping habitat names. At Toto Ranch, non-redwood forests include Eucalyptus Series and Planted Stands of Pine Monterey cypress (*Cupressus macrocarpa*) and Monterey pine (*Pinus radiata*) (Midpen 2002a). Both of these "forests" are moderately dense and occur in small pockets as opposed to broad expanses or large, contiguous stands. The eucalyptus are invasive, non-native species. The planted stands of Monterey cypress (*Cupressus macrocarpa*) and Monterey pine (*Pinus radiata*) are considered non-local, invasive species of cultivar origins by Midpen.

Eucalyptus Series

At least ten species of Eucalyptus species occur in California: *Eucalyptus camaldulensis*, *E. citriodora*, *E. cladocalyx*, *E. conferruminata*, *E. globulus*, *E. polyanthemos*, *E. pulchella*, *E. sideroxylon*, *E. tereticornis*, and *E. viminalis* (Manual of California Vegetation 2009).

Eucalyptus globulus, blue gum, has a California Invasive Plant Council (Cal-IPC) rate of Limited, based on the level of its negative ecological impacts on California. Midpen rates *Eucalyptus globulus* as having a Moderate negative ecological impact on coastal ecosystems.

Eucalyptus were introduced in the late 1800s when they were commercially planted for lumber and firewood (Bulman 1988, Groenendaal 1983). Seedlings may aggressively invade neighboring habitats where adequate moisture is available, and growth from stumps is rapid after cutting or falling eucalyptus trees.

Allelopathic chemicals build up in the soils underneath large trees and stands of eucalyptus, inhibiting the growth of understory species. Eucalyptus occur in and near the Farmstead Area near the residence, and in one or two small stands in drainages.

Planted Stands of Pine (Monterey Pine and Monterey Cypress)

Monterey cypress (*Cupressus macrocarpa*) and Monterey pine (*Pinus radiata*) are coastal conifers that can grow to a height of 25 meters. Individual trees and groves are shaped by salt and wind that blow onshore along the coastline, and stands that occur a short distance inland are taller and straighter (Manual of California Vegetation 2009). In many places in northern California, stands of Monterey cypress (*Cupressus macrocarpa*) and Monterey pine (*Pinus radiata*) support overwintering populations of monarch butterflies (Griffiths and Villablanca 2013).

As discussed above in Non-Redwood Forest, both Monterey pine (*Pinus radiata*) and Monterey cypress (*Cupressus macrocarpa*) have been widely planted as cultivars and are considered to be a non-local invasive species at Toto Ranch. There are a small number of these planted stands at Toto Ranch. One stand is located near the entrance to the property, and a few others are located inland, spread along the main ridge of the property.

Perennial and Intermittent Streams and Associated Riparian Habitat

Riparian habitats are those associated with saturated soils and water features. The specific riparian habitats mapped at Toto Ranch include: Arroyo Willow Riparian Forest, Mixed Willow Series, Red Alder Riparian Forest, and Poison Oak Chaparral.

Arroyo Willow Riparian Forest and Mixed Willow Series

Willow plant communities are composed of dense, low-growing, broadleaved, deciduous trees and tree-like shrubs that are named for the species that dominates the canopy (e.g., arroyo willow riparian forest (*Salix lasiolepis*). Willows need consistent water and tolerate saturated soils. They

are found along low-gradient stream reaches or dune slack ponds near the foggy coast. Species that co-occur with arroyo willows (*Salix lasiolepis*) include white alder (*Alnus rhombifolia*), wax myrtle (*Morella californica*), and Pacific willow (*Salix lasiandra*). At Toto Ranch, this community occurs on wet, friable soils along the intermittent streams and Tunitas Creek.

Red Alder Riparian Forest

Red alders (*Alnus rubra*) are broad-leaved trees that form a dense monoculture up to 25 meters tall in rich soils, especially on bottomlands, along streams, or near hillside seeps. They are also able to tolerate poorly aerated, marshy soils at the edges of marshes. The understory in these forests depends on the conditions at the site; in dense stands the understory is nonexistent or sparse, and in areas with less disturbances (e.g., flooding), the understory can form dense stands of shrubs. Characteristic species in this habitat include elk clover (*Aralia californica*), dogwood (*Cornus* spp.), black cottonwood (*Populus trichocarpa*), and willow (*Salix* spp.). Red alder riparian forest is found in dense contiguous stands along the banks of Tunitas Creek and in the lower sections of drainages near their confluence with Tunitas Creek.

Poison Oak Chaparral

Although poison oak (*Toxicodendron diversilobum*) can be found in upland areas at Toto Ranch, poison oak chaparral occurs in drainages and is associated with the intermittent streams and steep slopes of the drainages. These stands can be dense and form a monoculture, or these stands can be found interspersed with other chaparral and scrub habitats within the riparian zone.

Marshes, Wetlands, Ponds, and Lakes

There are fourteen (14) ponds and wetlands within Toto Ranch. The margins of most of these ponds are bare soil because of cattle grazing. Cattle eat emergent vegetation and trample plants at the edge of ponds. Some of the ponds do support limited emergent vegetation. The habitat types found in ponds at Toto Ranch are undifferentiated marsh (cattails and bulrush/tules) and open water.

Undifferentiated Marsh (Cattails and Bulrush/Tules)

Broad-leaved cattails (*Typha latifolia*) are an emergent perennial plant that grows to 1.5 m in height. Cattails occur in seasonal or perennial flooded freshwater or brackish marshes with clayey or silty soils. It has a distinctive inflorescence that looks like a brown spike. Plants can reproduce mainly via rhizomes that terminate in additional leafy shoots, although seeds can disperse long distances via wind and water. Cattails are biennial and die after fruiting in their second year. Hybridization with other *Typha* species is common when they grow in mixed stands, making identification difficult (Smith 2000).

There are two types of tules that occur in California, *Schoenoplectus acutus* and *S. californicus*. Tules are hollow and can grow to three meters in height. Tule seeds are dispersed by water and birds. Seeds undergo a period of ripening and can remain dormant when submerged in water,

forming a seed bank. Tules are found in both brackish and freshwater marshes, along stream shores, bars, and channels of river mouth estuaries, around ponds and lakes, in sloughs, swamps, and roadside ditches. These inundated soils have a high organic content and are poorly aerated.

At Toto Ranch, undifferentiated marsh habitat contains both cattails (*Typha latifolia*) and tules, (*Schoenoplectus acutus* var. *occidentalis*) and is found in only one pond just north of the main drive into the property. Tules tend to dominate on the outer, more-exposed edges of marshes adjacent to open water, with cattails populating the pond margins. However, both species also can co-dominate in stands.

Open Water (Pond)

Open water habitat includes the main channel of creeks and streams and portions of lakes, ponds, and backwaters that remain permanently flooded all year and appear <10 percent vegetated (EPA 2012). At Toto Ranch, open water habitat occurs within the fourteen (14) ponds and wetlands throughout the property.

Special-Status Plant Species

Special-status plants are species that are listed and/or protected under the federal or state endangered species acts; California Fish and Game Code; California Native Plant Protection Act, identified by California Native Plant Society as rare, protected under CEQA, or identified by Midpen staff as species of concern. Refer to the Regulatory Setting section below for a list of applicable regulatory protections and **Appendix E** for a description of the regulatory protections. A table of special-status species identified by the CNDDDB as occurring on or within 5 miles of Toto Ranch is included in **Appendix D**.

Choris' Popcorn Flower (*Plagiobothrys chorisianus* var. *chorisianus*)

Status, Distribution, and Habitat Requirements

Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*) is a small, annual herb of the Boraginaceae family that is endemic to California's Alameda, Monterey, Santa Clara, Santa Cruz, San Francisco, and San Mateo Counties. It blooms between March and June, displaying small white flowers. Choris' popcorn flower inhabits wet, grassy areas in wetland-riparian, coastal prairie, coastal scrub and chaparral habitats below 650 meters. Choris' popcorn flower is moderately threatened in California (CNPS rank 1B.2) and is eligible for state listing as an endangered species (CNPS 2018). This species seems to benefit from low to medium levels of disturbance which create open areas. More information on the status and biology of Choris' popcorn flower is provided online at the California Native Plant Society website: <http://www.rareplants.cnps.org/detail/1382.html>.

Occurrence in the Project Area

Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*) is found in eight locations at Toto Ranch near the top of a ridge near the middle of the property, and at the southern property boundary. The populations are on and along road/trail margins and in seepy areas that retain water in the soils for prolonged periods of time.

Wildlife

Toto Ranch and the surrounding areas are in a rural setting that offers contiguous undeveloped lands and diverse habitats with reduced/limited barriers to wildlife movement, compared to more urbanized parts of the Bay Area. Relative openness and lack of human disturbance supports diversity of common wildlife species and provides larger swaths with habitat for special-status species. Common species (by general habitat type) and special-status species known or expected to occur at Toto Ranch are discussed below.

Common Species (By Habitat)

Agricultural Lands

As discussed above in the Vegetation section, the Farmstead Area is not included in the RMP (**Exhibits C and D**), although domestic animals (e.g., cattle, horses) are routinely moved between the Agricultural Lease Area and the rest of Toto Ranch. The agricultural lands support the production of domestic livestock, including cattle, sheep, poultry, and horses. At times, less common domesticated species, such as llamas, are raised at Toto Ranch.

Due to the rural setting of the property and proximity to native habitats, native species from adjacent habitats may pass through or near the residence, corrals, and other infrastructure of this area. These species are listed and discussed below by habitat.

Non-Native Grasslands

Annual grasslands provide forage, cover, and nesting habitat for a variety of animal species, including: western fence lizard (*Sceloporus occidentalis*), coast garter snake (*Thamnophis elegans terrestris*), western rattlesnake (*Crotalus oreganus*), black-tailed jackrabbit (*Lepus californicus*), western harvest mouse (*Reithrodontomys megalotis*), American badger (*Taxidea taxus*), coyote (*Canis latrans*), western meadowlark (*Sturnella neglecta*), turkey vulture (*Cathartes aura*), northern harrier (*Circus hudsonius*), and American kestrel (*Falco sparverius*) (Basey and Sinclear 1980, White et al. 1980, Verner et al. 1980).

Non-native grasslands support many small burrowing mammals, such as California ground-squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and California vole (*Microtus californicus*). Specifically, the burrows dug by ground squirrels provide important habitat for special-status species, including burrowing owls (*Athene cunicularia*) and,

more commonly at Toto Ranch, American badger (*Taxidea taxus*). California red-legged frog and San Francisco garter snake also take refuge in burrows to escape predators or to aestivate during the hot, dry California summers.

Coastal Prairie

Coastal prairies, which support more California native grasses and forbs than annual grasslands, are the primary habitat for a variety of native reptiles, birds, and mammals. Wildlife usually found in this habitat include: coast garter snake (*Thamnophis elegans terrestris*), northern harrier (*Circus hudsonius*), barn owl (*Tyto alba*), burrowing owl (*Athene cunicularia*), western kingbird (*Tyrannus verticalis*), Say's phoebe (*Sayornis saya*), barn swallow (*Hirundo rustica*), western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), (Harris and Harris 1979), Townsend's mole (*Scapanus townsendii*), coast mole (*Scapanus orarius*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), long-tailed vole (*Microtus longicaudus*), and Oregon vole (*Microtus oregoni*) (Mossman 1979).

Perennial grasslands also provide foraging habitat for the red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), peregrine falcon (*Falco peregrinus*), turkey vulture (*Cathartes aura*), western bluebird (*Sialia mexicana*) (Harris and Harris 1979), fringe-tailed bat (*Myotis thysanodes*), big brown bat (*Eptesicus fuscus*), striped skunk (*Mephitis mephitis*), coyote, black-tailed jackrabbit (*Lepus californicus*), brush rabbit (*Sylvilagus bachmani*), and black-tailed deer (*Odocoileus hemionus columbianus*) (Mossman 1979).

Although much smaller in size and distribution at Toto Ranch, it is possible (especially if coastal prairie habitat is expanded or restored in other parts of Toto Ranch) for coastal prairie to support California ground squirrels (*Otospermophilus beecheyi*) and the species that utilize their burrows, including western burrowing owls (*Athene cunicularia*), California red-legged frog (*Rana draytonii*), and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*).

Chaparral/Scrub

The various types of chaparral/scrub habitats discussed above all support similar types of common wildlife species. Chaparral and scrub habitat provide canopy, nectar sources, leaf litter, and other natural features contributed by woody-stemmed plants. San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*) build their nests in chaparral/scrub habitats. Nectar feeders like bees and hummingbirds utilize flowers on scrub species. Birds and bats may forage for insects over scrub habitats, and small and medium-sized mammals utilize the cover and resources provided by this habitat. Additional species common in chaparral habitats in this region include: deer mice (*Peromyscus maniculatus*), California vole (*Microtus californicus*), shrew-mole (*Neurotrichus gibbsii*), black-tailed deer (*Odocoileus hemionus columbianus*), California mouse (*Peromyscus californicus*), spotted towhee (*Pipilo maculatus*), gopher snake

(*Pituophis catenifer*), raccoon (*Procyon lotor*), western fence lizard (*Sceloporus occidentalis*), Pacific gopher snake (*Pituophis catenifer catenifer*), brush rabbit (*Sylvilagus bachmani*), and coyote (*Canis latrans*).

Non-Redwood Forest

The small stands of trees at Toto Ranch are the only tall tree-height vegetation on the property. As such, these stands would be the only features to support tree-roosting bats and birds of prey. Birds of prey are common and may be larger than expected at Toto Ranch due to the presence of non-native/non-local trees and adjacent large expanses of grassland for hunting. Raptors are often seen perching/roosting in the tall trees.

A survey for bats was conducted by Midpen biologists in 2018, and results indicate no evidence of roosting bats in forests at Toto Ranch. Several bat species were detected in flight, including California myotis (*Myotis californicus*), Mexican free-tailed bat (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*), long-legged myotis (*Myotis Volans*), and hoary bat (*Lasiurus cinereus*). No special-status bats were detected.

Other common species of wildlife that would utilize the small forest habitat include migratory birds such as band-tailed pigeon (*Patagioenas fasciata*), house finch (*Haemorhous mexicanus*), Pacific slope flycatcher (*Empidonax difficilis*), northern flicker (*Colaptes auratus*), and Swainson's thrush (*Catharus ustulatus*). Trees would also provide habitat and cover for larger mammals such as coyote, mountain lion (*Felis concolor*), black-tailed deer (*Odocoileus hemionus columbianus*), and raccoon (*Procyon lotor*). In addition, animals from surrounding habitats may also utilize areas under the tree canopy; these species are listed above in *Coastal Prairie* and *Non-Native Grasslands Wildlife* discussion.

Perennial and Intermittent Streams and Associated Riparian Habitat

Toto Ranch supports three intermittent streams, which drain into Tunitas Creek, a perennial creek at the northern boundary of the property. Steelhead (*Oncorhynchus mykiss*) are known to occur in Tunitas Creek (see the following discussion under Steelhead) upstream to approximately 6 miles from the river mouth. California red-legged frog (CRLF) (*Rana draytonii*) are also known to occur in Tunitas Creek and likely use the intermittent creeks and riparian corridors to move throughout Toto Ranch and between ponds (see the following discussion under Ponds).

The creeks and streams provide valuable water sources for wildlife. In addition, the riparian vegetation and corridor provide cover for wildlife species, especially because the grasslands and chaparral/scrub habitats are low-growing and open. Species that are likely to use the riparian corridors are the same as those that occupy adjacent communities and are discussed in the *Coastal Prairie* and *Non-Native Grasslands Wildlife* sections, above.

Ponds

There are fourteen (14) ponds and wetlands throughout Toto Ranch. They provide aquatic habitat for CRLF and other amphibians, potential habitat for SFGS, and drinking water sources for wildlife species and cattle. Most ponds do not support emergent vegetation. Only one (1) pond was mapped as having cattail/tule emergent vegetation. Nonetheless, the ponds do support breeding CRLF within them. CRLF also travel overland through grasslands and open scrub habitat to get from pond to pond, and into the intermittent drainages that traverse the property.

Ponds also support and attract insects, providing foraging habitat for insectivorous birds and bats, such as black phoebe (*Sayornis nigricans*), Pacific-slope flycatcher (*Empidonax difficilis*), common yellowthroat (*Geothlypis trichas*), barn swallow (*Hirundo rustica*), California myotis (*Myotis californicus*), Mexican free-tailed bat (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*), long-legged myotis (*Myotis volans*), and hoary bat (*Aeorestes cinereus*).

Species that are likely to use ponds as a water source are the same as those that occupy adjacent communities and are discussed in the Coastal Prairie and Non-Native Grasslands Wildlife sections, above.

Special-Status Wildlife

Special-status wildlife are species that are listed under federal or state Endangered Species Acts, California Fish and Game Code, identified by resource agencies (i.e., USFWS, US Forest Service, Bureau of Land Management) as sensitive, are protected under CEQA, or identified by Midpen staff as species of concern. A table of special-status species identified by the CNDDDB as occurring on or within 5 miles of Toto Ranch is included in **Appendix D**. Special-status wildlife that occur, or have the potential to occur, within the Project area include: Allen's hummingbird (*Selasphorus sasin*), American badger (*Taxidea taxus*), California red-legged frog (*Rana draytonii*), burrowing owl (*Athene cunicularia*), Coho salmon (*Onchorhynchus kisutch*), horned lark (*Eremophila alpestris*), northern harrier (*Circus hudsonius*), prairie falcon (*Falco mexicanus*), San Francisco common yellowthroat (*Geothlypis trichas*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), short-eared owl (*Asio flammeus*), and steelhead trout (*Oncorhynchus mykiss*). These species are discussed below.

Allen's Hummingbird (*Selasphorus sasin*)

Status, Distribution, and Habitat Requirements

Allen's hummingbird is considered a Bird of Conservation Concern by the U.S. Fish and Wildlife Service. Allen's hummingbird breeds throughout coastal California and southwestern Oregon in coastal scrub, valley-foothill hardwood, and wooded riparian habitats. Breeding takes place from mid-February to early August, producing two eggs per brood and up to two broods

per season (Johnsgard 1983). During winter, Allen's hummingbird migrates south along the coast to the foothills and mountain forests of Mexico. Allen's hummingbirds feed primarily on nectar from a variety of herbaceous and woody flowering plants, but they will also hunt small insects and spiders. Hummingbirds are essential pollinators for many specially adapted flowers and sometimes serve as prey for predatory birds, mammals, and snakes. According to Audubon's climate models, Allen's hummingbird is expected to lose 90 percent of its current breeding range by 2080. More detailed information on the status and biology of Allen's hummingbird is provided in document B292 of *California's Wildlife. Vol. I-III* (Zeiner et al. eds. 1988-1990).

Occurrence in the Project Area

Allen's hummingbird will be present throughout the scrub habitats at Toto Ranch, foraging on nectar from flowering plants and roosting in shrubs or riparian trees.

American Badger (*Taxidea taxus*)

Status, Distribution, and Habitat Requirements

The American badger has been listed as a California Species of Special Concern since 1986. The American badger is a medium-sized (12-24 pounds), highly specialized burrowing mustelid that preys on burrowing rodents, reptiles, invertebrates, birds, eggs, and carrion. It is an uncommon permanent resident throughout California, but is most abundant in dry, open stages of scrub, forest, and prairie habitats with friable soils suitable for digging extensive burrow systems (Grinnell et al. 1937, Messick and Hornocker 1981, Lindzey 1982). Mating takes place in the summer and early fall, resulting in a litter of one to four cubs between March and April (Long 1973, Peeters 1988). The main threats to the American badger include habitat fragmentation, roadkill, indiscriminate predator-control poisons, trapping, and secondary poisoning from rodenticides. More detailed information about the status and biology of the American badger is provided in document M160 of *California's Wildlife. Vol. I-III* (Zeiner et al. eds. 1988-1990).

Occurrence in the Project Area

American badger burrows have been identified at Toto Ranch, but there have been no confirmed/documentated sightings of American Badgers to date.

Burrowing Owl (*Athene cunicularia*)

Status, Distribution, and Habitat Requirements

The burrowing owl is listed as a California Bird Species of Special Concern (breeding), Priority 2. Historically, this species' range included open grasslands throughout most of California and its islands. The burrowing owl prefers habitats with short grasses, scattered shrubs, and ground squirrel burrows for roosting and nesting (Green and Anthony 1989, Haug et al. 1993, Ronan 2002). Burrowing owls have adapted to some agricultural environments,

nesting along roadsides in open canals, ditches, and drains (DeSante et al. 2004, Rosenberg and Haley 2004). The burrowing owl preys on a variety of insects, small rodents, birds, reptiles, amphibians, and occasionally carrion (Thompson and Anderson 1988, Green et al. 1993, Plumpton and Lutz 1993, Gervais et al. 2000, York et al. 2002). Burrowing owls breed from March to August and produce an average clutch size of 14 eggs (Rosenberg and Haley 2004, Haug et al. 1993, Todd and Skilnick 2002). Threats to burrowing owls include habitat loss and degradation from rapid urbanization and farming practices that destroy nest burrows (Rosenberg and Haley 2004). More detailed information on the status and biology of the burrowing owl is provided in *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California* (Shuford and Gardali, ed., 2008).

Occurrence in the Project Area

Burrowing owls have been noted in grasslands at Toto Ranch using American badger dens and in areas with moderately dense ground squirrel burrows.

California Red-Legged Frog (*Rana draytonii*)

Status, Distribution, and Habitat Requirements

California red-legged frog is listed as threatened under the federal Endangered Species Act and is a California Species of Special Concern. Historically, the CRLF was common from Redding to Baja California, including the Sierra Nevada and Coast Ranges. Its current range is much smaller, and most remaining populations are found in central California along the coast, from Marin to Ventura Counties. California red-legged frogs breed in lowland and foothill streams, marshes, and wetlands, including livestock ponds (Jennings and Hayes 1994). They may also be found in upland habitats near breeding areas and along intermittent drainages connecting wetlands. Adults may take refuge during dry periods in rodent holes, soil cracks, or leaf litter in riparian habitats. Although CRLF typically remain near aquatic habitat, studies in coastal California suggest that they are capable of moving 2 miles or more in upland habitat or through ephemeral drainages (Bulger et al. 2003). More detailed information on the status and biology of CRLF is provided in the *Recovery Plan for the California Red-Legged Frog* (U.S. Fish and Wildlife Service 2002).

Occurrence in the Project Area

Toto Ranch is located within critical habitat for the CRLF. Midpen biologists monitor a healthy population of CRLF that occur at Toto Ranch. CRLF have been observed in a number of the fourteen (14) ponds and wetlands in the Project area, and are assumed to use all of the ponds at times. One adult CRLF was found in a small drainage at Toto Ranch, and likely also utilize the creeks and streams for foraging and dispersal/movement, although the steep topography of the drainages may make travel along these corridors somewhat difficult. Riparian habitat adjacent to

creeks and streams may provide leaf litter and other opportunities for refuge, cover, and predator avoidance. CRLF utilize upland areas that contain habitat features for refuge and aestivation (logs, rocks, and rodent burrows).

Coho Salmon (*Onchorhynchus kisutch*)

Status, Distribution, and Habitat Requirements

The Coho salmon is a medium-sized salmonid (55-70 cm) protected under both the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA) (Moyle 2002). Historically, Coho salmon ranged from the Smith River near the Oregon border to the San Lorenzo River, Santa Cruz County, California. Coho are now present in only two-thirds of their historic range between Humboldt County and the Oregon border, and have been extirpated from all tributaries of the San Francisco Bay (CDFG 2004). Coho salmon inhabit low-gradient reaches of tributary streams and larger rivers such as those found in the Klamath River watershed. They need gravelly substrate to lay their eggs, and clear, cool, oxygenated water. Threats to Coho salmon include overexploitation of stocks, interactions with hatchery fish, loss and degradation of habitat caused by dams and other development, and siltation of watersheds (Brown et al. 1994, CDFG 2004). More detailed information on the status and biology of Coho salmon is provided online at the California Department of Fish and Wildlife website: <https://www.wildlife.ca.gov/Conservation/Fishes/Coho-Salmon>.

Occurrence in the Project Area

Coho salmon do not occur in Tunitas Creek. The closest coho-bearing stream is San Gregorio Creek, approximately 2.2 miles to the south. However, improvements to Tunitas Creek provide suitable habitat in the event that coho salmon are present but undetected, or if they expand their range into Tunitas Creek.

Grasshopper Sparrow (*Ammodramus savannarum*)

Status, Distribution, and Habitat Requirements

Grasshopper sparrow (*Ammodramus savannarum*) is a California species of special concern. This species is an uncommon and local summer resident and breeder in foothills and lowlands west of the Sierra Nevada mountain range, from Mendocino County south to San Diego County. Grasshopper sparrows may also stay in coastal southern California through the winter, although due to their secretive behavior scientists are still researching their range and migration patterns (Grinnell and Miller 1944, McCaskie et al. 1979, Garrett and Dunn 1981).

Grasshopper sparrows inhabit dry, dense grasslands, especially native grasslands with a variety of grasses and tall forbs and scattered shrubs for singing perches. They feed primarily on the ground and in low foliage, looking for insects, and grass and forb seeds (Bent 1968).

Grasshopper sparrows build nests of grasses and other vegetation in a slight depression in

ground, often concealed at the base of overhanging grasses. They use scattered shrubs for singing perches. More detailed information on the status and biology of the grasshopper sparrow is provided in California Wildlife Habitat Relationships (CWHR) System (CDFW 2019).

Occurrence in Project Area

Grasshopper sparrows have been observed by Midpen and Point Blue biologists in grasslands throughout Toto Ranch.

Horned Lark (*Eremophila alpestris*)

Status, Distribution, and Habitat Requirements

Horned larks (*Eremophila alpestris*) are on the CDFW Watch List. They are common in a variety of open habitats, including grasslands along the coast, deserts at sea level, and alpine dwarf-shrub habitat above the tree line. They are much less common along the north coast of California, in mountain regions, and in coniferous or chaparral habitats (McCaskie et al. 1979). They can become gregarious after breeding season, forming large flocks that forage and roost together.

Horned larks forage on the ground, searching for and eating insects, snails, and spiders during breeding season, adding grass and forb seeds to their diet when they are available in other seasons (Bent 1942). They seek cover amongst grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities. They build their grass-lined nests in depressions on ground in the open. More detailed information on the status and biology of the horned lark is provided in California Wildlife Habitat Relationships (CWHR) System (CDFW 2019).

Occurrence in Project Area

Horned larks have been observed by Midpen and Point Blue biologists in grasslands throughout Toto Ranch.

Northern Harrier (*Circus cyaneus*)

Status, Distribution, and Habitat Requirements

The northern harrier is currently considered a California Bird Species of Special Concern (breeding), Priority 3. The northern harrier is a large hawk that prefers open, treeless habitats that provide adequate cover for nesting, abundant prey, and scattered lookout perches for hunting and feeding. Such habitats include marshes, wet meadows, annual and perennial grasslands, abandoned or lightly grazed pastures, some croplands, sagebrush flats, and desert sinks. Northern harriers nest on the ground within patches of dense vegetation from March through August and prey on a variety of small- to medium-sized mammals, passerine birds, and reptiles (MacWhirter and Bildstein 1996). Historically, the breeding range of the northern harrier included wetlands and prairies from the Modoc Plateau south to San Diego at elevations ranging from sea level to 9,000 feet (Grinnell 1915; Shuford and Metropulos 1996). Breeding populations in the state have been in

decline since the early 1940s due to loss of suitable habitat to agriculture, urban development, livestock grazing, fire suppression, and exotic species (Grinnell and Miller 1944; Moss et al. 1995). The primary threats to northern harriers are loss of nesting and foraging habitat and nest failure from human disturbance, predator-control poisons, agricultural operations and unnatural predation (MacWhirter and Bildstein 1996, Schweizer and Chesemore 1996). More detailed information on the status and biology of the northern harrier is provided in *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California* (Shuford and Gardali, ed., 2008).

Occurrence in the Project Area

Northern harriers occur in the grasslands and sparse, low, open scrub habitats of Toto Ranch.

Prairie Falcon (*Falco mexicanus*)

Status, Distribution, and Habitat Requirements

The Prairie Falcon (*Falco mexicanus*) is on the CDFW Watch List. It is an uncommon permanent resident that ranges from southeastern deserts, through the Central Valley, and the inner Coast Ranges and Sierra Nevada. Their range rarely extends into the northern coastal fog belt or the upper elevations of Sierra Nevada.

Prairie falcons inhabit open grasslands, but are associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. They forage in open areas, catching prey in the air and on the ground. They eat mostly small mammals, some small birds, and reptiles. Prairie falcons nest in open terrain with canyons, cliffs, and rock outcrops, most often nest in a scrape on a sheltered ledge of a cliff, but sometimes nests on old raven or eagle stick nest. Nest sites overlook large, open areas. More detailed information on the status and biology of the prairie falcon is provided in California Wildlife Habitat Relationships (CWHR) System (CDFW 2019).

Occurrence in Project Area

Prairie falcons have been observed foraging in open areas at Toto Ranch.

San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*)

Status, Distribution, and Habitat Requirements

The San Francisco common yellowthroat is considered a Bird Species of Special Concern (year-round), Priority 3. The San Francisco common yellowthroat is a subspecies of the common yellowthroat (*Geothlypis trichas*) and is endemic to the greater San Francisco Bay region. It breeds from mid-March to late July from Tomales Bay, Marin County, east to Carquinez Straight, and south to San Jose, Santa Clara County (Grinnell and Miller 1944). Breeding habitat includes wetlands and marshes fringed by riparian thickets, as well as swales and seeps where

groundwater is close to the surface (Foster 1977, Hobson et al. 1986). Two broods per season are raised in a well-concealed, open-cup nest built in dense vegetation near the ground. The diet of the San Francisco common yellowthroat consists mostly of insects and spiders (Beal 1907). Threats to this species include degradation of remaining wetland habitat and reduced reproductive success from predation and cowbird nest parasitism (Guzy and Ritchison 1999, Spautz 1999). More detailed information on the status and biology of the San Francisco common yellowthroat is provided in *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California* (Shuford and Gardali, ed., 2008).

Occurrence in the Project Area

The common yellowthroat is known to occur at Toto Ranch in and around ponds and riparian areas, and adjacent scrub habitats.

San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)

Status, Distribution, and Habitat Requirements

The San Francisco dusky-footed woodrat is a California Species of Special Concern. It is a subspecies of the more widespread dusky-footed woodrat (*N. fuscipes*), a medium-sized (200-400 grams), grey-brown rodent with a long tail (6-8 inches) and large ears. This subspecies is found throughout the San Francisco Bay area in scrub, grassland, and woodland communities (Burt and Gossenheider 1980, Hall 1981). It is a generalist herbivore, feeding on a wide variety of nuts, fruits, woody plants, grasses, fungi, and forbs (Linsdale and Tevis 1951). Preferable habitat characteristics include the presence of oaks and other thick-leaved trees and shrubs (Kelly 1990, Williams et al. 1992). For shelter, the San Francisco dusky-footed woodrat builds a nest of sticks that can measure up to 2.4 m (8 ft) in height and 2.4 m (8 ft) in diameter beneath or within a tree or shrub (English 1923). Within the larger nest structure, smaller nests of leaves, grass and feathers are built. Nests can remain standing for twenty years or more and host multiple generations (Linsdale and Tevis 1951).

The San Francisco dusky-footed woodrat breeds from December to September, producing an average litter size of two to three young and up to five litters per year (Linsdale and Tevis 1951, Verner and Boss 1980). Woodrats serve as prey for snakes, raptors, coyotes and bobcats, and the stick structures that it builds provide refuge for small mammals, amphibians and reptiles. More detailed information on the status and biology of the San Francisco dusky-footed woodrat is provided in *Mammalian Species of Special Concern in California* (Williams 1986).

Occurrence in the Project Area

San Francisco dusky-footed woodrats occur at Toto Ranch in scrub habitats, especially in riparian corridors. Their nests are conspicuous, found within forested, riparian, and scrub habitats.

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)

Status, Distribution, and Habitat Requirements

The San Francisco garter snake is a colorful subspecies of the common garter snake (*Thamnophis sirtalis*) that is listed as endangered under the California Endangered Species Act (CESA) and federal Endangered Species Act (ESA). The San Francisco garter snake historically ranged in wetland areas along the San Francisco Peninsula from the San Francisco County line south down the coast to Año Nuevo Point, San Mateo County, and Waddell Creek, Santa Cruz County, and east along the base of the Santa Cruz Mountains. It prefers wetland habitats or densely vegetated ponds with nearby grassy uplands where it can hunt for amphibians (such as CRLF) and find cover in small mammal burrows (USFWS 1985).

During winter along the coast, San Francisco garter snakes may migrate up to several hundred yards away from their wetland hunting grounds to aestivate in upland burrows. In the summer when ponds evaporate, these snakes may seek out small mammal burrows in order to estivate, or enter a dormant state, in an effort to conserve energy until the rainy season returns. Threats to the San Francisco garter snake population include loss of habitat from agricultural and urban development, the decline of the California red-legged frog (an essential prey species), the introduction of invasive species such as the American bullfrog (*Rana catesbeiana*), and illegal collection by reptile enthusiasts (USFWS 2007). Additional information on the status and biology of this species is provided in *Species Profile for San Francisco Garter Snake (Thamnophis sirtalis tetrataenia)* (U.S. Fish and Wildlife Service 2007) and in *Demography of the San Francisco Garter Snake in Coastal San Mateo County, California* (B. J. Halstead et al. 2011).

Occurrence in the Project Area

A population described by Barry during research from 1971-1983 is mapped in the CNDDDB along Tunitas Creek from Highway 1 east to Dry Creek at the northern boundary of the property (California Natural Diversity Database 2019). San Francisco garter snakes have not been detected at Toto Ranch by Midpen biologists, even with extensive survey efforts.

Short-Eared Owl (*Asio flammeus*)

Status, Distribution, and Habitat Requirements

Short-eared owls (*Asio flammeus*) are a California Species of Special Concern. They are a widespread winter migrant, found primarily in the Central Valley, in the western Sierra Nevada

foothills, and along the coastline, but are occasionally seen as a winter migrant in southern California, including the Channel Islands (Garrett and Dunn 1981).

Short-eared owls are usually found in open areas, including both annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. They often use fence posts and small mounds as perches, and require dense vegetation, tall grasses, brush, ditches, and wetlands for resting and roosting cover (Grinnell and Miller 1944). Their numbers have declined over most of their range in recent decades because of destruction and fragmentation of grassland and wetland habitats, and grazing (Remsen 1978) and increased levels of predation (Holt and Leasure 1993).

Short-eared owls hunt from the air, searching in low, gliding passes above the ground. They feed primarily on voles and other small mammals (Bent 1938, Earhart and Johnson 1970), but rely on eating birds in coastal wintering areas, and during nesting season. They also eat reptiles, amphibians, and arthropods.

Short-eared owls nest on dry ground in a depression concealed in vegetation, and lined with grasses, forbs, sticks, and feathers; occasionally nests in a burrow. One recorded nest is on bare soil with no nest material (Holt 1992), elevated sites for perches, and dense vegetation for roosting and nesting. More detailed information on the status and biology of the short-eared owl is provided in California Wildlife Habitat Relationships (CWHR) System (CDFW 2019).

Occurrence in Project Area

Short-eared owls have been observed by Midpen biologists at Toto Ranch in open grassland habitats.

Steelhead Trout (*Onchorhynchus mykiss*)

Status, Distribution, and Habitat Requirements

Steelhead trout that spawn along the central California coast are considered federally threatened (71 FR 834; NMFS 2016a; Williams et al. 2016). This population ranges from the Russian River to Aptos Creek, including the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers (71 FR 834). Steelhead are anadromous salmonid fish, migrating from the ocean to spawn in freshwater streams where their young are reared before migrating to the ocean to mature. Unlike other salmonids, steelhead are iteroparous in that not all adults die after spawning and some may spawn more than once in their lifetime. Steelhead spawn mostly between December and March (Moyle 2002; Quinn 2005). Freshwater habitat requirements include cool (12-18°C), well-oxygenated water, gravelly substrate for spawning and rearing offspring, riparian vegetation to support invertebrate prey, and fallen woody debris for habitat structure. Major threats to steelhead populations include loss of genetic diversity, siltation of watersheds, and habitat fragmentation caused by urbanization and water resource development. More detailed

information on the status and biology of steelhead trout is provided in the *Coastal Multispecies Recovery Plan* (National Marine Fisheries Service 2016) and online at the California Department of Fish and Wildlife website: <https://www.wildlife.ca.gov/Conservation/Fishes/Coastal-Rainbow-Trout-Steelhead>.

Occurrence in the Project Area

Steelhead trout are known to occur in Tunitas Creek, which flows along the north boundary of Toto Ranch. Steelhead were first reported in Tunitas Creek as early as 1939 (Becker and Reining 2008). A NMFS study found steelhead in Tunitas Creek at Tunitas Creek headwaters in 1995, and habitat typing of the entire watershed was conducted by CDFW in 2006 (Becker and Reining 2008). The upstream limit of anadromy appears to be a boulder/bedrock falls at about stream mile 6.2 (Becker and Reining 2008). The population of steelhead in Tunitas Creek is relatively small and low in abundance, with the greatest density of juveniles occurring in the upper creek reaches (Becker and Reining 2008). Threats to the steelhead population are from excessive sedimentation, low creek flows, and water quality issues.

Regulatory Setting

Following is a list of the applicable regulatory protections for biological resources present on Toto Ranch. Refer to **Appendix E** for a description of these regulations.

- Federal Regulations
 - Federal Endangered Species Act
 - Section 7, Consultation and Authorization of Take
 - Clean Water Act
 - Magnuson-Stevens Fishery Conservation Management Act
 - Migratory Bird Treaty Act
 - Bald and Golden Eagle Protection Act
- State Regulations
 - California Endangered Species Act
 - California Fish and Game Code
 - Lake or Streambed Alteration Agreement (Section 1600 et seq.)
 - California Native Plant Protection Act
 - Porter-Cologne Water Quality Control Act
 - Coastal Act
 - California Environmental Quality Act
- Local Laws and Ordinances
 - San Mateo County General Plan
 - Heritage Tree Ordinance for San Mateo County

Midpen has the following valid permits that provide guidance and requirements for compliance with the Clean Water Act, federal Endangered Species Act, California Endangered Species Act, and California Fish and Game Code for routine maintenance activities.

- USFWS 10(a)1(A) permit and Intra-Service Biological Opinion for the San Francisco Garter Snake and California Red-Legged Frog Habitat Enhancement Projects at their Open Space Preserves in San Mateo and Santa Clara counties, California, as well as a Recovery Permit for California red-legged frog and San Francisco garter snake
- USFWS Biological Opinion for SFGS and CRLF
- USFWS Recovery Permit for incidental take of SFGS and CRLF in conjunction with habitat management activities to enhance their survival
- CDFW Lake and Streambed Alteration Agreement for System Wide Routine Maintenance Agreement for Various Creeks in San Mateo, Santa Clara and Santa Cruz Counties
- RWQCB 401 Certification for Waste Discharge Requirements and Water Quality Certifications for Routine Maintenance Activities

Discussion

a. Substantial Effect through Habitat Modifications on any Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies or Regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. As described in Section 1.5, Proposed Project Components, the proposed Project includes implementation of the Toto Ranch RMP, which includes grazing recommendations, fence repairs and installation, road repairs and maintenance, water infrastructure improvements; and pond management activities. These activities may impact the special-status species that occur, or may occur, on the property, including: Allen's hummingbird (*Selasphorus sasin*), American badger (*Taxidea taxus*), California red-legged frog (*Rana draytonii*), burrowing owl (*Athene cunicularia*), Coho salmon (*Onchorhynchus kisutch*), horned lark (*Eremophila alpestris*), northern harrier (*Circus hudsonius*), prairie falcon (*Falco mexicanus*), San Francisco common yellowthroat (*Geothlypis trichas*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), and short-eared owl (*Asio flammeus*).

Additionally, as described in Sections 1.5.1(E), Monitoring and Adaptive Management, and 1.5.3, Avoidance and Minimization Measures, the proposed Project includes several practices and measures to avoid and minimize potential environmental impacts, based on existing permits and guidance documents.

The following is discussion identifies potential Project impacts on special-status species by activity in consideration of the proposed monitoring, adaptive management, and avoidance and minimization measures.

Effects of Grazing

As described in Section 1.5.1, grazing by cattle is proposed by the RMP as the main method of vegetation management at Toto Ranch. Grazing regimes and outcomes will vary based on stocking rates, rotation times and grazing intensity, weather, and water availability. Grazing, when used effectively, can increase habitat quality of rangelands. However, if stocking rates are too high for the soil conditions, vegetation, and moisture regime, the outcome may result in negative habitat changes such as erosion, decreased water quality, and reduction in native species and biodiversity. Potential impacts to the SFGS and/or CRLF from grazing include the alteration of habitat from inappropriate grazing regimes, where an excess of vegetation is removed. Vegetation is used by these species as cover for avoiding predators while moving across the terrestrial habitat.

Grazing cattle can also alter the quality of the ponds which are used by SFGS and CRLF for reproduction and foraging. Grazing practices, and in particular unrestricted grazing, can seriously degrade the aquatic and surrounding upland habitat if cattle are allowed constant access to the entire area of any single pool or combination of pools. Cattle may trample the muddy areas of the habitat and change the shoreline and bottom structure of the pond. Furthermore, cattle may urinate and defecate in the ponds, changing the water chemistry and degrading the suitability of the aquatic habitat.

Although Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*) benefits from low-intensity disturbance including grazing, intensive grazing can adversely impact this species and the wet soils it inhabits. Intensive grazing can result in extensive loss of above-ground biomass like leaves, flowers, and seeds, as well as the creation of muddy, trampled areas where cow hooves can pit and mix the wet soils that Choris' popcorn flower inhabit. These impacts can be especially detrimental if grazing occurs when plants are flowering and seeding.

Although grazing has the potential to adversely impact SFGS, CRLF, Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*) and other grassland species, including special-status species like burrowing owl and northern harrier, the appropriate grazing regime can also help maintain grassland habitat and control invasive plants that might otherwise adversely modify this habitat. Grazing with proper timing and intensity provides mild to moderate disturbance, controls vegetation height and density, and provides a mosaic of grass, forb, and small amounts of bare ground that is optimal for many native plant and animal species. Grazing also prevents natural succession to scrub habitat that does not have all of the habitat characteristics necessary for the grassland species. In addition, the maintenance of vegetation cover in grasslands improves or maintains water quality in adjacent stream habitats that lead into Tunitas Creek. Improved water quality benefits Coho salmon and steelhead, which are federally listed species known to inhabit the creek.

The adverse effects from grazing would be reduced with implementation of the avoidance and minimization measures included in the proposed Project, as described in Section 1.5.3, Avoidance and Minimization Measures and Best Management Practices. In combination, these measures prescribe strict grazing regimes, including the control and exclusion of cattle from sensitive areas using fencing. The proposed Project also outlines a comprehensive monitoring and adaptive management plan with regular reporting to identify and rectify any negative outcomes from grazing, and to create a record of management options that are beneficial at Toto Ranch, as described in Section 1.5.1(E), Monitoring and Adaptive Management, and **Appendix A** (RMP).

With the implementation of the proposed Avoidance and Minimization Measures and the Monitoring and Adaptive Management measures, the impacts from grazing on special-status species would be **less than significant**. No additional mitigation would be required.

Effects of Pond Management

As described in Section 1.5.2, proposed pond management activities include installing inlets/outlets, reconstructing and maintaining berms, recontouring the shape and depth, connecting ponds to water infrastructure (e.g., troughs, pumps, water lines), installing cattle exclusion fencing, controlling invasive species, and decommissioning smaller ponds to reestablish natural flows of creeks and drainages. These activities would be conducted as needed, over the course of several years.

SFGS and CRLF are the only listed species completely dependent on the presence and quality of the ponds at Toto Ranch for survival. Terrestrial species are dependent on ponds as a water source but could alternatively use watering troughs. Currently, many of the ponds are in danger of permanently drying up as a result of deteriorating berms and spillways, as well as from the choking effect of excessive thick aquatic vegetation.

The proposed pond management activities are meant to restore the various ponds to improve water quality and longevity, which would improve aquatic habitat for CRLF and SFGS. The sizes of existing CRLF populations are expected to stabilize and increase as a result of improvements to essential pond habitat. Pond improvements should also increase the overall amphibian prey base for the SFGS, by increasing optimum breeding habitat and providing less competition among amphibians for open water habitat and food resources. Although SFGS have not been detected at Toto Ranch to date, these enhancements are designed to attract and support colonization by SFGS.

The discussion below focuses on potential impacts to sensitive and special-status species. For potential impacts associated with the loss of wetlands or waters, refer to discussion “c” below.

Possible Take of Special-Status Wildlife Species (CRLF and SFGS)

Potential impacts from pond management activities include the inadvertent harming or killing of SFGS and/or CRLF from ground disturbing activities by the use of vehicles and equipment like weed whackers, tractors, bulldozers, or excavators. Additionally, water may need to be fully or partially drained from ponds for repairs, temporarily reducing the amount and quality of aquatic habitat. Emergent and riparian habitat may be crushed or removed, and any SFGS or CRLF that are in the vegetation may be harmed. Upland habitat adjacent to ponds may be impacted, including logs and burrows where SFGS and CRLF hide and/or aestivate. Harm or killing of SFGS or CRLF would be considered “take” under FESA and CESA.

The adverse effects on special-status species from ground disturbance during pond management activities would be reduced with implementation of the avoidance and minimization measures included in the proposed Project, as described in Sections 1.5.3 and 2.5. These measures are based on the permit requirements from USFWS and CFWA and include preconstruction surveys, on-site biological monitors, seasonal restrictions, and other BMPs.

With implementation of the proposed Avoidance and Minimization Measures, the potential for take of special-status species from ground disturbing pond management activities would be **less than significant**. No additional mitigation would be required.

Loss of Aquatic Habitat for CRLF and SFGS

Potential impacts from pond management activities include the loss of aquatic habitat for SFGS and CRLF from decommissioning of small ponds. Although designed to result in benefits to creeks and streams and eliminate ponds of marginal habitat quality, the decommissioning of small ponds and reestablishment of natural flows of creeks could result in the loss of pond habitat at Toto Ranch. Therefore, the loss of habitat for listed species would be a potentially significant impact. This impact would be reduced to a less than significant level if the loss of aquatic habitat is accompanied by the enlargement and/or enhancement of a different existing pond and consultation is undertaken for approval of these actions by USFWS, CDFW and RWQCB. Refer discussion “c” below for impacts to wetlands.

With implementation of **Mitigation Measure BIO-1: Pond Enlargement or Creation**, this impact would be **less than significant with mitigation**.

Mitigation BIO-1: Pond Enlargement or Creation when Ponds are Decommissioned. When existing ponds are decommissioned as part of pond management activities, a new pond shall be created or an existing pond shall be enlarged to achieve a no net loss of wetland or waters of the U.S. or state within Toto Ranch. Plans to enlarge or create ponds will be developed in consultation with USFWS, CDFW, and RWQCB. Pond creation activities such as grading with heavy equipment, digging with hand tools, diverting water, and

planting native plants will likely require permits and will be conducted in compliance with any additional permit requirements. Larger mitigation ratios (2:1 replacement is a common mitigation ratio) would be required to mitigate for losses of occupied CRLF habitat.

Effects of RMP Implementation on Creeks, Streams, and Riparian Habitats

Historically, ranchers have excluded cattle from creeks, streams, and riparian habitats (riparian areas) at Toto Ranch; and, similarly, implementing the RMP would continue to exclude cattle and grazing from riparian areas by using fencing and natural barriers. Some of the headwater areas near the top of the ridge, where there is typically no defined bed and bank, have been dammed to create stock ponds, and cattle have been grazing in these areas for many years. Water infrastructure improvements proposed as part of the RMP (e.g., additional troughs) would provide additional water sources for cattle, which would decrease the use of ponds throughout Toto Ranch and reduce potential impacts on pond and riparian areas as water sources. This would increase the quality of the pond/aquatic habitats in headwater and riparian areas.

Because implementation of the RMP would increase the habitat quality in riparian areas, this impact would be **less than significant**. No mitigation would be required.

Effects of Integrated Pest Management on Special-Status Plant and Wildlife Species.

As described in Section 1.5.1, the RMP includes rangeland management practices conducted in accordance with several existing permits and guidance documents, including Midpen's Integrated Pest Management (IPM) Program, which was reviewed by USFWS and CDFW during development of Midpen's Biological Opinion (BO) for CRLF and SFGS. The IPM includes chemical, manual, mechanical, fire, and grazing treatments for managing plant and animal pest species on Midpen properties, including Toto Ranch, that could adversely affect special-status wildlife species, including CRLF and SFGS. A description of these treatments is presented below, followed by a discussion of potential impacts, except for grazing which is addressed under *Effects of Grazing* above.

Types of IPM Treatments

Chemical Treatment

Chemical treatments described in Midpen's IPM program for Rangelands and Agricultural Properties include the use of Aminopyralid (Milestone), Clopyralid (Transline), and Glyphosate (Round Up Custom and Promax) for spot control of rangeland and agricultural weeds and/or brush control (Midpen 2014b and 2014c). Additional herbicides for treating invasive plants on Midpen properties included in the USFWS BO for CRLF and SFGS are: Imazapyr (Polaris), Imazapyr (Stalker), and Clethodim (Envoy Plus), and Agi-Fos (the fungicide used to prevent sudden oak death) (USFWS 2016a and 2016b).

Use of these seven chemicals as described in Midpen's IPM program are in compliance with the October 20, 2006 federal Stipulated Injunction, which requires the establishment of buffers around certain habitats of the California red-legged frog and prohibits use of certain pesticides within those habitats and buffer zones, and in compliance with the BO and CDFW LSAA guidelines for use of chemicals in and near CRLF and SFGS habitats. The avoidance and minimization and mitigation measures included therein protect the quality of upland and aquatic (breeding and nonbreeding) habitat for both species, as well as prevent direct impacts to animals (take), and are included in **Table 2**, and further defined in Section 2.5.

Manual (Hand Tools) and Mechanical Vegetation Removal

Permanent aquatic habitat may be temporarily drained for sediment and vegetation removal rendering the pond uninhabitable and not useful as aquatic habitat for CRLF. This temporary removal of aquatic habitat would be conducted only during the time of year that frogs had reached a level of maturity where they could maintain a terrestrial existence. The ponds would be refilled by winter rainfall and runoff before the next breeding season. Removal of water may cause the temporary elimination of prey species and may reduce the local community of invertebrates that support the food web of the pond. During the sediment and vegetation removal it is possible for CRLF to be injured or killed by either hand tools or larger machinery as described in previous sections. Other enhancement activities may involve temporary degradation of the aquatic habitat, such as entry by workers to manually remove vegetation or sediment, or to plant new vegetation. This may also include temporary installation of silt fences and exclusion fencing, which would prevent access or egress by any of the amphibious pond species.

Prescribed Burns

Prescribed burns may temporarily remove shoreline and upland vegetation that is being used by pond species such as CRLF and SFGS as cover from predation. If vegetation removal exposes bare soils, erosion control methods would be implemented to prevent runoff from depositing into aquatic habitat and temporarily degrading the quality of the water.

Adverse Effects on Special-Status Species (CRLF and SFGS)

The implementation of these IPM treatments could result in direct harm or mortality of special-status plant, amphibian, bird, fish, or mammal species. Indirect impacts to species include loss, alteration, and/or contamination of food/prey, or impacts to habitats, including CRLF federally designated critical habitat.

Upland areas within 200 feet of aquatic habitat would be affected by vegetation management activities such as prescribed burns, and manual, mechanical, and chemical vegetation removal. Vegetation management activities may temporarily degrade the upland areas by removing

grasses and forbs used as cover from predators and as habitat for invertebrates that serve as prey items for CRLF. The habitat would be degraded by the removal of vegetation cover that may be used as predator avoidance, by the accidental removal or partial destruction of burrows that may serve as refugia from ground disturbing activities (use of hand tools and/or mechanized equipment), and by the temporary presence of vehicles and workers that would be in the habitat presenting a threat to the local animal species. The temporary loss of habitat during restoration or maintenance activities would not be expected to appreciably diminish the value for CRLF or prevent critical habitat from sustaining its role in the conservation and recovery of the species.

The adverse effects from IPM treatments would be reduced with implementation of the avoidance and minimization measures to protect and enhance aquatic habitat, which are included in the proposed Project. Refer to Section 1.5.3, Avoidance and Minimization Measures, Section 2.5, Summary of Environmental Impacts, Required Avoidance and Minimization Measures and Identified Mitigation Measures and **Appendix B** in this document for a summary.

To avoid and reduce the impacts of manual, mechanical, and chemical treatments on SFGS and CRLF within Toto Ranch, all invasive plant and animal work would be done in accordance with existing permit requirements, mitigation measures, and BMPs identified in the IPM Program and IPM EIR, USFWS Biological Opinion, CDFW Lake and Streambed Alteration Agreement, and the federal injunction to protect CRLF from impacts from specific chemical pesticides (Midpen 2014b and 2014c). These measures include: prohibition of the use of burrow fumigants, insecticides or rodenticides in habitats where SFGS or CRLF occur or may occur; the limited use of USFWS- and CDFW-approved herbicides and fungicides used in accordance with the guidelines on the label and if they comply with the restrictions listed in the critical habitat designation; use of a USFWS and CDFW approved biological monitor; and the adherence to all permit requirements.

Toto Ranch is located in CRLF critical habitat. If USFWS determines that future IPM implementation would result in the permanent loss of federally designated, critical habitat, or occupied habitat outside of federally designated critical habitat, and that it cannot be avoided, compensation would be provided through protection and enhancement of habitat within Midpen open space, the purchase of off-site mitigation credits, and/or contribution to regional conservation and recovery efforts for the species as determined in consultation with the USFWS, NMFS, and CDFW (Midpen 2014b and 2014c).

With implementation of the conservation and mitigation measures required by the existing permits listed above (and included in the proposed Project as avoidance and minimization measures in Section 1.5) the manual, mechanical, and chemical removal of invasive and non-native plants and animals would ultimately protect valuable habitat assets (such as maintenance of ponds and grasslands), and eliminate non-natural predation of and competition with the SFGS

and CRLF. Both upland and aquatic habitat would be enhanced for use by CRLF by the proposed activities, contributing to the high conservation value of Toto Ranch as a whole. This would reduce the harm to sensitive species, including CRLF and CRLF critical habitat.

Therefore, with implementation of the proposed Avoidance and Minimization Measures (Section 1.5.3), the impact would be **less than significant**. No additional mitigation would be required.

Effects of Ranch Road Maintenance

The existing permits include requirements for general maintenance of roads and trails. At Toto Ranch, there are no public trails, only unpaved roads used to access the different pastures. So in this case, effects discussed in this section apply only to roads, either for general maintenance, or as part of specific road repair Projects identified in the RMP. Refer to Effects of RMP Infrastructure Improvements (Fencing, Water Infrastructure, Road Improvements).

At Toto Ranch, roads are areas of compacted soil or fill (base rock) used to provide ease of travel over terrain for humans by vehicle, walking, horse, or bike. Toto Ranch would not be open to the public, so all roads would be used only as necessary for tenants or Midpen personnel for access to the livestock, property, and infrastructure. Additionally, roads may provide travel corridors or access to larger animals but may pose a barrier to small animals. Specifically, roads do not provide high quality habitat for either SFGS or CRLF. In fact, roads (typically paved) have been shown in several studies to be a threat to snakes (Rosen and Lowe 1994; Ashley and Robinson 1996; Rudolph et al 1998; Enge and Wood 2002; Row et al. 2007). Snakes are subject to vehicle strikes while crossing roads or, as is very common, while using the roads to regulate their body temperature. CRLF are also known to move around in upland, terrestrial habitat and may be vulnerable to vehicle strikes while on roads. Although it is possible for both SFGS and CRLF to be injured or killed while on roads, the infrequent use of these features reduces the potential for harm to these species. In addition, Midpen will provide environmental sensitivity training for the tenant, staff, consultants, and contractors regarding avoidance and minimization measures to protect these species. Road maintenance may temporarily degrade upland habitat since workers and vehicles would be present in the habitat presenting a threat to the local animal species as described above. Newly maintained or constructed roads and trails may degrade a portion of the upland habitat by replacing naturally vegetated areas with swaths of open, cleared habitat that provide terrestrial animals with no possible cover from aerial predators.

The actions required for maintenance of roads may cause direct injury or mortality to any SFGS and/or CRLF within the area where the activity is being performed. In some cases, heavy equipment is required to conduct the maintenance. Heavy equipment, such as tractors and excavators can incidentally destroy burrows used by SFGW or CRLF, or may incidentally directly injure or kill these species. The avoidance and minimization measures identified in the RMP, permits, and guidance documents and included as part of this proposed Project are

designed to avoid these impacts, reducing the chances for harm to these species. Environmental sensitivity training and biological monitors are especially helpful in preventing vehicle strikes. Refer to Section 1.5.3, Avoidance and Minimization Measures, Section 2.5, Summary of Environmental Impacts, Required Avoidance and Minimization Measures and Identified Mitigation Measures, and **Appendix B**.

Well maintained roads offer better visibility for vehicle drivers to see and avoid small animals like SFGS and CRLF. In addition, the roads are also essential to maintain fire breaks and fuels reduction, and to access remote areas for fighting unplanned fires and conducting restoration and enhancement of habitat and monitoring activities.

Road alignment can be designed or realigned to avoid impacts to sensitive habitats, special-status species, and heritage and significant trees.

Several roads cross through or near locations of Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*); these areas are often associated with springs or other wetland features. Grading or other disturbance to these areas could directly remove Choris' popcorn flower plants, change and/or disrupt the seed bank, or alter the habitat such that the wetland features of the habitat are detrimental to the survival of the population. Avoidance and minimization measures to protect the Choris' popcorn flower are incorporated into the RMP and Midpen's other governing documents, and include a grazing regime that is compatible with and provides benefits to popcorn flower habitat (**Tables 1A** and **2**). In addition, the level of use of these roads is low, and management plans are to maintain vegetation on the roads, especially in these locations.

The potential impacts of road maintenance would be reduced with implementation of the avoidance and minimization measures included in the proposed Project, as described in Section 1.5.3, Avoidance and Minimization Measures, Section 2.5, Summary of Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures, and **Appendix B**. Additionally, the proposed Project also outlines a comprehensive monitoring and adaptive management plan with regular reporting to identify and rectify any negative outcomes from RMP implementation, including road and trail maintenance, as described in Section 1.5.1(E), Monitoring and Adaptive Management, and **Appendix A** (RMP). If any road alignment may affect such resources, Midpen will consult with the appropriate agencies (e.g., CDFW, USFWS, NMFS) to ensure that impacts are avoided or adequate mitigation is implemented. Therefore, the impact of road maintenance would be **less than significant**.

Effects of RMP Infrastructure Improvements (Fencing, Water Infrastructure, Road Improvements)

The proposed Project includes several infrastructure improvement projects at Toto Ranch identified in the RMP, including:

- construction of additional fencing/cross-fencing to increase the number of pastures for grazing rotation options;
- improvements to the water infrastructure to supply all of the newly split pastures and to provide water for a longer period into the dry months; and
- Road improvements to reduce erosion from runoff, including water bars and other dewatering options.

The locations and descriptions of these Projects are outlined in the RMP (**Appendix A**).

The proposed fence repairs and installation would include digging holes for fence posts or driving of T-posts. Construction activities could result in harm to ground squirrel burrows and CRLF or SFGS that are resting, hiding, or aestivating in them. This risk is higher near ponds and other aquatic features. The use of wildlife-friendly fencing will be used to prevent injury to common wildlife like coyotes and deer as they move throughout Toto Ranch.

The proposed road improvements are in or near known locations of Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*) and CRLF, and near riparian areas. The construction of these improvements could adversely affect sensitive species and or/natural communities when vehicles, people, and heavy equipment are used to access the site and clear vegetation and grade soils. This is especially true where burrows are present that may support dispersing, hiding, or aestivating CRLF or SFGS, or where work is planned near Choris' popcorn flower habitat. The grading and placement of fence posts would disturb soils, and potentially change the use of areas near fencing by either concentrating use and creating a path if cows or other animals walk along the fence line, or by encouraging the growth of weeds if cows avoid grazing along the fence line.

The proposed water infrastructure improvements could disturb existing water sources (ponds, water troughs, springs), which could harm any CRLF that are present. Water troughs can trap frogs, snakes, or other wildlife if they are unable to scale the sides of these features, so wildlife escape ramps would be installed. Where construction/maintenance would occur near creeks, streams, or ponds, grading may loosen soil that can then run into these features, affecting water quality.

The proposed avoidance and minimization measures, as required by permits and guidance documents, would be implemented to avoid or reduce impacts to special-status species and their habitats. These measures are designed to protect species from harm from construction activities, protect water quality, reduce erosion and bare soil, and guide revegetation and restoration activities. Examples of these measures include the placement of fencing and road improvements

away from Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*) habitat, inclusion of wildlife escape ramps in water troughs, use of wildlife-friendly fencing, preconstruction surveys for special-status species, exclusionary fencing to prevent special-status wildlife from entering construction zones, and measures to protect small mammal burrows from harm. Refer to Section 1.5.3, Avoidance and Minimization Measures, Section 2.5, Summary of Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures, and **Appendix B** for a summary of these actions.

However, removal of wetlands or small ponds, permanent loss of jurisdictional wetlands and waters could result in the disturbance or loss of habitat for special-status species (CRLF and SFGS). Refer discussion "c" below for impacts to wetlands. The loss of these jurisdictional habitats would require compensation beyond that included in the proposed avoidance and mitigation measures. With implementation of **Mitigation Measure BIO-2: Revegetation and Enhancement of Aquatic Habitat for CRLF and SFGS**, this impact would be **less than significant with mitigation**.

Mitigation Measure BIO-2: Revegetation and Enhancement of Aquatic Habitat for CRLF and SFGS. Revegetation and/or enhancement shall be undertaken where any sensitive habitat or special-status species habitat will be disturbed or destroyed by construction activities (Midpen 2002a). Revegetation work shall be implemented prior to or concurrently with improvement Project or pond management actions (Midpen 2002a). The design of an appropriate revegetation program shall fully compensate for the lost habitat, with no net loss of habitat functions and values. Riparian and wetland habitat impacts will typically be mitigated at a 3:1 ratio for high quality habitat areas and at lower ratios where lower habitat quality justifies a lower ratio (Midpen 2002a). A lower ratio may also be justified if habitat mitigation is implemented and verified as successful prior to the occurrence of impacts. Mitigation shall be based on in-kind replacement of impacted habitat with habitat of equal or better biotic value (Midpen 2002a). The revegetation program shall be designed by a qualified biologist or ecologist and submitted to the appropriate regulatory or trustee agency for approval (Midpen 2002a). At a minimum, the revegetation program shall include a description of Project impacts, mitigation calculations, the mitigation site, revegetation techniques, maintenance measures, a long-term monitoring program, and contingency measures (Midpen 2002a). Native plant materials suited to the site will be utilized in all mitigation work (Midpen 2002a).

b. Adverse effect on Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Toto Ranch does not contain any sensitive natural communities identified in local or regional plans, policies, or regulations, or by CDFW or USFWS. Riparian habitat is present along the two seasonal/intermittent/ephemeral drainages that flow to Dry Creek

and Tunitas Creek at the north edge of the property. Riparian vegetation in these steep drainages is dense and provides high-level ecosystem structure and function, including bank stabilization, wildlife cover, erosion control, and water temperature control. There are fourteen (14) ponds and wetlands at Toto Ranch, and since they are used as water sources for cattle (which often trample vegetation), they do not support riparian habitat.

Per the RMP and past land stewardship practices prior to adoption of the RMP, cattle are not permitted to graze in steep riparian habitats or streams and are kept out of these areas with fencing or natural barriers. Thus, the quality of riparian habitats in most areas of Toto Ranch is high and will remain so as long as the guidance of the RMP is followed.

Proposed Projects such as fencing, road repairs, and water infrastructure improvements are generally not proposed in riparian areas. There is only one road repair/culvert replacement Project at an intermittent creek that supports riparian habitat.

Avoidance and minimization measures and management actions associated with the protection of riparian habitats are included in permits and other guidance documents. These have been included as part of the proposed Project, as described in Section 1.5.3, Avoidance and Minimization Measures, Section 2.5, Summary of Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures, and **Appendix B** of this document. These measures are prescribed by the resource agencies and are designed to protect water quality, soils, and vegetation found in riparian habitats during general maintenance activities like culvert replacement and road repair.

Because riparian habitats are excluded from grazing and other land management activities in the RMP, and because avoidance and minimization measures would be implemented and incorporated into maintenance actions where riparian habitat occurs, the impact would be **less than significant**.

c. Adverse Effect on State or Federally Protected Wetlands (including Marsh, Vernal Pools, Coastal Habitats) through Direct Removal, Filling, Hydrological Interruption or Other Means. As described under Existing Conditions, there are currently fourteen (14) ponds and wetlands at Toto Ranch, and many of them are in danger of permanently drying up as a result of deteriorating berms and spillways, as well as from the choking effect of excessive thick aquatic vegetation. As described in Section 1.5.1, Toto Ranch RMP Implementation, the RMP would be implemented in accordance with several existing permits, including permits from RWQCB which require “no net loss” of waters or wetlands of the U.S. or state on Midpen properties. Thus, the RMP includes maintenance and enhancement activities that are meant to restore and maintain the presence and quality of the various ponds and wetlands to provide a stable water source for cattle and wildlife, as well as high-quality aquatic habitat for CRLF and SFGS, and maintain and enhance habitat for Choris’ popcorn flower. This is a required per the existing

permits is required per the RMP (**Appendix A**) provides guidance for implementing grazing regimes for vegetation management that are based on past, current, and predicted future conditions, with the goal of improving habitat conditions throughout Toto Ranch, including ponds and wetlands. The management actions in the RMP, along with permit requirements and policies from other guidance documents, provides avoidance and minimization measures to protect waters and wetlands of the U.S. and state including the avoidance of impacts, restoration of impacted areas, implementing long-term monitoring, restoring habitat, and ensuring additional protective measures are enacted when necessary. This includes tailoring the seasonal grazing to be compatible with and provide habitat benefits to Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*). Refer to Section 1.5.3, Avoidance and Minimization Measures, Section 2.5, Summary of Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures, and **Appendix B**.

However, some land management activities prescribed in required permits and other guiding documents like the IPM Guidance and Resource Management Guidelines, could impact wetlands and other waters, via the discharge of dredge or fill during manual and mechanical activities, and the decommissioning of smaller ponds and reestablishing natural flows of creeks. This could result in changes to the biological integrity of wetland and other waters, and/or result in a change to wetland type, function, and/or overall acreage.

As stated, the existing permits from RWQCB require "no net loss" of waters or wetlands of the U.S. or state on Midpen properties. Most routine maintenance activities in ponds and wetlands will be conducted in a manner that results in no net loss of wetlands. However, the implementation of some types of manual and mechanical treatments within waters, including the change in habitat type from stock pond to ephemeral wetland to control bull frogs and non-native fishes, may impact wetlands or waters of the U.S. substantially enough that the resource agencies consider the impacts as causing "loss" of these resources.

Additionally, pond management actions may include the decommissioning of small ponds and reestablishment of natural flows of creeks as an action that may be taken to remove marginally functioning ponds and restore creeks and riparian habitat. Although designed to result in benefits to the watershed, removing a small pond of marginal quality would still result in the loss of jurisdictional pond habitat at Toto Ranch.

The loss or degradation of jurisdictional waters or wetlands would be considered a potentially significant impact. With implementation of **Mitigation Measure BIO-3: Compensation for Loss of Jurisdictional Waters and/or Wetlands**, this impact would be **less than significant with mitigation**.

Mitigation Measure BIO-3: Compensation for Loss of Jurisdictional Waters and/or Wetlands. Midpen will prepare a wetland delineation and will determine the exact

acreage of waters of the U.S. and waters of the state that would be affected as a result of Project implementation, and then estimate the quantity of dredge or fill material that may be discharged incidental to these activities. Midpen will consult with permitting with the USACE and RWQCB, including application for coverage under the Nationwide Permit or other programs as appropriate (Midpen 2014a; RWQCB 2010; USFWS 2016b).

If activities will result in permanent impacts to waters, Midpen will replace or restore on a "no net loss" basis (minimum 1:1 ratio) (in accordance with USACE and/or RWQCB) the acreage and function of all wetlands and other waters that would be removed, lost, or degraded as a result of Project implementation. Wetland habitat will be replaced at an acreage and location agreeable to USACE and the RWQCB and as determined during the Section 401 and Section 404 permitting processes. Compensatory mitigation will be approved by USACE and RWQCB. (RWQCB 2010; Midpen 2014a; USFWS 2016b). Midpen will implement all permit conditions.

d. Interfere Substantially with Movement of any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites. Migratory species at Toto Ranch include Coho salmon and steelhead, which migrate up Tunitas and Dry Creeks. In addition, many species of birds are migratory, and stop to rest and feed in natural areas along the Pacific Flyway, including Toto Ranch.

CRLF are known to move up to 2 miles on warm, rainy spring nights between ponds and other aquatic habitats using upland habitats (Bulger et al. 2003). In drier times of the year, CRLF may utilize creek corridors as movement corridors.

Other more common species move through the area, including deer, coyote, mountain lion, and other mammal species. In general, the area that makes up "The Peninsula", east of Highway 1 and Highway 280, is sparsely populated enough to function as an important north-south wildlife corridor between San Francisco and Santa Cruz. Highway 17 functions as a barrier at the south end of this corridor.

The fencing currently in place at Toto Ranch, as well as the fencing planned for installation for Projects identified in the RMP, is "wildlife friendly", which means that it is designed to not hinder the passage of wildlife that may be traversing the property. This includes openings for small and medium sized animals, as well as height and spacing specifications of fencing wires that allow easy passage through or over the fencing.

Grazing does not occur near Tunitas or Dry Creeks, and there are no changes to creeks or streams that would affect the anadromous fish from migrating upstream. Water quality and riparian habitat are the focus of land management activities, supporting habitat quality within the fish migration corridor. A healthy grazing regime will also maintain ground cover and biodiversity of habitats, which supports grassland species and their prey.

Therefore, this impact would be **less than significant**.

e. Conflict with Local Policies or Ordinances Protecting Biological Resources, such as a Tree Preservation Policy or Ordinance. Toto Ranch is located within the Coastal Zone, and is regulated through the San Mateo County LCP. The San Mateo County General Plan and LCP generally require the protection of sensitive habitats and prohibit development that has significant adverse impacts on sensitive habitat areas. These policies are less stringent and focused than the requirements outlined in the RMP, existing permits, and Midpen’s guidance documents. The avoidance and minimization measures summarized from these latter documents provide protection for sensitive species and habitats and would minimize potential adverse effects on sensitive habitats that would be consistent with the San Mateo County General Plan and LCP requirements. These measures have been included as part of the proposed Project (refer to Section 1.5.3, Avoidance and Minimization Measures, Section 2.5, Summary of Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures, and **Appendix B**).

San Mateo County has designated trees of 12” in diameter or larger (measured at breast height) in any area of the unincorporated County as Significant Trees to prevent their indiscriminate removal. The County requires a permit for the removal of these trees and may require an arborist report to substantiate tree health or safety concerns. For most cases of tree removal, tree replacement will be required.

Also, according to their size as stipulated in the Heritage Tree regulations, some trees have been designated Heritage Trees, including some oaks, redwoods, and other trees. The County requires a permit for the trimming or removal of these trees and may require an arborist report with the permit application for trees that may need to be trimmed or removed for tree health and safety reasons. In most cases of tree removal, tree replacement will be required.

Both heritage and significant trees occur at Toto Ranch, and none are identified for removal or trimming in the RMP. Thus, there is no conflict with any local policies or ordinances.

This impact is considered **less than significant**.

f. Conflict with the Provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other Approved Local, Regional, or State Habitat Conservation Plan. Lands currently held by Midpen are not subject to a Habitat Conservation Plan, Natural Conservation Community Plan, or other habitat conservation plan. Should Midpen pursue or participate in an HCP or NCCP, the Goals and Policies described above would ensure that Midpen manages lands consistent with any such plan. There would be no impact.

2.4.5 Cultural Resources

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

Existing Conditions

The analysis in this section is based on the *Archaeological Investigations for the Toto Ranch/Tunitas Creek Open Space Preserve Rangeland Management Plan Project* for the Midpen, prepared by professionally qualified staff with Albion Environmental (Albion Environmental 2019).

Northwest Information Center (NWIC) Records Search

To determine if cultural resources have been recorded within or near Toto Ranch, Albion consulted a number of sources as part of the NWIC records search, including: the California Inventory of Historic Resources, managed by the State of California Department of Parks and Recreation (1976); the Historic Property Data File for San Mateo County; and the San Mateo County Historic Resources Advisory Board. One listed cultural resource was identified within 8 miles of Toto Ranch. Additionally, a search of records at the NWIC indicates one archaeological resource within Toto Ranch and three other archaeological resources that have been previously recorded within a quarter-mile of Toto Ranch. The one known archaeological resource within Toto Ranch is located well away from all proposed ground-disturbing activities.

The background historical research also revealed that a historic wagon road extended across the southern portion of Toto Ranch by 1894. The current road/driveway extending from the Cabrillo Highway to the modern ranch complex and beyond is in the same location as the wagon road, as depicted on archival maps and photos, and could be the surviving remains of this historic transportation route. The existing driveway, then, is older than 50 years and may be considered a historical resource under CEQA and may be potentially eligible for the California Register of Historic Resources. This may also be true for the buildings within the Agricultural and Residential Lease Areas, which also appear on archival maps and photos. The buildings would not be modified through Project implementation; however, the existing driveway may be modified through the construction of the new waterline near the entrance to Toto Ranch. The waterline may be placed under or adjacent to the driveway.

Toto Ranch Field Surveys

On December 12, 2018, Albion archaeologists conducted a pedestrian surface survey of portions of Toto Ranch where the RMP proposes ground disturbing activities, including construction and maintenance of roads, springs, water tanks, water troughs, water distribution lines and pond improvements. A 50-foot radius around each improvement Project and stock pond was included as part of the survey area. The remainder of the Project area was not surveyed as ground disturbing activities would not likely occur in these areas as a result of the proposed Project.

The surveys within Toto Ranch involved walking the entire extent of each of the Project elements, including the buffer (22.4 acres total), at 5- to 10-meter intervals to observe the ground surface for evidence of archaeological materials. The survey findings were documented by written notes and photos. Field notes documented details on disturbances, slope, ground cover, soil visibility, vegetation, the built environment, and any cultural material observed. Albion conducted no subsurface testing as part of this study.

No archaeological features or artifact concentrations were identified during the pedestrian survey in any of these areas. Refuse associated with the modern farm was noted in places, along with isolated fragments of a historic glass bottle, but none of this material was indicative of buried archaeological deposits. Consequently, based on surface survey, Albion did not identify any materials that would qualify as historical resources under CEQA.

Historic Resources Evaluation

As described above, the current driveway extending from Cabrillo Highway to the Agricultural Lease Area is considered a potential historic resource. A Historic Properties Survey Report (HPSR) was prepared to evaluate the existing driveway (formerly called Starr Hill Road), its significance as a historic resource, potential effects on this resource from future roadway improvements (not part of the proposed Project) and installation of a new waterline under or adjacent to portions of the road (part of the proposed Project) (Midpeninsula Regional Open Space District 2019). The evaluation identified the alignment of the former Starr Hill Road through Toto Ranch as the area of potential effect (APE) and included a literature review to determine if the study area contains previously recorded historic or prehistoric archaeological resources and a pedestrian survey of the APE on April 24, 2019.

The HPSR evaluation found that the former Starr Hill Road on Toto Ranch, which serves as the current driveway, is a potentially significant historic resource as it was a wagon road that was used during the late 19th century. The evaluation also determined that improvements—consisting of widening a portion of the roadway, culvert work, and installation of subsurface water pipes within the Project APE—would not adversely affect the significant attributes of the road, which may be eligible for listing on the National Register of Historic Places and thus the California Register of Historic Resources.

To protect significant areas of the historic Starr Hill Road from inadvertent damage, an Environmentally Sensitive Area (ESA) was delineated within the APE (as shown in Exhibit 17 of the HPSR). As stated in the HPSR: Any alterations to the original road within the ESA must seek to restore and maintain the characteristics of this historic feature. Installation of subsurface pipes, erosion control and minor grading within the APE can occur; however, these actions must include restoration of the surface contours and fabric of the road to its original grade elevation, travel direction, and overall character. With the establishment of the ESA, the HPSR concludes with a Finding of No Adverse Effect or No Significant Impact to significant cultural resources (Midpeninsula Regional Open Space District 2019).

Pre- and Post-Contact History of Toto Ranch

A detailed account of pre- and post-contact history for San Francisco Bay, and in particular San Mateo County, has been included in the *Toto Ranch/Tunitas Creek Open Space Preserve Rangeland Management Plan Project*. Because of the sensitivity of archaeological and historical resources that are present within the San Francisco Bay Area, specific information regarding the results of these investigations are not available for public review and have not been include within this IS/MND. However, this information has been taken into account for the purposes of analyses.

Discussion

a. Change in the Significance of a Historical Resource. As discussed above, the existing driveway and some of the structures in the Farmstead Area are older than 50 years and thus may be considered historical resources under CEQA, and therefore eligible for the California Register of Historic Resources. The buildings would not be modified through Project implementation; however, the Project includes the installation of a new waterline adjacent to or under the driveway and repairs to erosion on the former Star Hill Road. As described in Section 1.5.1 under C. Road Repair and Maintenance, waterline installation would include restoration of the surface contours and fabric of the road to its original grade elevation, travel direction, and overall character.

As described under the Historic Resources Evaluation above, a HPSR developed for the site determined the Project improvements to the former Star Hill Road alignment—including installation of subsurface pipes, erosion control and minor grading within the APE—would not adversely affect the significant attributes of the road (Midpeninsula Regional Open Space District 2019). Therefore, the impact would be **less than significant**.

However, ground disturbing activities associated with improvement Projects and pond management activities could result in the inadvertent discovery of a buried archaeological resource that could be determined to be a historical resource within Toto Ranch. With implementation of **Mitigation Measure CR-1: Stop Work in the Event of Unexpected Occurrence of Cultural Resources during Construction**, the impact would be **less than significant with mitigation**.

Mitigation Measure CR-1: Stop Work in the Event of Unexpected Occurrence of Cultural Resources during Construction. If evidence of cultural resources are identified during ground disturbance associated with the proposed improvement Projects or pond management activities, the construction crews will stop all work within 100 feet of the discovery until a qualified archaeologist assesses the previously unrecorded discovery and provides recommendations. Resources may include subsurface historic features such as: artifact-filled privies, wells, and refuse pits; artifact deposits along with concentrations of adobe, stone, or concrete walls or foundations; and concentrations of ceramic, glass, or metal materials. Native American archaeological materials may include: obsidian and chert flaked stone tools (such as Projectile and dart points); midden (culturally derived darkened soil containing heat-affected rock, artifacts, animal bones, and/or shellfish remains); and/or groundstone implements (such as mortars and pestles).

b. Change in the Significance of an Archaeological Resource. A records search of known archaeological sites within and adjacent to Toto Ranch revealed one previously discovered site, as discussed above. This site is not located in an area that is proposed for improvement Projects or pond management actions; therefore, ground disturbing activities would not impact this resource (Morley 2017). However, the Project area is located within an area that is considered sensitive for cultural resources. Therefore, ground disturbing activities may reveal previously undiscovered resources which could be determined significant. Through implementation of **Mitigation Measure CR-1: Stop Work in the Event of Unexpected Occurrence of Cultural Resources during Construction**, this impact would be **less than significant with mitigation**.

Mitigation Measure CR-1: Stop Work in the Event of Unexpected Occurrence of Cultural Resources during Construction.

c. Disturb Human Remains (Including those Interred Outside of Dedicated Cemeteries). There are no known human remains or known burial sites that are located within Toto Ranch or within the vicinity of the Project area. However, the San Francisco Bay Area is rich in cultural resources and is considered an overall sensitive area. During ground disturbing Project related activities, including improvement Projects and pond management actions, there is the possibility that unanticipated and accidental discovery of human remains or funerary objects may occur. With implementation of **Mitigation Measure CR-2: Stop Work in the Event of Unexpected Occurrence of Human Remains during Construction**, these potential impacts to unknown human remains would be reduced to a **less than significant with mitigation**.

Mitigation Measure CR-2: Stop Work in the Event of Unexpected Occurrence of Human Remains during Construction. If human remains and associated or unassociated funerary objects are discovered during soil-disturbing activities, construction crews will stop work and immediately notify the San Mateo County Coroner and a qualified archaeologist, in accordance with applicable state laws. In the event that the Coroner determines that the

human remains are Native American, Midpen will notify the Native American Heritage Commission (NAHC) according to the requirements in Public Resources Code (PRC), Section 5097.98. NAHC will appoint a Most Likely Descendent (MLD). A qualified archaeologist, Midpen representative, and MLD will make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects (CEQA Guidelines, Section 15064.5[d]). The agreement will take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, and final disposition of the human remains and associated or unassociated funerary objects. The PRC allows 48 hours to reach agreement on these matters.

2.4.6 Energy

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

Existing Conditions

San Mateo County has developed the Energy Efficiency Climate Action Plan (EECAP) to provide guidance in reducing the County’s greenhouse gas emissions, while protecting the resources within the County. The plan provides guidance for future development within the County to meet these goals. The goals of the plan are to protect natural systems, reduce overall waste, improve the energy efficiency of buildings and ensure long-term access to reliable, clean and affordable energy. The plan also outlines the County’s strategy to adapt to the changing climate through the protection of the built environment, public health and natural resources. Project compliance with this plan are addressed in detail in Section 2.4.8, Greenhouse Gas Emissions.

Discussion

a. Significant Environmental Impact due to Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources. Implementation of the Project would require the use of construction equipment for improvement Projects and pond management activities. Use of diesel-powered equipment would require fossil fuels. However, as described in Section 1.5.3, hand tools would be used when possible and would reduce fossil fuel consumption. Equipment operators would limit idling time to five (5)-minutes, as required by the California airborne toxics control measure Title 13, Section 2485, of California Code of Regulations) (BAAQMD 2017b). As such, use of construction equipment would not be wasteful, inefficient, or unnecessary. Ongoing grazing operations at Toto Ranch would be similar to existing conditions; therefore, an increase in vehicle trips as a result of Project implementation would not be anticipated. No new sources of energy consumption would be installed, with the exception of water infrastructure that would be solar powered, as described in Section 1.5.1(D). Therefore, the ongoing operation of Toto Ranch would not result in wasteful, inefficient, or unnecessary of energy; and this impact would be **less than significant**. No mitigation would be required.

b. Conflict with or Obstruct a Plan for Renewable Energy or Energy Efficiency. The applicable energy efficiency plan for the proposed Project is the San Mateo County EECAP. Project compliance with this plan is addressed in detail in Section 2.4.8, Greenhouse Gas Emissions, below. As described in this section, use of construction equipment throughout Toto Ranch for the implementation of

improvement Projects and pond maintenance actions would implement the EECAP strategy for reducing construction emissions by complying with BAAQMD and CARB idling recommendations, as described in Section 1.5.3. Additionally, the proposed water infrastructure improvements would be solar powered. Therefore, the Project would not conflict with or obstruct the EECAP. This impact would be **less than significant**. No mitigation would be required.

2.4.7 Geology and Soils

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

Existing Conditions

Geologic Setting

Toto Ranch is located within San Mateo County, part of the greater San Francisco Bay Area which is considered a seismically active region. Faults are caused by the movement of the earth's crust, which forces bedrock units located on opposite sides of a fault line to slide past each other. These lines are not discretely defined, so movement of the ground surface can occur throughout a fairly wide area that overlies a fault zone.

The Project area is not located within the limits of the state Alquist-Priolo Special Studies Zone (Alquist-Priolo Earthquake Fault Zones 2018; California Department of Conservation 2018).

However, San Mateo County is located in an area designated as having a high Earthquake Shaking Potential as it is located near major, active faults (County of San Mateo 2005).

Toto Ranch is located west of the San Andreas Fault and La Honda Fault, east of the San Gregorio-Seal Cove Fault, and north of the Butano and Zayante Faults (California Department of Conservation 2010). The seismically active Hayward and Calveras Fault Zones, which can also generate substantial earthquake shaking, are located well east of the Project area, on the east side of the San Francisco Bay. The U.S. Geological Service has estimated that the San Andreas Fault could produce an earthquake of 8.5 magnitude on the Richter Scale. The San Gregorio fault, a major branch of the San Andreas, is considered capable of generating earthquakes of magnitude 7.2 to 7.9.

While the San Andreas Fault is larger and considered more active, each fault is capable of generating moderate to severe ground shaking from a major earthquake. The Project is specifically located in an area designated as having Strong (VII) and Very Strong (VIII) earthquake shaking potential related to the San Andreas Fault, as mapped by the Association of Bay Area Governments (ABAG) (County of San Mateo 2005). ABAG designates the area as having Light (V) to Moderate (VI) earthquake shaking potential as a result of the Hayward Fault (County of San Mateo 2005). Consequently, large earthquakes can also be expected in the future.

All of San Mateo County is subject to hazards from earthquakes. Because the Project is located within close vicinity to a multitude of fault zones and branches, there is a relatively high potential for ground surface rupture. The Project area is likely to be subject to strong seismic shaking during the life of the improvements. The principal concern related to human exposure to ground shaking and ground surface rupture is that both of these processes can result in structural damages; the Project does not include the addition of inhabitable structures.

Liquefaction is a phenomenon where near surface soils lose cohesion and are converted to a fluid state as a result of severe vibration. Structures built in and on soils respond differently to liquefaction. Underground structures, including water conveyance pipelines that are less dense than the liquefied soil, tend to rise to the surface; and structures, including water tanks that are more dense, tend to subside. San Mateo County has designated Toto Ranch as having a very low potential for soil liquefaction (San Mateo County 2005).

Throughout Toto Ranch, slopes range from relatively flat within the Residential and Agricultural Lease Areas, to very steep throughout the grazing and grassland pastures of the Livestock Grazing Area. Many of the slopes within Toto Ranch are susceptible to landslides, as are evidenced throughout existing and ongoing slides present throughout the property, and thus erosion and loss of top soil. San Mateo County has designated Toto Ranch as having areas that are flat, support few landslides and areas that are mostly landslides (San Mateo County 2005).

Soil Characteristics

There are a variety of soil types within the Project area, but the most common soil types and their characteristics relative to grazing are listed below. Refer to the Soil Survey for the San Mateo Area (USDA, 1961) for additional detail. Also refer to **Exhibit E** for their location in the Project area.

- **Colma soils** are well drained with medium to rapid runoff, suitable for year-round use by grazing livestock without impacting soil stability or creating soil compaction provided prescribed levels of forage are left on the ground.
- **Gazos loam soils** are well drained with high to very high runoff and moderately slow permeability, making them suitable for year-round grazing by livestock. It is important to leave adequate levels of forage on the soil surface to protect soil integrity and minimize the risk of erosion.
- **Lobitos loam soils** are well drained soils that are moderately sloped to very steep, are well drained, with medium to rapid runoff, and have moderate to slow permeability. They are mostly used for pasture and grazing. It is important to leave adequate levels of forage on the soil surface to protect soil integrity and minimize the risk of erosion.
- **Tierra soils** are moderately well drained with slow to rapid runoff and very slow permeability. Tierra soils are suited to year-round livestock grazing, though areas with notably slow permeability are susceptible to soil compaction, and grazing should be delayed until soil is firm enough to withstand grazing pressure, typically summer and fall months.
- **Tunitas soils** are moderately well drained with slow to medium runoff and slow permeability. Areas often receive excess water by runoff from surrounding lands, and lower lying areas may have temporary high water table during rainy seasons (winter). These soils are very limited on the Ranch, but grazing on this soil type is best during dry summer months when soils are firm enough to withstand grazing pressure.
- **Watsonville soils** are on old coastal terraces and valleys and are commonly used as irrigated pasture and to grow crops. Slow to rapid runoff and very slow permeability make Watsonville soils very susceptible to soil compaction. Livestock grazing should be delayed until dry summer months when soils are firm enough to withstand grazing pressure.

Paleontological Resources

Paleontological resources are located within geologic deposits or bedrock that underlie the soil layer. Limited paleontological resources have been identified within the County, within exposed bluffs above the ocean bench along the coast, outside of the Project area; but there have been no identified paleontological resources identified throughout Toto Ranch (County of San Mateo 1986).

Discussion

a. Expose People or Structures to Potential Substantial Adverse Effects Involving:

1. Rupture of Known Earthquake Fault. The Project area is not within any earthquake fault zones designated by the state under the Alquist-Priolo Act. Accordingly, the risk of surface fault rupture at Toto Ranch is considered low. Furthermore, implementation of the Project would result in improvements to fencing, water transportation infrastructure and roadway repairs, and on-going pond maintenance activities, all of which would involve temporary presence within the Project area to undergo construction activities, but would not result in the construction of any permanent structures that would be inhabited by the public or change in the number of people who reside within the Project area. Therefore, the potential for impacts related to surface fault rupture would be less than significant. No mitigation would be required.

2, 3. Strong Seismic Ground Shaking; Seismic-Related Ground Failure. The Project site is likely to experience strong ground shaking during the lifespan of the Project, and the potential for liquefaction throughout Toto Ranch is considered very low (San Mateo County 2005). The principal concern related to human exposure to ground shaking or liquefaction is that both of these processes can result in structural damage. The Project would not result in new aboveground structures that would be inhabited by people, and the Project improvements and additional water infrastructure that would be constructed would improve the reliability of the water system throughout Toto Ranch. Therefore, outside of the lessees and their employees, there is a very low risk that persons would be on site, within the Project area, or checking or maintaining the water infrastructure or Project improvements during a seismic event. Therefore, this impact would be less than significant. No mitigation would be required.

4. Landslides. Throughout Toto Ranch, slopes range from relatively flat within the Residential and Agricultural Lease Areas, to intermittently steep throughout the grazing and grassland pastures of the Livestock Grazing Area. Many of the slopes within Toto Ranch are susceptible to landslides; and steep sloped grasslands that are grazed would be further susceptible to erosion and sedimentation, enhancing the potential for landslides. In order to minimize potential landslides that could occur as a result of overgrazing, the RMP has established RDM performance standards per average slope at the conclusion of the grazing season. On steep slopes (those greater than 30%), an average minimum of three to four inches of RDM – approximately an average 1,000 – 1,200 pounds per acre, would be maintained. There would also be no significant areas of bare soil void of vegetation cover in any of the grazed pastures (**Exhibit J**). Water infrastructure and associated water storage structures would not likely be located in areas susceptible to landslides and nonetheless would be constructed in a manner compliant with the

California Building Code seismic design force standards for San Mateo County, per the County of San Mateo Planning and Building Department's Building Regulations (County of San Mateo 2014). Compliance with these standards would ensure that infrastructure was constructed to withstand expected seismic activity and associated hazards and landslides, thereby minimizing risk to the public and the property. Therefore, hazards associated with landslides are not expected. Additionally, the creation of cut slopes and fill embankments is not anticipated during Project construction, and therefore the potential for safety risks related to instability of cut and/or fill slopes during or following construction would be less than significant. No mitigation would be required.

b. Result in Substantial Soil Erosion or Loss of Topsoil. The Project area has been identified as an area with intermittently steep slopes throughout the grazing and grassland pastures and thus higher potential for erosion and loss of topsoil. Grazing practices and proposed improvements could potentially exacerbate erosion and loss of top soil. However, grazing practices would be managed and improvement Projects would be implemented largely within areas that do not have steep slopes. On steeper, more erosion-prone slopes and riparian corridors susceptible to soil compaction, grazing would be delayed until soil is firm enough to withstand grazing pressure without impacting soil stability. Livestock grazing would be managed to protect the soil from erosion as loss of the surface layer can severely decrease forage productivity.

The RMP also defines a number of measures that would be implemented to control soil erosion and the loss of topsoil through placing limits on grazing practices throughout Toto Ranch. These include requirements to maintain adequate plant cover, allow prescribed levels of residual dry matter (RDM to remain on the soil surface at the conclusion of the grazing season, herd management, and rotating grazing practices throughout Toto Ranch. The management recommendations and erosion control BMPs are described in Section 1.5.3, Avoidance and Minimization Measures, and **Table 2**. Through implementation of the prescribed grazing practices and adherence to the conservation measures and BMPs outlined through the RMP, erosion and the loss of topsoil would be minimized. Therefore, this impact would be **less than significant**. No mitigation would be required.

c. Be Located on Unstable Geologic Units or Soil. Following a review of information mapped by San Mateo County (San Mateo County 2005), and a field visit to Toto Ranch, there is no indication that the implementation of improvement Projects or grazing, in accordance with the BMPs that have been defined by the RMP and *San Mateo County Water Pollution Prevention Program Construction BMPs (June 2014 edition)*, would contribute to any landslides, lateral spreading, subsidence, liquefaction or collapse of soils or local geologic units. Furthermore, implementation of the improvement Projects and grazing program would not create cut or fill slopes that could be unstable. Therefore, impacts related to the potential for Project related activities to cause or increase geologic instability would be **less than significant**. No mitigation would be required.

d. Be Located on Expansive Soil. Expansive soils shrink or swell depending upon water content and can cause damage to structures within or on these soils. Soils with a high clay content are more susceptible to swelling than sand or gravel soils. There are a variety of soil types within the Project area, as discussed above, as mapped by the USDA (United States Department of Agriculture 1961). A variety of the soils in the Project area are composed of clay minerals, and expansive soils are typically associated with types of clay minerals, so it is likely that the soils in the Project area have a high shrink swell potential (County of San Mateo 1986). However, the main concern with soils that have a high shrink swell potential are the risks posed to buildings and building inhabitants, and the Project would not result in the construction of habitable structures or other structures that would be subject to the risks associated with constructing buildings in expansive soils. Therefore, risks to life or property as a result of Project implementation in expansive soils would be **less than significant**. No mitigation would be required.

e. Be Located on Soils Incapable of Supporting Alternative Wastewater Disposal Systems. The lessee of Toto Ranch relies on a septic system for solid waste and wastewater disposal. There would be no change in the population utilizing Toto Ranch as a result of Project implementation. The Project would not include the addition of septic tanks or alternative wastewater disposal systems. Therefore, there would be **no impact**.

f. Destroy a Unique Paleontological Resource or Unique Geologic Feature. Implementation of the Project would involve ground disturbing activities through the replacement of fencing, road repairs, water conveyance upgrades and stock pond improvements. The associated excavation required for these activities is not likely deep enough to affect buried paleontological resources, if present. However, as described above, there have been no identified paleontological resources identified throughout Toto Ranch (County of San Mateo 1986). Because the Project area is not located within an area that has been identified as supporting paleontological or geologic resources or characteristics in which paleontological or geologic resources may occur, ground disturbing activities are not expected to disturb paleontological resources. This impact would be **less than significant**. No mitigation would be required.

2.4.8 Greenhouse Gas Emissions

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

Existing Conditions

The section briefly describes the environmental and regulatory setting for greenhouse gas (GHG) emissions and climate change.

The phenomenon known as the greenhouse effect keeps the atmosphere near the Earth's surface warm enough for the successful habitation of humans and other life forms. Present in the Earth's lower atmosphere, greenhouse gases play a critical role in maintaining the Earth's temperature by trapping some of the long-wave infrared radiation emitted from the Earth's surface that would otherwise escape to space. According to California's Global Warming Solutions Act (AB 32) and the State CEQA Guidelines (Section 15364.5), GHGs encompass the following gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorinated carbons (PFCs), sulfur hexafluoride (SF₆), and hydrofluorocarbons (HFCs).

Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and amplifying the warming of the Earth (Center for Climate and Energy Solutions 2011). Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution. Rising atmospheric concentrations of GHGs in excess of natural levels enhance the greenhouse effect, which contributes to global warming of the Earth's lower atmosphere, inducing large-scale changes in ocean circulation patterns, precipitation patterns, global ice cover, biological distributions, and other changes to the Earth system that are collectively referred to as climate change.

Discussion

a. Generate Greenhouse Gas Emissions. Construction activities associated with the proposed improvement Projects and pond management would result in an incremental increase in greenhouse gas (GHG) emissions by usage of fossil fuels. In accordance with Section 15183.5(b) of the CEQA Guidelines, a plan for the reduction of GHG may be used to analyze whether a Project would result in significant GHG emissions provided that the plan includes specific

elements. Plans that meet the listed requirements are referred to as Qualified GHG Reduction Plans. Plans are required to include an emissions inventory, establish baselines below which GHG emissions would not be cumulatively considerable, estimate future GHG emissions in the covered geographic area, specify measures to meet emissions reduction targets, establish a mechanism to monitor plan progress, and be adopted following environmental review.

San Mateo County has adopted an Energy Efficiency Climate Action Plan (EECAP) that is intended to streamline future environmental review of Projects in the unincorporated areas of San Mateo County, by following the CEQA Guidelines and meeting the BAAQMD expectations for a Qualified GHG Reduction Strategy (San Mateo County 2013). The EECAP includes a development checklist for new Projects to determine consistency with the EECAP. The checklist focuses on ongoing operational emissions, with the exception of measure 15.1, Construction Idling, which requires compliance with BAAQMD best management practices related to idling. The BAAQMD best management practices limit idling time to five (5) minutes, as required by the California airborne toxics control measure Title 13, Section 2485, of California Code of Regulations) (BAAQMD 2017b). Construction on the Project site related to improvement Project and pond management actions would comply with all applicable regulations. In lieu of a qualified GHG Reduction Strategy, the BAAQMD has established a screening level threshold of 1,100 MT CO₂e for development Projects (BAAQMD 2017b).

At the state level, the CARB 2017 Scoping Plan establishes a framework of action for California to reduce statewide emissions to achieve the statewide emissions reduction goals of AB 32, S-3-05, and SB 32 (CARB 2017). The 2017 Scoping Plan Update states “There are recent examples of land use development Projects in California that have demonstrated that it is feasible to design Projects that achieve zero net additional GHG emissions”. The CARB recognizes that achieving no net increase in annual ongoing GHG emissions would demonstrate that a Project is not participating in climate change impacts. As such, it is reasonable to assume that a Project that would not result in on-going annual operations would not result in significant GHG emissions.

The total GHG emissions estimated for construction of the proposed site improvements and pond management actions were estimated by the CalEEMod model, consistent with the assumptions of the air quality analysis above. See **Appendix C** for detailed model input and output. Estimated emissions are provided in **Table 5**. Total GHG emissions for pond management activities are provided in **Table 6**. This analysis conservatively assumes pond management and pond restoration activities involving one small and one very small pond per year.

Table 5. Estimated Total Construction GHG Emissions

Improvement Location	Metric Tons CO ₂ e
Roadway Repairs	72
New Fencing	4
Agricultural Lease Water Line	10
Field 3 Water System	14
Total GHG Emissions	100

Note: Emission quantities are rounded to the nearest whole number. Exact values are provided in **Appendix C**.

Table 6. Estimated Annual Pond Management GHG Emissions

Pond Size	Metric Tons CO ₂ e
Small	16
Very Small	8
Total Annual GHG Emissions	24

Note: Emission quantities are rounded to the nearest whole number. Exact values are provided in **Appendix C**.

As shown in **Table 5**, the proposed improvement Projects would result in a total of 100-MT CO₂e over the duration of construction. The proposed Project would be responsible for an incremental increase in GHG emissions by the usage of fossil fuels throughout construction activities. Following construction, the Project would have no long-term impact on vehicle miles traveled or energy use in the County.

Pond management activities would have the potential to result in annual GHG emissions of 24-MT CO₂e. As shown in **Table 6**, pond management activities would also comply with all applicable BAAQMD and CARB regulations, including idling restrictions, in compliance with the EECAP. Also refer to Section 1.5.3 for proposed measures included in the Project to reduce GHG emissions.

Emissions are well below the BAAQMD screening level of 1,100 MT CO₂e and close to net zero. Emissions would also be expected to decrease over time as emissions standards for construction equipment become increasingly stringent. Therefore, the proposed Project would not result in a significant on-going net increase in annual GHG emissions and would comply with the EECAP measure related to construction. As a result, Project GHG emissions would be **less than significant**. No mitigation would be required.

b. Potential conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. See the discussion under G-1 above. This impact is considered **less than significant**. No mitigation would be required.

2.4.9 Hazards and Hazardous Materials

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

Existing Conditions

A government records search conducted in December 2018 revealed that no portion of the Project area is listed on the Cortese List, a compilation of information from various sources listing potential and confirmed hazardous waste and hazardous materials sites in California.³ There were no existing or remediated sites that were identified through a search of the Project area, or area within a 1,000-foot parameter of the area.

³ The Hazardous Waste and Substances Sites (Cortese) List is a planning resource used by the State, local agencies, and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. Government Code, Section 65962.5, requires the California Environmental Protection Agency to develop, at least annually, an updated Cortese List. The Department of Toxic Substance Control (DTSC) is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies, including the State Water Resources Control Board and the California Integrated Waste Management Board, are required to provide additional hazardous material release information for the Cortese List.

There are no public airports, public use airports, or private airstrips located near Toto Ranch. The nearest airport facility, Half Moon Bay Airport, is located approximately 13 miles north of Toto Ranch. In addition, the Las Trancas airstrip, a private facility, is located approximately 20 miles south of Toto Ranch.

Toto Ranch is located in unincorporated San Mateo County for which fire service is provided by the San Mateo Division of CAL FIRE. The Project area is located in a State Responsibility Area (SRA), and fire severity zones have been mapped to identify the likelihood that an area may burn and risks associated with fire throughout the service area (CAL FIRE 2007). Within Toto Ranch there are areas that have been identified as both moderate and high fire hazard severity zones.

The San Mateo County Office of Emergency Services and Homeland Security maintains the Countywide Emergency Operations Plan (EOP) (San Mateo County 2015). The EOP is the base plan that governs the roles and responsibilities of the County in times of emergency or disaster. The EOP assigns responsibilities to organizations and individuals for carrying out specific actions in the event of emergencies, sets forth lines of authority for how actions will be coordinated, identifies personnel, equipment and facilities to respond to emergencies, and reconciles these requirements with other jurisdictions.

The northwestern portion of the Project area, where the Project meets Tunitas Creek, is in the County of San Mateo Tsunami Evacuation Zone (San Mateo County GIS 2013). There are two (2) Tsunami Shelters located approximately ten (10) miles north and south of the Project area; one is located at Half Moon Bay High School and the other is located at Pescadero High School (County of San Mateo 2015), both accessed by the Cabrillo Highway.

Discussion

a, b. Create a Hazard through Transport, Use, or Disposal of Hazardous Materials or through Upset and Accident Conditions. Construction and maintenance activities associated with the Project improvements (e.g., fencing and water infrastructure) and pond management activities are not expected to create a hazard to the public through transport, use or disposal of, or accidental release of hazardous materials. As these facilities are repaired and upgraded, there would be metals, wood and plastics materials that would need to be transported to appropriate disposal and recycling facility; but these materials are not considered hazardous. The closest disposal facility is the Pescadero Transfer Station located on Bean Hollow Road in Pescadero, approximately seven (7) miles south of the Project area.

Hazardous materials associated with Project construction and maintenance activities may include fuel, oils, grease, lubricants, and other petroleum-based products contained in vehicles and equipment, as well as materials used during the construction process, such as solvents and adhesives, as well as asphalt for road repairs. There is potential for inadvertent or accidental spill or leak to occur during construction activities. These construction-related hazardous materials

would be transported, stored, and handled in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the U.S. Department of Transportation, the Resource Conservation and Recovery Act of 1976, and the San Mateo County Human Services Department. Because compliance with existing regulations is mandatory, the Project is not expected to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction activities.

Operational activities would be similar to existing conditions, as grazing would continue throughout Toto Ranch, and the implementation of the RMP would not create any new hazards through the transport, use, or disposal of hazardous materials, or through upset and accident conditions. Therefore, impacts would be **less than significant**. No mitigation would be required.

c. Emit Hazardous Emissions or Materials within 0.25 mile of Schools. There are no schools located within 0.25 miles of Toto Ranch. Therefore, there would be **no impact**.

d. Project Located on Listed Site. A government records search conducted in December 2018 revealed that no portion of the Project area is listed on the Cortese List, a compilation of information from various sources listing potential and confirmed hazardous waste and hazardous materials sites in California (<http://geotracker.waterboards.ca.gov>) (www.envirostor.dtsc.ca.gov/public). Therefore, there would be **no impact**.

e. Within Vicinity of Public or Private Airstrip. Toto Ranch is not located within two (2) miles of any public airports, public use airports, or private airstrips. The nearest airport facility, Half Moon Bay Airport, is located approximately 13 miles north of Toto Ranch. In addition, the Las Trancas airstrip, a private facility, is located approximately 20 miles south of Toto Ranch. Consequently, the Project would not conflict with an airport land use plan or operation of nearby airports, or pose a related safety hazard to people living or working on the Toto Ranch property. There would be **no impact**.

f. Interfere with Emergency Response or Evacuation Plan. The Project area is located east of the Cabrillo Highway, accessed through a private driveway. There are a number of graveled and/or dirt roadways that provide access throughout Toto Ranch that are not accessible by the public, and are used by the lessee and Midpen for maintenance and management actions associated with grazing operations. Through implementation of the Project, roadways within Toto Ranch would be improved, thereby improving access throughout the site in the event that emergency vehicles were required. Throughout implementation of the proposed improvement Projects, slow-moving construction vehicles could delay or obstruct the movement of emergency vehicles along the Cabrillo Highway.

The northwestern portion of the Project area, where the Project meets Tunitas Creek, is in the County of San Mateo Tsunami Evacuation Zone (San Mateo County GIS 2013). There are two (2) Tsunami Shelters located approximately ten (10) miles north and south of the Project area; one is located at Half Moon Bay High School and the other is located at Pescadero High School (County of San Mateo 2015), both accessed by the Cabrillo Highway. In order to minimize construction vehicle related slowdowns on the Cabrillo Highway, construction vehicles would be stored on site throughout improvement activities, and would therefore minimize travel time on local roadways and the Cabrillo Highway, allowing for ongoing unimpeded public access within the Tsunami Evacuation Zone. Therefore, this impact would be **less than significant**. No mitigation would be required.

g. Exposure to Risks Involving Wildland Fires. Toto Ranch is located within a largely unpopulated area along the coastline of San Mateo County. Sprawling agricultural operations, grazing pastures and open fields surround the Project area. Fire service for this area is provided by the San Mateo Division of CAL FIRE. The Project area is located in a State Responsibility Area (SRA) and fire severity zones have been mapped to identify the likelihood that an area may burn and risks associated with the fire throughout the service area (CAL FIRE 2007). Within Toto Ranch there are areas that have been identified as both moderate and high fire hazard severity zones.

Through implementation of the Project, the water conveyance infrastructure throughout the Project area would be improved, providing additional water management capabilities. More extensive grazing that is proposed through the RMP would also reduce the overall vegetative fuel load throughout the Project area to support fire suppression actions throughout Toto Ranch in the event of a wildland fire. This would be a **beneficial impact**.

The Project would not result in the addition of habitable structures, and would not increase the number of people that are present throughout Toto Ranch. The lessee and employees associated with agricultural and grazing operations throughout the Project area would remain largely the same. Therefore, there would be **no impact** to people or structures associated with increasing risks associated with wildland fires

2.4.10 Hydrology and Water Quality

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

Existing Conditions

Tunitas Creek flows from North to South, meeting Dry Creek which creates the northern boundary of the Project area, approximately ¼-mile inland from the Cabrillo Highway (**Exhibit B**). At this confluence, the two creeks join and meet the Pacific Ocean approximately ¼-mile west of Cabrillo Highway. The creeks are not used as a water source for the Residential or Agricultural Lease Area operations of Toto Ranch, and livestock do not have access to Tunitas Creek or Dry Creek.

Historically, Toto Ranch has lacked ample water supply, particularly under drought conditions, to provide adequate residential and water for cattle grazing operations year-round. Water supply for livestock within the Farmstead Area (Agriculture and Residential Lease Areas) and pastureland adjacent to the Farmstead Area within the Livestock Grazing Area is provided through a number of water troughs that are supplied water via two (2) wells on the ridge near the

south property boundary. One well is pumped via a solar pump and the second via a windmill (**Exhibit F**). In addition to the developed water systems, a network of stockponds and seasonal catchments provide stock water throughout Toto Ranch, as discussed in Section 1.4.4 of the Project Description. A number of natural springs are also present throughout Toto Ranch, and water for the Agriculture and Residential Lease Areas is provided via a natural spring located on the ridge to the south of the farmstead (**Exhibit F**). There are no municipal water services provided to Toto Ranch.

Through implementation of the Project, a number of improvements would be made to the water conveyance infrastructure, and overall water availability, throughout Toto Ranch, as discussed in Section 1.5.1 of the Project Description. As a result of these improvements, additional flexibility in the number of cattle that may graze on Toto Ranch would be possible, with the goal of increasing the number of cattle within the Project area. Based on management numbers identified in the RMP (**Appendix A**), the increase in the number of cattle grazing at Toto Ranch would result in an increase in water demand by approximately 7-10%. This would result in additional groundwater pumping within the Project area, particularly during dry years where a heavier reliance on water infrastructure would be necessary with the drying of surface water sources. This increase would be offset through the changes in the water infrastructure and pond improvements that would enhance the efficiency and effectiveness of water conveyance throughout Toto Ranch, and allow for further rotation of cattle to extend grazing opportunities. Therefore, the overall increase in water demand would be minimal, and would not be directly correlated with the percentage increase in cattle. Improved water management would also be used to enhance habitats for special-status species, including CRLF and San Francisco garter snake.

The Federal Emergency Management Agency (FEMA) has mapped one flood zone from the confluence of Tunitas and Dry Creeks to the Pacific Ocean, along the northern boundary of the Project area. This area has been mapped as Zone A, with a flooding probability of once every 100 years (FEMA 2012). This area has also been identified as an area that could support hazardous debris flows, as woody material and sediment move through the creek channels, contributing to the potential for flooding in this area. The remainder of the Project area is outside of both the 100- and 500-year flood zones (FEMA 2012).

The California Department of Conservation has mapped tsunami inundation areas⁴. The northwestern portion of the Project area, where the Project meets Tunitas Creek, is in the County of San Mateo Tsunami Evacuation Zone (San Mateo County GIS 2013). The evacuation zone is based on the 2009 Tsunami Inundation maps prepared by the California Emergency Management Agency.⁵ In most areas, the recommended evacuation zones extend some distance beyond the

⁴ www.conservation.ca.gov/cgs/Pages/Tsunami/Maps/SanMateo.aspx.

⁵ <http://myhazards.caloes.ca.gov>.

potential inundation areas designated by Cal EMA to provide an additional margin of safety. The Project area is outside the Cal OES Tsunami Emergency Response Planning Zone.

Toto Ranch is included within the San Francisco Bay Basin (Region 2) Water Quality Control Plan that was developed by the San Francisco Regional Water Quality Control Board in 2017. The purpose of the plan is to regulate surface and groundwater quality, and to provide a tool for watershed management and planning within the region. The San Gregorio Valley Basin is the closest groundwater basin to Toto Ranch, located just south of the Project area. The basin is approximately 2 square miles, ranging from 31 to 430 feet deep, with an average depth of 146 feet (California Department of Water Resources 2014).

Discussion

a. Violate Water Quality Standards or Waste Discharge Requirements; Degrade Water Quality.

Project construction and ongoing maintenance activities associated with proposed improvement Projects or pond management are not expected to contribute to reduced water quality in local water bodies. Although runoff associated with any ground disturbing activities could contain soil and other pollutants such as fuel, oils, grease, lubricants, solvents, and other materials associated with construction equipment and activities, any potential impacts that could occur as a result of the release of the above-mentioned materials through Project construction would be minimized and contained through implementation of BMPs and minimization measures identified in the Project Description (refer to Section 1.5.3, Avoidance and Minimization Measures).

Through the implementation of the RMP, grazing practices would be extended throughout Toto Ranch, including additional vegetation management practices. This would improve soil conditions throughout the Project area, as RDM would be monitored to ensure that vegetative cover was maintained to minimize erosion and sedimentation, improving water quality within ponds and drainages throughout the Project area.

Therefore, implementation of the Project would not violate any water quality standards and would not degrade water quality throughout Toto Ranch. This impact would be **less than significant**. No mitigation would be required.

b. Groundwater. Groundwater conditions would not be adversely altered through implementation of improvement actions or grazing practices as identified in the RMP or through stock pond management actions. Management of Toto Ranch is largely reliant on surface water. During dry years, additional groundwater would be pumped to provide sustainable water sources for grazing cattle. Through the proposed improvements in water infrastructure, groundwater would be used more effectively following implementation of water infrastructure improvements, as discussed above. Based on the water budget for the Project area, sustainable water is available to support increased cattle grazing numbers throughout the Project area; the limiting factor to support grazing cattle is in the flexibility in moving water throughout the Project area to support the

cattle. Improvements to the water infrastructure and ponds throughout the Project area would improve the ability of Midpen and the lessee to move water. Therefore, increasing the number of cattle grazing throughout the Project area would result in only minor increases in groundwater pumping, particularly during dry years, even if the maximum number of cattle were grazing the Project area, as defined in the RMP. Therefore, there would be not be a substantial change in the use of groundwater as a result of the Project, and this impact would be **less than significant**. No mitigation would be required.

Implementation of the Project would also not result in changes in an increase in impermeable surfaces throughout the Project area. The Project would result in more efficient grazing practices and water conveyance throughout Toto Ranch, but would not result in the addition of impervious surfaces or groundwater recharge. Future removal of coyote brush throughout the Project area would further improve the infiltration rates throughout the Project area. Therefore, implementation would not require any changes in the way that groundwater is managed throughout the basin. Thus, the impact would be **less than significant**. No mitigation would be required.

c. Alterations in Drainage Contributing to Increased Erosion, Siltation, Flooding, or Excess/Redirected Runoff. Implementation of the Project would result in changes to the water infrastructure and grazing practices throughout Toto Ranch, resulting in changes in the way that surface flows and groundwater are conveyed, stored and utilized throughout the Project area. As described in Section 1.5.3, all activity would be undertaken utilizing BMPs to minimize erosion and siltation throughout the Project area. There would be no change in drainage into Tunitas or Dry Creeks, and no Project actions would result in additional flooding risks. Implementation of the Project would result in an improved ability to manage surface flows throughout the Project area, and expand the area that could be sustainably grazed, resulting in a beneficial impact to overall site conditions, that would improve runoff and improve the permeability of the lands throughout Toto Ranch. Therefore, this impact would be **less than significant**. No mitigation would be required.

d. Release Pollutants due to Flooding, Tsunami or Seiche. Implementation of the RMP and pond management activities would not result in the addition of pollutants to the Project area. Any chemical and/or fuels associated with construction vehicles that may be present on site would be managed through BMPs, as described in Section 1.5.3 of the Project Description.

Along the confluence of Tunitas and Dry Creeks along the northern perimeter of Toto Ranch to the Pacific Ocean, the Project area is located within the 100-year flood zones. Project implementation would not result in any changes to this portion of the Project area, or result in additional debris load within the creeks, that would not change the potential for flooding within or adjacent to the Project area, or that in turn could result in release of pollutants due to Project area inundation.

Although Toto Ranch is located east of the Cabrillo Highway, the Project area is located in close proximity to the Pacific Ocean where a seiche, tsunami or mudflows may occur. The northwest portion of the Project area, where the Project meets Tunitas Creek, is in the County's Tsunami Evacuation Zone (San Mateo County GIS 2013), but the Project area is outside the Cal OES Tsunami Emergency Response Planning Zone. The Project would not introduce any physical features that would change the potential risks of these disasters occurring, or the potential impacts that they would have within the Project area, or on adjacent lands. As water conveyance infrastructure improvements are implemented throughout Toto Ranch, older infrastructure would be removed, thereby improving the overall stability of the water conveyance system in the event of a natural disaster. Further, ongoing implementation of the BMPs described in Section 1.5.3 would minimize and avoid the presence of pollutants in the Project area.

Because there would be no additional pollutants, structures or physical features that would be added within Toto Ranch as a result of RMP implementation or pond management activities, the potential for pollutants released as a result of a natural disaster would be **less than significant**. No mitigation would be required.

e. Conflict or Obstruct Implementation of a Water Quality Control Plan or Groundwater Management Plan. Toto Ranch is included within the San Francisco Bay Basin (Region 2) Water Quality Control Plan that was developed by the San Francisco Regional Water Quality Control Board in 2017. The Project would not introduce any additional pollutants to either surface waters or groundwater as a result of RMP implementation, or pond management activities, as discussed above. The proposed BMPs described in Section 1.5.3 would further minimize any potential sedimentation or erosion that could result in water quality degradation as a result of ground disturbing activities throughout or adjacent to the Project area. Therefore, implementation of the Project would comply with the San Francisco Basin Water Quality Control Plan, and this impact would be **less than significant**. No mitigation would be required.

2.4.11 Land Use and Planning

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

Existing Conditions

Toto Ranch is located on the coast along the Cabrillo Highway in rural San Mateo County. The area is characterized by rolling, grassy hills interspersed with rural residences and structures related to agricultural productions. Fencing divides the properties, and there are large expanses of grasslands and riparian corridors throughout the region.

Toto Ranch is characterized by large pastures that are divided by New Zealand style fencing. There are unpaved roadways that provide access throughout the site, and the site is nearly flat in the Residential and Agricultural Lease Areas within the middle of the Project area, surrounded by fairly steep to very steep hillsides that support grassy open lands.

The nearest communities consisting of a populated community are the unincorporated community of San Gregorio approximately one mile to the south, and the City of Half Moon Bay approximately nine miles to the north. According to the U.S. Census Bureau, these communities have estimated populations of 214 and 12,870, respectively.

The San Mateo County General Plan has designated Toto Ranch as Agricultural Rural (San Mateo County 2005), and the Project area is zoned for Planned Agricultural District/Coastal Development (PAD/CD) within the County of San Mateo Coastal Zone (San Mateo County GIS 2016). These areas are to be preserved and fostered to protect existing and potential agricultural operations in San Mateo County, and to minimize conflicts between non-agricultural and agricultural land uses.

The Project area is also located within the coastal zone and is subject to the California Coastal Act of 1976. The Project area is within the area that is regulated through the LCP for San Mateo County (County of San Mateo 2018b). The California Coastal Act establishes procedures for the review of proposed developments in the coastal zone and policies for the protection of coastal resources and public access to the coastline. There are a number of regulations pertaining to the protection of the coastal lands and natural resources they support, while providing public access to the coastline. The Project would require a consolidated permit for compliance with the

California Coastal Act to include all proposed activities (e.g., vegetation clearing, infrastructure improvements) in areas that include sensitive habitat.

Discussion

a. Physically Divide a Community. Implementation of the Project would occur within the Toto Ranch property that supports only the lessee and associated residential and agricultural structures. There would be no change in the land uses within the Project area, and there is no community within which Toto Ranch is located. Therefore, implementation of the Project would not physically divide a community. There would be **no impact**.

b. Conflict with Applicable Land Use Plan, Policy, or Regulation. The San Mateo County General Plan has designated Toto Ranch as an Agricultural Rural Area (San Mateo County 2005), and it is zoned for Planned Agricultural District/Coastal Development (PAD/CD) within the County of San Mateo Coastal Zone (San Mateo County GIS 2016). Implementation of the Project would result in the continuation of land uses and activities within Toto Ranch that support agricultural land uses, and would be consistent with both the County land use and zoning.

The Project would also be consistent with California Coastal Act regulations pertaining to the protection of coastal lands and the natural resources they support by managing the grazing to ensure the sustainability of agricultural production while protecting the overall rangeland health, soil stability, water quality and the control of invasive vegetation to cooperatively conserve and enhance habitat for wildlife. Some of the proposed activities could involve vegetation clearing or infrastructure improvements in areas that provide sensitive habitat, and these potential impacts are addressed in Section 2.4.4, Biological Resources. Because the Project area is located on the inland side of Cabrillo Highway and is not currently accessible to the public, there would be no effects on public access to the coastline.

The Project would not conflict with any relevant land use policies or regulations through the San Mateo County General Plan and would be consistent with California Coastal Act regulations pertaining to the protection of natural resources. Therefore, the Project would not result in a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Potential impacts to sensitive habitat and natural resources protected by General Plan and Coastal Act regulations would be minimized or avoided through implementation of the measures identified in Section 1.5.3 of the Project description, and by additional mitigation measures identified in Section 2.4.4, Biological Resources. The impact would be **less than significant**, and no additional mitigation would be required.

2.4.12 Mineral Resources

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

Existing Conditions

The principal legislation addressing mineral resources in California is the Surface Mining and Reclamation Act of 1975 (SMARA) (PRC Sections 2710–2719), which was enacted in response to land use conflicts between urban growth and essential mineral production. In accordance with SMARA, the California Geological Survey (CGS), formerly the California Division of Mines and Geology, classified lands within the San Francisco-Monterey Bay region into Mineral Resource Zones (MRZs) as follows.

- **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- **MRZ-3:** Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- **MRZ-4:** Areas where available information is inadequate for assignment into any other MRZ.

The San Mateo County General Plan has identified an area supporting a significant mineral resource area adjacent to the Tunitas Creek preserve (San Mateo County 2005). However, there are no mineral resources that have been identified within Toto Ranch.

There are no active quarries on lands that are managed by Midpen (San Mateo County 2005).

Discussion

a. Loss of Availability of Known Mineral Resources to the Region or State. Toto Ranch has not been identified as an area that supports known mineral resources of value to the region or the state. Implementation of the Project would involve improvement Projects throughout Toto Ranch for water and roadway infrastructure improvements, and pond management activities. These actions would require grading and some limited excavation. Because the Project area does not contain

known mineral deposits of regional or statewide significance, nor would the Project involved excavation to depths that could impact such resources if they were present. Therefore, implementation of the proposed Project would have **no impact** on mineral resources.

b. Loss of Availability of Locally-Important Mineral Resource Recovery Site. Toto Ranch has been zoned for Planned Agricultural District/Coastal Development (PAD/CZ), which is not considered to be an Extractive Use Zone (M-3) for mineral resources. The Project area also does not have a Land Use Designation with a Quarry Designation Overlay (San Mateo County 2005). Therefore, no potential significant loss of availability of a known mineral resource recovery site delineated on a local general plan, specific plan or other land use plan would occur as a result of this Project. There would be **no impact**.

2.4.13 Noise

Would the Project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Existing Conditions

Toto Ranch is located within rural San Mateo County, and is surrounded by rolling open space that supports interspersed residences and structures associated with agricultural production. Across the Cabrillo Highway, the landscape is dotted with small beaches and sharp cliff drops leading to the Pacific Ocean.

The existing noise environment within the Project area and vicinity of the Project area results from agricultural production noises within the Residential and Agricultural Lease Areas of Toto Ranch, and occasional cars along the Cabrillo Highway, in addition to the noise made by grazing cattle. The size of the Project area, in addition to the natural topography and proximity to the Pacific Ocean, provides an overall quiet setting within Toto Ranch.

San Mateo County Code of Ordinances

Section 4.88 of the San Mateo County Code of Ordinances regulates unnecessary, excessive and annoying noise. Section 4.88.360 exempts construction noise from the ordinance, as long as construction activities do not take place between the hours of 6:00 p.m. and 7:00 a.m. weekdays, 5:00 p.m. and 9:00 a.m. on Saturdays or any time on Sundays, Thanksgiving and Christmas.

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Noise-sensitive land uses typically include residences, hospitals, schools, guest lodgings, libraries and certain types of passive recreational uses, such as parks to be used for reading, conversing or meditation. Noise-sensitive land uses within and adjacent to Toto Ranch include the residence within Toto Ranch. There are no additional residential or noise sensitive land uses located within or adjacent to the Project area.

Vibration-Sensitive Land Uses

Vibration-sensitive land uses are those with which groundborne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations (FTA 2018). There are no vibration-sensitive land uses in the Project area. Regarding the existing residence in the Project area, the FTA has published vibration impact criteria to determine whether vibration would result in an annoyance to residents. Construction vibration is subject to the FTA's infrequent event criteria because operation of vibration-generating equipment is anticipated to be intermittent throughout the day in the vicinity of an individual receptor. Residences fall into FTA Land Use Category 2, which is a receptor where people normally sleep. The FTA identifies 80 VdB as the generation level from infrequent events that would potentially disturb residents.

Discussion

a. Generate Increase in Ambient Noise in Excess of Standards Established in Local General Plan or Noise Ordinance. The proposed Project is a plan for the continued operation of Toto Ranch. Implementation of the plan would involve several small improvement Projects, and ongoing pond management activities. These improvement Projects and pond management actions would potentially involve the use of construction equipment and result in short-term noise increases in the immediate vicinity of construction. Section 4.88 of the San Mateo County Code of Ordinances regulates unnecessary, excessive and annoying noise. Section 4.88.360 exempts construction noise from the ordinance, as long as construction activities do not take place between the hours of 6:00 p.m. and 7:00 a.m. weekdays, 5:00 p.m. and 9:00 a.m. on Saturdays, or at any time on Sundays, Thanksgiving and Christmas.

Construction of the proposed improvement Projects and pond management activities would occur during the day, between the hours of 7:00 a.m. to 6:00 p.m. on weekdays, and would therefore comply with the County's noise ordinance. When in use, due to the small size of the improvement areas and ponds, only one piece of construction equipment would be anticipated to be in operation at a time. The FTA Noise and Vibration Manual provides reference noise levels for a range of typical construction equipment. Equipment noise levels from equipment ranges from 76 to 101 dBA at 50 feet from operation. It is conservatively assumed that a rock drill would be the noisiest piece of equipment potentially required for either improvement construction or pond management. A drill may be required on rare occasions during fencing installation. A typical rock drill produces a sound level of 95 dBA at 50 feet from operation. The closest receptor to any improvement Project area or pond is a residence located on Tunitas Creek Road, approximately 900 feet north of the nearest improvement area (fencing installation). At this distance, noise from a rock drill would be reduced to 70 dBA. As previously stated, construction noise is exempt from the County's noise ordinance. However, this noise level is consistent with the County's exterior noise standard of 70 dBA for very short daytime events

such as occasional drilling. Additionally, as the proposed improvement Projects are generally linear, construction would only be operating in a particular location for a few days. Pond management activities would occur for a maximum of six weeks at the same locations in any giving year. Therefore, construction and pond management noise would not result in a substantial increase in noise levels and this impact would be **less than significant**.

Following construction, no change in vehicle trips is anticipated as a result of the Project because operation would be similar to existing conditions. One new pump station is proposed that would potentially generate new operation noise. The pump station would be solar powered. Because the pump would be relatively small compared to municipal pumps, and would utilize solar power, which is typically quieter than a diesel-powered pump, the typical noise level of 77 dBA at 50 feet for a stationary water pump for construction is assumed (FTA 2018). The nearest receptor to Field 3, where the pump would be installed, is a residence on Tunitas Creek, located approximately 3,000 feet (0.6 mile) north of the field. At this distance, pump noise would likely be less than 45 dBA and would not be audible over existing ambient noise. Therefore, operational impacts would be **less than significant**.

b. Expose Persons to or Generate Excessive Groundborne Vibration or Groundborne Noise Levels. As defined by the FTA, there are no vibration sensitive land uses within the Project area. The nearest receptor to the Project area is the residence located 900 feet north of the fencing improvement alignment. As described above, the FTA identifies 80 VdB as the generation level from infrequent events that would potentially disturb residents.

Representative typical vibration levels for construction equipment potentially required for the proposed improvements and pond management activities are provided in **Table 7**. As shown in **Table 7**, vibration levels from construction equipment would be reduced to a maximum of 80 VdB beyond 45 feet from the construction areas. Therefore, residents would not have the potential to be exposed to vibration levels in excess of 80 VdB that would potentially result in annoyance. This impact would be **less than significant**. No mitigation would be required.

Table 7. Vibration Source Levels for Construction Equipment

Construction Equipment	Approximate VdB at 25 feet	Approximate VdB at 45 feet ¹
Loaded Trucks	86	78
Small Bulldozer	58	49

Source: FTA 2018.

Note:

¹ Based on the formula $VdB = VdB(25\text{ feet}) - 30\log(d/25)$ provided by the FTA (2006)

2.4.14 Population and Housing

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

Existing Conditions

According to the United States Census Bureau, the latest population estimate for San Mateo County in July of 2017 was 771,410. The estimated annual growth rate for the County is 0.24 percent.

The 987-acre Project area is primarily undeveloped open space with a 12-acre Residential Lease Area that includes one ranch house where the lessee resides,

Implementation of the RMP and pond management activities would not result in the addition of residential development, or changes in land uses, that would support population growth within the Project area, or the greater San Mateo County. The Project area would largely continue to support existing land uses.

Discussion

a. Induce Population Growth. Implementation of the Project would not result changes in land uses or unplanned population growth, either through the addition of new housing or indirectly through the extension of roadway or general infrastructure. Improvements to the water conveyance infrastructure within Toto Ranch would improve the ability for the lessee and Midpen to move water more freely throughout the site, expanding the areas that may be used for grazing operations. However, there would not be additional water available for human consumption, or that would support inhabitable structures. Therefore, there would be **no impact**.

b. Displace Existing Housing Units or People. The Project would not involve the displacement of housing units or people. The lessee would remain in place, and there would be no change in the residence located within Toto Ranch. There would be **no impact**.

2.4.15 Public Services

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

Existing Conditions

Public services are provided for Toto Ranch through a variety of local resources.

Fire Protection. There are seven (7) fire stations operated by the San Mateo Division of CAL FIRE that provide fire protection and prevention, and emergency medical services, for the unincorporated portion of the County. The Project is located approximately seven (7) miles from San Mateo County Fire Station 59 in Pescadero and fourteen (14) miles from Fire Stations 55 in Loma Mar and 57 in La Honda.

Police Protection. The Project is located within the jurisdiction of the San Mateo County Sheriff's Office, within the Coastside Patrol Bureau, which supports multiple substations to respond to coastal incidents to provide police protection for Toto Ranch and the surrounding area. The Half Moon Bay Substation, located in Half Moon Bay, is approximately nine (9) miles north of the Project area. This substation responds to calls and provides patrol and other services in the Project area's vicinity.

Schools. Toto Ranch is located within the Cabrillo Unified School District. The closest elementary school to the Project area is Alvin S Hatch Elementary School, located in Half Moon Bay. The San Mateo Union High School District serves the Project area, and includes the closest high school, Half Moon Bay High School.

Parks. The San Mateo Coastline supports many recreational and nature viewing opportunities located within the general vicinity of Toto Ranch, which of itself is a preserve managed by Midpen, and is

not open to the public. There are no County, state, or other park facilities located within or adjacent to the Project area. Refer to Section 2.4.16, Recreation, for other recreation opportunities.

Other Public Facilities. Medical facilities supporting the Project area include the San Mateo Coastside Clinic in Half Moon Bay, which can provide services for smaller incidents and general medical care. Sequoia Hospital in Redwood City provides the closest full hospital services.

Discussion

Provision of Public Services. Implementation of the Project would result in the management of grazing opportunities within the Toto Ranch, including infrastructure improvements and the ongoing management of stock ponds. The Project would not result in any new permanent facilities, structures, or uses that would generate the need for additional fire or police services, or that would generate additional students that would require support from local school districts. The Project would also not generate new or increased demand for parks or other public facilities as the Project would not result in an increase in the population of San Mateo County or draw a larger population to utilize the area surrounding Toto Ranch. Therefore, there would be **no impact**.

2.4.16 Recreation

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Existing Conditions

The San Mateo Coastline supports many recreational and nature viewing opportunities located within the general vicinity of Toto Ranch, which of itself is a preserve managed by Midpen, and is not open to the public.

Tunitas Creek Beach is located approximately 1,200 feet west of the northwestern boundary of the Project area. Tunitas Beach is not currently a public beach, although it is illegally and frequently accessed via a steep trail off of Tunitas Creek Road. In November 2017, Peninsula Open Space Trust (POST) acquired 58 acres of the beach area located west of the Project boundary and plans to build reliable public access routes, parking areas, restrooms, and other facilities by 2020 should they receive the required funding (Moore 2017).

There are also a variety of California State Beaches located west of the Project area. San Gregorio State Beach and Pomponio State Beach are located approximately 1.5 miles and 3 miles, respectively, southwest of the Project area and can be accessed by parking along Cabrillo Highway.

Midpen also manages a number of open space preserves within the vicinity of the Project area. El Corte de Madera Creek Open Space Preserve is located approximately 4 miles east of the eastern boundary of the Project area and offers more than 30 miles of multi-use trails (Midpeninsula Regional Open Space 2019). The La Honda Creek Open Space Preserve is located approximately 5 miles east of the Project area and also offers permitted hiking and horseback riding to the public.

Discussion

a. Increase Use of Existing Parks or Recreational Facilities Resulting in Physical Deterioration of Resources and Facilities. Implementation of the Project would not result in a change in the population that would utilize Toto Ranch, or would result in an additional in population that would access the San Mateo coastline. Therefore, there would not be an increase in the use of existing neighborhood and regional parks or other recreational facilities as a result of the Project,

or subsequent degradation of the existing neighborhood and regional parks as a result of Project implementation. There would be **no impact**.

b. Include Recreational Facilities or Require Additional Recreational Facilities. The Project would result in improvement and management activities within Toto Ranch to enhance the Project area for natural resources and enhance grazing opportunities. Toto Ranch would remain closed to the general public, and the actions that would occur within Toto Ranch as a result of Project implementation would not result in a population increase or otherwise require the expansion of existing or the generation of new recreational facilities. There would be **no impact**.

2.4.17 Transportation

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. For a land use Project, would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a transportation Project, would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(2)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Existing Conditions

Toto Ranch is located on the east side of the Cabrillo Highway, within unincorporated San Mateo County. All roadways within Toto Ranch are private and accessed only by the lessee, staff associated with agricultural production practices on the land, and Midpen staff for maintenance purposes. There are no local bus routes that utilize the Cabrillo Highway near the Project area, and there are no pedestrian pathways within or adjacent to the Project area. Cabrillo Highway, adjacent to Toto Ranch, has been proposed as a Class III Bicycle Route in the San Mateo County Comprehensive Bicycle and Pedestrian Plan (San Mateo County 2011). Bicycle use of the Cabrillo Highway is limited to the shoulders of the roadway adjacent to the Project area.

Discussion

a. Conflict with a Circulation Plan, Including Transit, Roadway, Bicycle and Pedestrian Facilities.

The Project would result in the continuation of currently ongoing agricultural and grazing practices at Toto Ranch, with internal modifications to improve grazing practices. These modifications (e.g., fence and roadway repairs, pond management) would periodically require construction-related vehicles to travel to the site. However, these trips would be similar to other ongoing Projects normally associated with operating the Farmstead. With Project implementation, access and travel to and within Toto Ranch, by the lessee and employees associated with the agricultural practices that are being undertaken throughout the property, would continue similar to existing conditions. Similarly, Midpen staff and construction staff would be present throughout implementation of improvement actions throughout Toto Ranch as part of ongoing operations and maintenance activities. Ongoing infrastructure maintenance staff

who currently visit the Project area would continue to visit the area for periodic inspections with no substantial increase in trips compared with current conditions. Because the number of trips would be similar, there would be no substantial change in trips, and the Project would not degrade the operation of local roadways.

Currently, there are no bus, bicycle paths or pedestrian paths within Toto Ranch that are open to the public. Cyclists utilize the Cabrillo Highway bike lanes, and these would remain open throughout Project implementation.

Because there would be no changes in circulation along Cabrillo Highway, and no changes in bus, bicycle or pedestrian access along this roadway as result of Project implementation, this impact would be **less than significant**. No mitigation is required.

b, c. Conflict with CEQA Guidelines, Section 15064.3, Subdivision (b)(1) or (b)(2). As discussed above, implementation of the Project would not change activities that currently occur on Toto Ranch, and access to the site would remain largely the same as current conditions, limited to the lessee, employees that support the agricultural practices of the lessee, and Midpen staff. Land uses would remain the same, and no changes in the existing circulation system along the Cabrillo Highway, adjacent to the Project area, are proposed or anticipated. Therefore, the vehicle miles travelled would be similar to and not substantially change from those under existing conditions. The impact would be **less than significant**. No mitigation would be required.

d. Increase Hazards due to Design Feature. The proposed Project does not include design features or new uses that would change the existing traffic operations along Cabrillo Highway, adjacent to the Project area, or other roadways and thus would not increase hazards due to design features of incompatible use. The Project would improve degraded roadways within Toto Ranch. Therefore, the Project would not increase hazards due to design features. There would be **no impact**.

e. Inadequate Emergency Access. Toto Ranch is accessed by a private driveway east of the Cabrillo Highway within unincorporated San Mateo County. Implementation of the Project would not result in any changes to the Cabrillo Highway. At the northern Project boundary, Cabrillo Highway is part of the County of San Mateo Tsunami Evacuation Zone (San Mateo County GIS 2013). Access along the Cabrillo Highway corridor adjacent to the Project area would remain unchanged throughout and following Project implementation. Therefore, the implementation of the Project would not impact any routes used for emergency vehicles traveling to or nearly the Project area.

There are three roadways within Toto Ranch that are proposed for upgrades through implementation of the RMP. These upgrades would improve access throughout Toto Ranch, and provide multiple routes to access the most eastern and northern portions of the Project area.

Through the improvements of these roadways, emergency access within Toto Ranch would be improved as a result of Project implementation.

Throughout the implementation of the RMP on Toto Ranch, emergency access to the Project area would remain similar to existing conditions, as the site would continue to be closed to the public, and access to the lessee, employees of the lessee and Midpen staff would remain the same. Therefore, implementation of the Project would not result in inadequate emergency access. There would be **no impact**.

2.4.18 Tribal Cultural Resources

Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Background

In accordance with Assembly Bill 52 (AB 52), CEQA was amended to mandate consultation with California Native American tribes during the CEQA process to determine whether a proposed Project would have impacts on Tribal Cultural Resources, because California tribes are experts in their Tribal Cultural Resources and heritage. Therefore, in compliance with AB 52, Midpen initiated consultation with tribes, and consultation is concluded when Midpen and the tribes agree on appropriate mitigation measures to mitigate and/or avoid any significant impacts.

On November 21, 2018, as part of the tribal consultation process with Native American groups and individuals, Aaron Peth, a planner for Midpen, mailed Project initiation letters, including a Project map and description, to the following Native American contacts listed for San Mateo County's geographic area of jurisdiction.

- Irene Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista
- Tony Cerda, Costanoan Rumsen Carmel Tribe
- Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan
- Charlene Nijmeh, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
- Andrew Galvan, The Ohlone Indian Tribe

In summary, the Commission found no information in their files and provided the names of the five (5) tribal representatives. A letter describing the Project and asking for information or comments was sent to each representative, who was subsequently contacted with emails and phone calls. No comments or concerns had been received as of February 2018.

Discussion

a. Listing in the California or Local Register of Historic Resources. There are no resources that have been listed in the California Register of Historic Resources, or in a local register of historic resources as defined in Public Resources Code, Section 5020.1(k). Also refer to Section 2.4.5, Cultural Resources. Therefore, there would be **no impact**.

b. Impact a Significant Resource to a California Native American Tribe. AB 52 established that a substantial adverse change to a Tribal Cultural Resource would have a significant impact on the environment. Based on archival and field-based research of Toto Ranch, it is not anticipated that tribal resources would be impacted through Project implementation. However, there always remains the potential for ground-disturbing activities to expose and/or impact unknown tribal cultural resources, which could result in significant impacts to tribal cultural resources. This potential impact would be reduced to a less than significant level **with implementation of Mitigation Measures CR-1: Stop Work in the Event of Unexpected Occurrence of Cultural Resources during Construction, CR-2: Stop Work in the Event of Unexpected Occurrence of Human Remains during Construction**, which are described under Section 2.4.5, Cultural Resources. Therefore, this impact would be **less than significant with mitigation**.

2.4.19 Utilities and Service Systems

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Result in a determination by the wastewater treatment provider which serves or may serve the Project that is has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Negatively impact the provision of solid waste service or impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Comply with federal, state and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Existing Conditions

Utilities and services are provided through a variety of resources throughout the Project area.

- **Water** services are provided by water conveyance infrastructure within the Project area, moving water from wells, ponds and natural springs throughout Toto Ranch. The water supply for the residence and agricultural operations (e.g., troughs, water tanks) is provided through a number of springs, ponds, and wells.
- **Stormwater** conveyance relies on natural flow from the hillsides to drainages within and bordering Toto Ranch, including a series of stock ponds throughout the Project area, and Tunitas and Dry Creeks along the northern boundary of the site.
- **Wastewater** services to provide treatment for the Residential Lease Area are provided by a septic system.
- **Electricity/natural gas** are supplied by PG&E.
- **Solid Waste/Refuse**, including recyclable materials, that is generated through Project construction and demolition would be collected by Recology and transferred to the Pescadero Transfer Station on Bean Hollow Road in Pescadero, approximately seven (7) miles south of the Project area.

Discussion

a. Relocation or Construction of New or Expanded Water, Wastewater Treatment or Storm Water Drainage, Electric Power, Natural Gas or Telecommunications Facilities. Implementation of the Project would not result in an increase in the population within Toto Ranch, nor the construction of structures that would require the extension of utilities, resulting in the need for the relocation or construction of new facilities, with respect to utilities, except water supply.

As described in Section 1.5.1, the Project includes water infrastructure improvements to enhance livestock distribution and overall forage utilization, as well as extend the grazing season, which is currently affected by the lack of water during summer and fall months. Infrastructure improvements include installing a new water line and trough north of the Agricultural Lease Area and improving the Field 3 water system (spring, pump, tank, pipe, trough). These relatively small improvements are within the localized water system and would not result in the need for the relocation or construction of new facilities, as they relate to the primary water sources (e.g., no new wells), the construction of which could create adverse environmental impacts not already addressed in this analysis through evaluation of the aforementioned infrastructure improvements. The impact would be **less than significant**. No mitigation would be required.

b. Have Sufficient Water Supplies to Serve the Project Area in Normal and Dry Years. As described above, water supplies within Toto Ranch are supplied by an on-site water conveyance system that would be enhanced through implementation of the Project. The enhanced water conveyance system would improve the ability to circulate water throughout the site to increase the area within Toto Ranch that may be grazed, and improve water supply during summer and fall months. Following Project implementation, water would be available throughout the entire Project area.

Wells and natural springs provide water for the Residential Lease Area. There would be no change in the amount of water used by the lessee within the Residential Lease Area. Improvements to the water conveyance infrastructure would improve the reliability of this system to provide water for the lessee year-round.

The improvements to the water conveyance system throughout the Project area would increase the areas throughout Toto Ranch that are able to support grazing, as water would be available in areas that would previously have remained dry. In addition, water infrastructure improvements would improve the water reliability for the lessees of Toto Ranch. Therefore, implementation of the Project would improve water supplies throughout normal and dry years. This is considered a beneficial impact. Therefore, there would be **no impact**.

c. Adequate Capacity for Wastewater Treatment. Implementation of the Project would not result in an increase in the population within Toto Ranch, and therefore an increase in wastewater that

would require treatment. Therefore, the existing septic system would continue to provide wastewater collection services for Toto Ranch, and there would be **no impact**.

d. Generate Solid Waste in Excess of State or Local Standards. Implementation of the Project would not result in a permanent increase in the generation of solid waste. However, throughout the implementation of construction activities associated with Project improvements, solid waste would be generated, including fence posts, plastic watering troughs and discarded metal water infrastructure. However, the increased amount of solid waste would be similar to that normally generated by ongoing operations and maintenance activities at Toto Ranch, and is not expected to substantially increase the volume of solid waste generated, compared to existing conditions. These materials would be collected by Recology and transferred to the Pescadero Transfer Station on Bean Hollow Road in Pescadero, consistent with current solid waste collection and disposal practices. Refuse generated would not be in excess of state or local standards, as the Pescadero Transfer Station has capacity for solid waste through 2021, when it is expected that the agreement with San Mateo County would be extended for an additional three-year term. Therefore, this impact would be **less than significant**. No mitigation would be required.

e. Negatively Impact the Provision of Solid Waste Services or Impair the Attainment of Solid Waste Reduction Goals. Implementation of the Project would not result in a permanent increase in the generation of solid waste. However, solid waste would be generated, including fence posts, plastic watering troughs and discarded metal water infrastructure throughout the implementation of construction activities associated with site improvements. As described above, the amount generated would be similar to existing conditions and not constitute a substantial increase in solid waste, and no additional solid waste services would be required. Further, much of the solid waste generated are recyclable materials, and thus the Project would not impair the ability of the County to attain solid waste reduction goals. This impact would be **less than significant**. No mitigation would be required.

f. Comply with Federal, State and Local Management and Reduction Statutes and Regulations for Solid Waste. As described above, implementation of the Project would not result in a substantial permanent increase in the generation of solid waste, and therefore would not result in impacts on solid waste facilities. Much of the solid waste generated would be recyclable materials taken to the Pescadero Transfer Station on Bean Hollow Road in Pescadero, approximately seven (7) miles south of the Project area.

Following Project area improvements, Midpen would continue to comply with federal, state and local regulations related to solid waste disposal and recycling throughout implementation of the Project. Therefore, this impact would be **less than significant**. No mitigation would be required.

2.4.20 Wildfire

If located in or near state responsibility areas or lands classified as very high hazard severity zones, would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Existing Conditions

Toto Ranch is located within a largely unpopulated area along the coastline of San Mateo County. Fire services for the area are provided by the San Mateo Division of CAL FIRE. The Project area is located in a State Responsibility Area, wherein fire severity zones have been mapped to identify the likelihood that an area may burn and risks associated with fire throughout the service area (CAL FIRE 2007). Within Toto Ranch there are areas that have been identified as both moderate and high fire hazard severity zones.

The San Mateo County Office of Emergency Services and Homeland Security maintains the Countywide Emergency Operations Plan (EOP) (San Mateo County 2015). The EOP is the base plan that governs the roles and responsibilities of the County in times of emergency or disaster. The EOP assigns responsibilities to organizations and individuals for carrying out specific actions in the event of emergencies, sets forth lines of authority for how actions will be coordinated, identifies personnel, equipment and facilities to respond to emergencies, and reconciles these requirements with other jurisdictions.

The northwestern portion of the Project area, where the Project meets Tunitas Creek, is in the County of San Mateo Tsunami Evacuation Zone (San Mateo County GIS 2013). There are two (2) Tsunami Shelters located approximately ten (10) miles north and south of the Project area; one is located at Half Moon Bay High School and the other is located at Pescadero High School (County of San Mateo 2015), both accessed by the Cabrillo Highway.

Discussion

a. Impair Emergency Response Plan or Emergency Evacuation Plan. Toto Ranch is accessed by a private driveway east of the Cabrillo Highway within unincorporated San Mateo County. Implementation of the Project would not result in any changes to the Cabrillo Highway. At the northern Project boundary, the Cabrillo Highway is part of the County of San Mateo Tsunami Evacuation Zone (San Mateo County GIS 2013). Access along the Cabrillo Highway corridor adjacent to the Project area would remain unchanged throughout and following Project implementation and, therefore, would not impact any routes used for emergency vehicles traveling to or nearly the Project area.

There are three roadways within Toto Ranch that are proposed for upgrades through implementation of the RMP. These upgrades would improve access throughout Toto Ranch, and provide multiple routes to access the most eastern and northern portions of the Project area. Through the improvements along these roadways, emergency access within Toto Ranch would be improved as a result of Project implementation.

Throughout the implementation of the RMP on Toto Ranch, emergency access to the Project area would remain similar to existing conditions, as the site would continue to be closed to the public, and access to the lessee, employees of the lessee, Midpen staff and permitted activities such as docent-led hikes continue to access the site. Therefore, implementation of the Project would not impair an emergency response plan or an emergency evacuation plan, and there would be **no impact**.

b. Exacerbate Wildfire Risks, and Expose Project Occupants to Pollutant Concentrations from Wildfire. Through implementation of the Project, improvements to the water conveyance infrastructure throughout the Project area would be improved, providing additional water management capabilities. Additional grazing that is proposed through the RMP would also reduce the overall vegetative fuel load throughout the Project area. Therefore, implementation of the Project would improve the conditions throughout the Project area to support fire suppression actions throughout Toto Ranch in the event of a wildland fire.

Implementation of the Project would not result in the addition of habitable structures, or an increase in the population that reside or work within Toto Ranch. Furthermore, hazardous materials, or materials that may become hazardous when exposed to fire, would not be introduced into the Project area as the materials utilized would be similar to existing conditions.

Therefore, the Project would not exacerbate wildfire risks, or expose occupants within the Project area to pollutant concentrations from wildlife; this impact would be **less than significant**. No mitigation would be required.

c. Require Installation or Maintenance of Infrastructure that may Exacerbate Fire Risks. As discussed above, implementation of the Project would result in upgrades to the water conveyance infrastructure throughout Toto Ranch, expanding the availability of water throughout the Project area. The proposed grazing practices through the RMP would also reduce the fuel load throughout the Project area. Therefore, implementation of the Project would not require additional installation or maintenance of infrastructure that may exacerbate fire risks. There would be **no impact**.

d. Expose People or Structures to Significant Risks as a Result of Runoff, Post-Fire Slope Instability or Drainage Changes. Implementation of the Project would not expose people or structures to significant risks as a result of runoff, post-fire slope instability or drainage changes as the Project area would remain largely unchanged. The Project would result in improvements in water conveyance throughout the Project area, and would expand grazing practices throughout Toto Ranch, reducing the fuel load throughout the Project area and guiding grazing practices to avoid areas of instability. Furthermore, the proposed roadway improvements through the RMP would minimize erosion throughout the Project area. Therefore, implementation would not result in additional exposure to people or structures to significant risks as a result of changes to the environment caused by wildfires. This impact would be **less than significant**. No mitigation would be required.

2.4.21 Mandatory Findings of Significance

Does the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. As described in Sections 2.4.4, Biological Resources, and 2.4.5, Cultural Resources, Project construction activities have the potential to degrade wetlands and waters of the U.S. and state, habitat for CRLF and SFGS, adversely affect previously undiscovered buried cultural resources that could be important examples of California history and prehistory and adversely affect undiscovered human remains.

Although the Project would impact wetlands and waters of the U.S. and state, and habitat for CRLF and SFGS, Section 2.4.4 identifies biological mitigation measures to minimize impacts to a less than significant level.

Although intrusion on any previously undiscovered cultural or historic resources, or buried human remains, is not anticipated, there may be a potential likelihood to encounter given the rich history of the area. Section 2.4.5 identifies cultural resource mitigation measures to reduce potential impacts to unexpected resources to a less than significant level.

Therefore, these impacts would be **less than significant with mitigation**, and the Project would not have the potential to substantially degrade the quality of the environment.

b. The significant cumulative impacts to which the Project would contribute are air quality and greenhouse gas/climate change from construction-related emissions. Both air quality and greenhouse gas analyses are cumulative in nature, and the analysis of potential impacts in

Section 2.4.3, Air Quality, and 2.4.8, Greenhouse Gas Emissions, is undertaken in the context of the air quality basin and global climate change arena, respectively. The Project would not exceed BAAQMD emissions thresholds for criteria pollutants and would not increase greenhouse gas emissions over existing conditions. Therefore, the Project would not result in a considerable contribution to significant cumulative impacts.

Traffic is a common cumulative impact. However, implementation of the Project would not result in additional vehicle trips along Cabrillo Highway, and therefore, existing use of local roadways would remain unchanged. Therefore, the Project would not result in any contribution to a significant cumulative impact.

c. As discussed in the preceding Environmental Checklist, the Project would not have any significant effects. Therefore, it would not cause substantial adverse effects on human beings, either directly or indirectly. Potentially significant impacts requiring mitigation to reduce to a less than significant were identified for air quality, biological resources, noise, and tribal cultural resources. Those impacts with potential to adversely affect human beings include the construction-related air quality emissions and noise. As described in Sections 2.4.3, Air Quality, and 2.4.13, Noise, all potential impacts were reduced to a **less than significant** level.

2.5 Summary of Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

Midpen has a number of existing permits and guiding documents that have been developed to guide the current and planned land uses of the preserves within their jurisdiction. **Table 8** identifies existing avoidance and minimization measures, and mitigation measures, that have been defined through these documents and that are applicable to the Project. These measures are further defined in **Appendix B**. These measures have been included in the impact discussions for Biological Resources, Geology and Soils, and Hydrology and Water Quality. The purpose of **Table 8** is to provide a crosswalk to show how the existing measures offset the impacts of the Proposed Project, and also includes additional mitigation measures that have been identified for the Project to further minimize impacts, as necessary, to result in less than significant impacts. The IS/MND includes additional construction related BMPs have been included in the Project Description, and additional mitigation measures have been proposed (Cultural Resources) that are not included in **Table 8**, as these measures are not included in Midpen existing permits and guidance documents, and are in addition to those identified in the table. The Mitigation and Monitoring Reporting Program (MMRP) that will be developed for the Project will include the full range of measures for the Project to ensure that all avoidance and minimization measures, BMPs and mitigation measures are implemented through the Project.

Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

CEQA Checklist Question	Required Avoidance and Minimization Measures (Identified in the Project Description and Table 2) ⁶	Significance before Mitigation	Mitigation	Significance after Mitigation
Biological Resources				
a. Substantial Effect through Habitat Modifications on any Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies or Regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service	2A. Preconstruction surveys prior to maintenance, enhancement and construction in and near creeks and streams 3H. Exclusion fencing for Federally-listed species 4A. Preconstruction special-status plant surveys 4B. Choris' popcorn flower rare plant exclusion 5A. General anadromous fish avoidance and minimization measures 5B. Enhance habitat for anadromous fish 5C. Monitor sensitive fish species 5D. Integrated pest management in and near fish habitat 6A. Compliance with federal permits for CRLF and SFGS 6B. Implement avoidance and minimization measures for ponds, creeks and streams 6C. Yearly work proposals for CRLF and SFGS enhancement 6D. Biological monitors 6E. Preconstruction meeting and construction training 6F. Stop work authority for CRLF and SFGS 6G. CRLF and SFGS preconstruction surveys 6H. Egg mass avoidance 6I. Seasonal work period in ponds 6J. Agency notification of enhancement activities for CRFL and SFGS 6K. Vegetation removal by mechanized equipment at CRLF and SFGS sensitive sites 6L. Vegetation removal at ponds	Potentially significant	BIO-1: Pond Enlargement or Creation, when Ponds are Decommissioned BIO-2: Revegetation and Enhancement of Aquatic Habitat for CRLF and SFGS	Less than significant with mitigation

⁶ Table 2. *Existing Permits and Guiding Documents – Required Avoidance and Minimization Measures* identifies all the avoidance and minimizations measures that Midpen is required to implement. Therefore, the Initial Study analysis assumes these measures would be implemented. If with implementation of these measures there is still potential for a significant impact, additional mitigation has been identified in the Initial Study, as reflected in the “Mitigation” column.

Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

CEQA Checklist Question	Required Avoidance and Minimization Measures (Identified in the Project Description and Table 2) ⁶	Significance before Mitigation	Mitigation	Significance after Mitigation
	6M. CRLF and SFGS exclusion for sediment removal with large equipment 6N. No stockpiling of vegetation 6O. Vehicle restrictions 6P. No stockpiling of soil 6Q. Cease activities for CRLF and SFGS in the work area 6R. CRLF emergency salvage and recovery 6S. CRLF and SFGS Reporting Requirements 6T. Integrated pest management in CRLF and SFGS habitat 7A. SFDW Protection Preconstruction Survey 8A. Preconstruction surveys for special status bat species 8B. Tree removal associated with bats 8C. Non-tree roost exclusion associated with bats 9A. Nesting bird surveys 9B. Active nests 9C. Active nest buffers 10A. Invasive animal control 10B. Vegetation management 11A. Use grazing for vegetation management 11B. Use grazing for habitat enhancement 11C. Grazing by horses			
b. Adverse Effect on Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	1A. Pond monitoring and annual work plan 1B. Pond berm repairs/maintenance 1C. Pond outlet repairs/maintenance 1D. Pond basins repairs/maintenance 1E. Pond trash cleanup 1F. Preconstruction surveys prior to pond maintenance, enhancement and creation 1G. Implementation of pond maintenance, enhancement and creation activities	Less than significant	N/A	Less than significant

Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

CEQA Checklist Question	Required Avoidance and Minimization Measures (Identified in the Project Description and Table 2) ⁶	Significance before Mitigation	Mitigation	Significance after Mitigation
	2A. Preconstruction surveys prior to maintenance, enhancement and construction in and near creeks and streams 2B. Culvert replacement 2C. Culvert repair/maintenance 2D. Minor culvert relocation where the road or trail is not also being relocated 2E. Removal of existing culverts or replacement with rolling dips or fords 2F. New culvert installation (non-stream crossing culverts) 2G. Ford and swale replacement, repair or maintenance (includes drain lenses and causeways) 2H. Bank stabilization, replacement, repair and maintenance 2I. Implementation of maintenance and enhancement activities near creeks and streams 2J. Integrated pest management associated with the use of chemicals in and near creeks and streams 3D. Trail drainage and erosion control 4B. Choris' popcorn flower rare plant exclusion 5B. Enhance habitat for anadromous fish 6I. Season work period in ponds 6K. Vegetation removal by mechanized equipment at CRLF and/or SFGS sensitive sites 6L. Vegetation removal at ponds 6T. Integrated pest management in CRLF and SFGS habitat 9D. Nesting habitat removal or modification 10B. Vegetation management			
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.)	1A. Pond monitoring and annual work plan 1B. Pond berm repairs/maintenance 1C. Pond outlet repairs/maintenance 1D. Pond basins repairs/maintenance 1E. Pond trash cleanup	Potentially significant	BIO-3: Compensation for Loss of Jurisdictional Waters and/or Wetlands	Less than significant with mitigation

Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

CEQA Checklist Question	Required Avoidance and Minimization Measures (Identified in the Project Description and Table 2) ⁶	Significance before Mitigation	Mitigation	Significance after Mitigation
through direct removal, filling, hydrological interruption, or other means?	1F. Preconstruction surveys prior to pond maintenance, enhancement and creation 1G. Implementation of pond maintenance, enhancement and creation activities 2A. Preconstruction surveys prior to maintenance, enhancement and construction in and near creeks and streams 2B. Culvert replacement 2C. Culvert repair/maintenance 2D. Minor culvert relocation where the road or trail is not also being relocated 2E. Removal of existing culverts or replacement with rolling dips or fords 2F. New culvert installation (non-stream crossing culverts) 2G. Ford and swale replacement, repair or maintenance (includes drain lenses and causeways) 2H. Bank stabilization, replacement, repair and maintenance 2I. Implementation of maintenance and enhancement activities near creeks and streams 2J. Integrated pest management associated with the use of chemicals in and near creeks and streams 3D. Trail drainage and erosion control 5B. Enhance habitat for anadromous fish 6B. Implement avoidance and minimization measures for ponds, creeks and streams 6I. Seasonal work periods in ponds 6K. Vegetation removal by mechanized equipment at CRLF and/or SFGS sensitive sites 6L. Vegetation removal at ponds			
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory	2H. Bank stabilization, replacement, repair and maintenance 2I. Implementation of maintenance and enhancement activities near creeks and streams	Less than significant	N/A	Less than significant

Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

CEQA Checklist Question	Required Avoidance and Minimization Measures (Identified in the Project Description and Table 2) ⁶	Significance before Mitigation	Mitigation	Significance after Mitigation
wildlife corridors, or impede the use of native wildlife nursery sites?	2J. Integrated pest management associated with the use of chemicals in and near creeks and streams 5A. General anadromous fish avoidance and minimization measures 5B. Enhance habitat for anadromous fish 5D. Integrated pest management in and near fish habitat 6B. Implement avoidance and minimization measures for ponds, creeks and streams 6H. Egg mass avoidance for CRLF 6I. Seasonal work periods in ponds. 6K. Vegetation removal by mechanized equipment at CRLF and/or SFGS sensitive sites 6L. Vegetation removal at ponds 6T. Integrated pest management in CRLF and SFGS habitats 8B. Tree removal associated with bat roosts 18C. Non-tree roost exclusion for bats 9A. Nesting bird surveys 9B. Active nests requirements 9C. Active nest buffers 9D. Nesting habitat removal or modification 10A. Invasive animal control 10B. Vegetation management 11A. Use grazing for vegetation management 11B. Use grazing for habitat enhancement 11C. Grazing by horses			
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	1F. Preconstruction surveys prior to pond maintenance, enhancement and creation 2A. Preconstruction surveys prior to maintenance, enhancement and construction in and near creeks and streams 2H. Bank stabilization, replacement, repair and maintenance	Less than significant	N/A	Less than significant

Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

CEQA Checklist Question	Required Avoidance and Minimization Measures (Identified in the Project Description and Table 2) ⁶	Significance before Mitigation	Mitigation	Significance after Mitigation
	2I. Implementation of maintenance and enhancement activities near creeks and streams 2J. Integrated pest management associated with the use of chemicals in and near creeks and streams 3B. Vegetation removal for trail maintenance 4A. Preconstruction special-status plant surveys 4B. Choris' popcorn flower rare plant exclusion 5A. General anadromous fish avoidance and minimization measures 5B. Enhance habitat for anadromous fish 5C. Monitor sensitive fish species 5D. Integrated pest management in and near fish habitat 6A. Compliance with federal permits for CRLF and SFGS 6B. Implement avoidance and minimization measures for ponds, creeks and streams 6C. Yearly work proposals for CRLF and SFGS enhancement 6D. Biological monitors 6E. Preconstruction meeting and construction training 6F. Stop work authority for CRLF and SFGS 6G. CRLF and SFGS preconstruction surveys 6H. Egg mass avoidance 6I. Seasonal work period in ponds 6J. Agency notification of enhancement activities for CRFL and SFGS 6K. Vegetation removal by mechanized equipment at CRLF and/or SFGS sensitive sites 6L. Vegetation removal at ponds 6M. CRLF and SFGS exclusion for sediment removal with large equipment 6N. No stockpiling vegetation 6O. Vehicle restrictions			

Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

CEQA Checklist Question	Required Avoidance and Minimization Measures (Identified in the Project Description and Table 2) ⁶	Significance before Mitigation	Mitigation	Significance after Mitigation
	6P. No stockpiling of soil 6Q. Cease activities for CRLF and SFGS in the work area 6R. CRLF emergency salvage and recovery 6S. CRLF and SFGS Reporting Requirements 6T. Integrated pest management in CRLF and SFGS habitat 7A. SFDW protection preconstruction surveys 8A. Preconstruction surveys for special status bat species 8B. Tree removal 8C. Non-tree roost exclusion 9A. Nesting bird surveys 9B. Active nests 9C. Active nest buffers 9D. Nesting habitat removal or modification 10A. Invasive animal control 10B. Vegetation management 11A. Use grazing for vegetation management 11B. Use grazing for habitat enhancement 11C. Grazing by horses			
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	N/A	No impact	N/A	No impact
Geology and Soils				
b. Result in substantial soil erosion or the loss of topsoil?	2I. Bank stabilization, replacement, repair and maintenance 3D. Trail drainage and erosion control 6P. No stockpiling of soil 11A. Use grazing for vegetation management 11B. Use grazing for habitat enhancement 11C. Grazing by horses			
Hydrology and Water Quality				

Table 8. Summary of Biological Environmental Impacts, Required Avoidance and Minimization Measures, and Identified Mitigation Measures

CEQA Checklist Question	Required Avoidance and Minimization Measures (Identified in the Project Description and Table 2) ⁶	Significance before Mitigation	Mitigation	Significance after Mitigation
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	2I. Bank stabilization, replacement, repair and maintenance 3D. Trail drainage and erosion control 6P. No stockpiling of soil 11A. Use grazing for vegetation management 11B. Use grazing for habitat enhancement 11C. Grazing by horses	Less than significant	N/A	Less than significant
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in erosion or changes in surface flows?	2I. Bank stabilization, replacement, repair and maintenance 3D. Trail drainage and erosion control 6P. No stockpiling of soil 11A. Use grazing for vegetation management 11B. Use grazing for habitat enhancement 11C. Grazing by horses	Less than significant	N/A	Less than significant

Section 3 List of Preparers

3.1 Lead Agency

Midpeninsula Regional Open Space District

330 Distel Circle
Los Altos, California 94022-1404

Aaron Peth – Planner III
Jane Mark – Planning Manager
Coty Sifuentes-Winter – Senior Resource Management Specialist

3.2 Consultants

Harris & Associates

450 Lincoln Avenue, Suite 103
Salinas, California 93901

Kate Giberson – Project Director
Wendy Young – Project Manager
Sharon Toland – Air Quality, Energy, Greenhouse Gas, Noise
Shannon Bane – Biological Resources, Natural Resources
Michelle Stiefel – Other Environmental Topics

Albion Environmental

1414 Soquel Avenue, Suite 205
Santa Cruz, California 95062

Doug Ross – Cultural Resources

This page intentionally left blank.

Section 4 References

- ABAG. Resilience Program. Landslide GIS Maps. <http://gis.abag.ca.gov/website/Hazards/?hlyr=existingLndsld>.
- Alquist-Priolo Earthquake Fault Zones. 2018. ArcGIS. Last updated August 21. https://services3.arcgis.com/i2dkYWmb4wHvYPda/arcgis/rest/services/alquist_priolo_zones/FeatureServer.
- Bay Area Air Quality Management District. 2017a. "Air Quality Standards and Attainment Status." Page last updated January 5, 2017. Accessed December 5, 2018. <http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status>.
- Bay Area Air Quality Management District. 2017b. "Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Adopted April 19. http://www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment_a_-proposed-final-cap-vol-1-pdf.pdf?la=en.
- Bay Area Air Quality Management District. 2012. California Air Quality Act Air Quality Guidelines. May.
- Bay Area Air Quality Management District. 2010a. California Air Quality Act Air Quality Guidelines. May.
- Bay Area Air Quality Management District. 2010b. 2010 Clean Air Plan, Final Clean Air Plan – Volume II. September 15.
- Bay Area Air Quality Management District. 1999. BAAQMD CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans. December.
- Beal, F. E. L. 1907. Birds of California in relation to the fruit industry, part 1. U.S. Dept. Agri. Biol. Surv. Bull. 30.
- Becker, G.S. and I.J. Reining. 2008. Steelhead/rainbow trout (*Oncorhynchus mykiss*) resources south of the Golden Gate, California. Cartography by D.A. Asbury. Center for Ecosystem Management and Restoration. Oakland, CA.
- Bent, A. C. 1938. Life histories of North American birds of prey. Part 2. U.S. Natl. Mus. Bull. 170. 482pp.
- Bent, A. C. 1942. Life histories of North American flycatchers, larks, swallows, and their allies. U.S. Natl. Mus. Bull. 179. 555pp.
- Bent, A. C. (O. L. Austin, Jr., ed.). 1968. Life histories of North American cardinals, grosbeaks, buntings, towhees, finches, sparrows, and allies. 3 Parts. U.S. Natl. Mus. Bull. 237. 1889pp.
- Brown, L. R., P. B. Moyle, and R. M. Yoshiyama. 1994. Historical decline and current status of coho salmon in California. Department of Wildlife and Fisheries Biology, University of California, Davis.
- Burt, W.H. and R.P. Grossenheider 1980. Peterson field guide to mammals. Houghton Mifflin Company, 289pp.

- Caltrans. 2018. California Scenic Highway Mapping System, San Mateo County.
www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/.
- California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2016. San Mateo County Important Farmlands Map.
<ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/smt16.pdf>.
- California Department of Conservation, Division of Land Resource Protection, Conservation Program Support. 2014. State of California Williamson Act Contract Land Map.
<ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/smt16.pdf>.
- California Department of Conservation. 2018. California Geological Survey. “Official Maps of Alquist-Priolo Earthquake Fault Zone.”
- California Department of Conservation. 2015. California Geological Survey Information Warehouse: Mineral Land Classification. <https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc>.
- California Department of Fish and Game. 2004. Recovery Strategy for California Coho salmon. Report to the California Fish and Game Commission.
- California Department of Fish and Wildlife (CDFW). May 16, 2018 (revised). STREAMBED ALTERATION AGREEMENT NOTIFICATION NO. 1600-2012-0444-R3, Various Creeks in San Mateo, Santa Clara and Santa Cruz Counties, Midpeninsula Regional Open Space District, SYSTEM WIDE ROUTINE MAINTENANCE AGREEMENT. CDFW Regional Office, Napa, CA.
- California Department of Fish and Wildlife. 2018. California Natural Diversity Database. Available online at <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data#43018407-rarefind-5>. Accessed October 1, 2018.
- California Department of Fish and Wildlife. 2019. California Wildlife Habitat Relationship System. Life history accounts and range maps. Available at:
<https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range>. Accessed June 10, 2019.
- California Department of Water Resources. 2014. San Francisco Bay Hydrologic Region. San Gregorio Valley Groundwater Basin, Bulletin 118.
<http://www.smsustainability.org/download/energy-water/groundwater/2-24.pdf>.
- CAL FIRE. 2007. San Mateo County Fire Hazard Severity Zones in SRA. http://frap.fire.ca.gov/webdata/maps/san_mateo/fhszs_map.41.pdf.
- CAL FIRE. 2009. San Mateo County Very High Fire Hazard Severity Zones in LRA.
<https://planning.smcgov.org/sites/planning.smcgov.org/files/documents/files/Fire%20Hazard%20Severity%20Zones.pdf>.
- California Native Plant Society. 2018. Online Manual of California Vegetation. Available at:
<http://vegetation.cnps.org/>

- California Native Plant Society (CNPS). 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Available online at: <http://www.rareplants.cnps.org>. Accessed: December 21, 2018.
- California Natural Diversity Database. California Department of Fish and Wildlife. Biogeographic Information and Observation System. Accessed February 26, 2019.
- City/County Association of Governments of San Mateo County. 2011. San Mateo County Comprehensive Bicycle and Pedestrian Plan, September 8. http://ccag.ca.gov/wp-content/uploads/2014/07/CBPP_Main-Report__Sept2011_FINAL.pdf.
- County of San Mateo. 2014. Building Regulations. Adopted January. [https://planning.smcgov.org/sites/planning.smcgov.org/files/SMCBuilding%20Regulations%20\(2014\).pdf](https://planning.smcgov.org/sites/planning.smcgov.org/files/SMCBuilding%20Regulations%20(2014).pdf).
- County of San Mateo. 2012. FEMA Flood Zone. https://planning.smcgov.org/sites/planning.smcgov.org/files/documents/files/fema_flood.pdf.
- County of San Mateo. 1986. General Plan, approved November 18. <https://planning.smcgov.org/sites/planning.smcgov.org/files/SMC-GP%201986.pdf>.
- County of San Mateo. 2005. Planning and Building. Adopted Maps. <https://planning.smcgov.org/adopted-maps>.
- County of San Mateo. 2013. Planning and Building Department. Requirements for Erosion and Sediment Control. <https://planning.smcgov.org/sites/planning.smcgov.org/files/documents/files/Erosion-Control-Guidelines.pdf>.
- County of San Mateo. 2015. San Mateo County Emergency Operation Plan. <https://hsd.smcsheriff.com/sites/default/files/downloadables/1%20-%20Emergency%20Operations%20Plan.pdf>.
- County of San Mateo. 2018a. San Mateo County Zoning. https://planning.smcgov.org/sites/planning.smcgov.org/files/documents/files/smc_zoning.pdf.
- County of San Mateo. 2018b. Zoning Regulations, May 18. https://planning.smcgov.org/sites/planning.smcgov.org/files/SMC_Zoning_Regulations.pdf.
- DeSante, D. F., Ruhlen, E. D., and Rosenberg, D. K. 2004. Density and abundance of Burrowing Owls in the agricultural matrix of the Imperial Valley, California. *Studies Avian Biol.* 27:116–119.
- Earhart, C. M., and N. K. Johnson. 1970. Size dimorphism and food habits of North American owls. *Condor* 72:251-264.
- Environmental Protection Agency. 2012. INLAND STRANDED OIL HABITAT FACT SHEET FOR RESPONSE: OPEN WATER. Available at: http://www.rrt5.org/Documents/Habitat/OW_HabitatFactSheets.pdf

- Environmental Protection Agency. 2017. Section 404 of the Clean Water Act: How Wetlands are Defined and Identified. Accessed at: <https://www.epa.gov/cwa-404/section-404-clean-water-act-how-wetlands-are-defined-and-identified>.
- Foster, M. L. 1977. Status of the Salt Marsh Common Yellowthroat (*Geothlypis trichas sinuosa*) in the San Francisco Bay Area, California, 1975–1976. Calif. Dept. Fish & Game, Sacramento. Available at www.dfg.ca.gov/hcpb/info/bm_intro.shtml.
- Garrett, K., and J. Dunn. 1981. Birds of southern California. Los Angeles Audubon Soc. 408pp.
- Gervais, J. A., Rosenberg, D. K., Fry, D. M., Trulio, L., and Sturm, K. K. 2000. Burrowing Owls and agricultural pesticides: Evaluation of residues and risks for three populations in California. *Environ. Toxicol. and Chem.* 19:337–343.
- Green, G. A., and Anthony, R. G. 1989. Nesting success and habitat relationships of Burrowing Owls in the Columbia basin, Oregon. *Condor* 91:347–354.
- Green, G. A., Fitzner, R. E., Anthony, R. G., and Rogers, L. E. 1993. Comparative diets of Burrowing Owls in Oregon and Washington. *Northwest Sci.* 67:88–93.
- Griffiths, J., and F. Villablanca. 2013. Management of Monarch Butterfly (*Danaus plexippus*) overwintering habitat: recommendations based on patterns of tree use. Monarch Alert, Cal Poly San Luis Obispo, prepared for Xerces Society for Invertebrate Conservation.
- Grinnell, J. 1915. A distributional list of the birds of California. *Pac. Coast Avifauna* 11
- Grinnell, J., J. S. Dixon, and J. M. Linsdale. 1937. Fur-bearing mammals of California. 2 Vols. Univ. California Press, Berkeley. 777pp.
- Grinnell, J., and A. H. Miller. 1944. The distribution of the birds of California. *Pac. Coast Avifauna* No. 27. 608pp.
- Guzy, M. J., and Ritchison, G. 1999. Common Yellowthroat (*Geothlypis trichas*), in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 448. Birds N. Am., Philadelphia.
- Hall, E.R. 1981. *Mammals of North America*. John Wiley and Sons, 1181 pp.
- Haug, E. A., Millsap, B. A., and Martell, M. S. 1993. Burrowing Owl (*Speotyto cunicularia*), in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 61. Acad. Nat. Sci., Philadelphia.
- Hickman, K. 2017. Results from Camera Trap Wildlife Studies in Santa Cruz Mountains. Prepared for Midpeninsula Regional Open Space District. San Carlos, CA.
- Hobson, K., Perrine, P., Roberts, E. B., Foster, M. L., and Woodin, P. 1986. A breeding season survey of Salt Marsh Yellowthroats *Geothlypis trichas sinuosa* in the San Francisco Bay region. San Francisco Bay Bird Observatory report to U.S. Fish & Wildl. Serv., Contract 84-57.
- Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Department of Fish and Game. Sacramento, CA. 156pp.

- Holt, D. W. 1992. Notes on short-eared owl (*Asio flammeus*) nest sites, reproduction and territory size in coastal Massachusetts. *Can. Field-Nat.* 106: 352-356.
- Holt, D. W., and S. M. Leasure. 1996. Short-eared owl (*Asio flammeus*). *The birds of North America*, No. 62 (A. Poole and F. Gill, eds.) Acad. Nat. Sci., Philadelphia, PA, Am. Ornithol. Union, Washington DC.
- Johnsgard, P. A. 1983. *The hummingbirds of North America*. Smithsonian Inst. Press, Washington DC. 303pp.
- Kelly, P. A. 1990. Population ecology and social organization of dusky-footed woodrats, *Neotoma fuscipes*. Ph.D. dissertation, Univ. of California, Berkeley, 191 pp.
- Linsdale, J. M., and L. P. Tevis, Jr. 1951. *The dusky-footed wood rat*. Univ. California Press, Berkeley and Los Angeles, 664 pp.
- Lindzey, F. G. 1978. Movement patterns of badgers in northwestern Utah. *J. Wildl. Manage.* 42:418-422.
- Long, C. A. 1973. *Taxidea taxus*. *Mammal. Species*. No. 26. 4pp.
- MacWhirter, R. B., and Bildstein, K. L. 1996. Northern Harrier (*Circus cyaneus*), in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 210. Acad. Nat. Sci., Philadelphia.
- McCaskie, G., P. De Benedictis, R. Erickson, and J. Morlan. 1979. *Birds of northern California, an annotated field list*. 2nd ed. Golden Gate Audubon Soc., Berkeley. 84pp.
- Messick, J. P., and M. G. Hornocker. 1981. Ecology of the badger in southwestern Idaho. *Wildl. Monogr.* No.76. 53pp.
- Midpeninsula Regional Open Space District. No date. *Best Management Practices for Avoiding and Minimizing Impacts to Bat Species*. Los Altos, CA.
- Midpeninsula Regional Open Space District. 1999. *BASIC POLICY OF THE MIDPENINSULA REGIONAL OPEN SPACE DISTRICT*. Los Altos, CA.
- Midpeninsula Regional Open Space District. 2002a. *San Mateo Coastal Annexation Draft Environmental Impact Report*. Available at: coast-eir@openspace.org.
- Midpeninsula Regional Open Space District. 2002b. *SERVICE PLAN FOR THE SAN MATEO COASTAL ANNEXATION AREA*. Los Altos, CA.
- Midpeninsula Regional Open Space District. 2007. *Grazing Management*. Los Altos, CA.
- Midpeninsula Regional Open Space District. 2014a. *Resource Management Policies*. Los Altos, CA.
- Midpeninsula Regional Open Space District. 2014b. *Integrated Pest Management Program Guidance Manual*. Prepared by May & Associates, Inc., and Ascent Environmental, Inc. Los Altos, CA.

- Midpeninsula Regional Open Space District. 2014c. Integrated Pest Management Program Draft Environmental Impact Report. Prepared by Ascent Environmental, Inc. Los Altos, CA.
- Midpeninsula Regional Open Space District. 2014d (revised). REGULATIONS FOR USE OF MIDPENINSULA REGIONAL OPEN SPACE DISTRICT LANDS. Revised and Adopted by Ordinance No. 14-01, February 12, 2014. Los Altos, CA.
- Midpeninsula Regional Open Space District. 2019. Historic Properties Survey Report and Finding of No Adverse Effect from Proposed Improvements to Starr Hill Road (P-41-002689), Toto Ranch/Tunitas Creek Open Space Preserve, San Mateo County, California. Prepared for the Midpeninsula Open Space District, Los Altos, CA. Prepared by Mark Hylkema, MA, RPA Archaeologist, Past Lifeways Archaeological Studies, Sunnyvale, CA.
- Midpeninsula Regional Open Space Preserve. 2019. El Corte De Madera Creek Preserve. <https://www.openspace.org/preserves/el-corte-de-madera-creek>. Moore, Walter. 2017. POST: From Ravaged Beach to Public Park, November 16. <https://openspacetrust.org/blog/tunitas-creek-beach/>.
- Moyle, P.B. 2002. Inland Fishes of California, University of California Press.
- National Marine Fisheries Service. 2016. Coastal Multispecies Recovery Plan. National Marine Fisheries Service, West Coast Region, Santa Rosa, California.
- Noss, R. F., LaRoe, E. T., III, and Scott, J. M. 1995. Endangered ecosystems of the United States: A preliminary assessment of loss and degradation. Biological Rep. 28, Natl. Biol. Surv., Dept. Interior, Washington, DC.
- Plumpton, D. L., and Lutz, R. S. 1993. Prey selection and food habits of Burrowing Owls in Colorado. Great Basin Nat. 53:299–304.
- Preston, Mel. 2016. Results of Rangeland Monitoring Points on Toto Ranch. Point Blue Conservation. Petaluma, CA.
- Quinn, T. P. 2005. The Behavior and Ecology of Pacific Salmon and Trout. American Fisheries Society and University of Washington Press.
- Regional Water Quality Control Board, San Francisco Bay Region. 2010. Waste Discharge Requirements and Water Quality Certifications for Routine Maintenance Activities for Mid-Peninsula Open Space District, Order No. R2-2010-0083. CIWQS Place ID: 753396 (SMP). Oakland, CA.
- Remsen, J. V., Jr. 1978. Bird species of special concern in California. Calif. Dep. Fish and Game, Sacramento. Wildl. Manage. Admin. Rep. No. 78-1. 54pp.
- Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of Burrowing Owls in a grassland ecosystem. M.S. thesis, Oregon State Univ., Corvallis.
- Rosenberg, D. K., and Haley, K. L. 2004. The ecology of Burrowing Owls in the agroecosystem of the Imperial Valley, California. Studies Avian Biol. 27:120–135.

- San Mateo County. 2016. Hazard Mitigation Plan, July. <https://planning.smcgov.org/sites/planning.smcgov.org/files/documents/files/San%20Mateo%20HMP%20-%20Volume%20I%20-%20Final%20APA.pdf>.
- San Mateo County GIS. 2016. Coastal Zone. https://data-smcmaps.opendata.arcgis.com/datasets/01914b56a4e94e0a92063d08b8fa4b0a_15?geometry=-122.717%2C37.32%2C-122.318%2C37.51.
- San Mateo County GIS. 2013. Tsunami Evacuation Zone. <https://www.arcgis.com/home/item.html?id=8f1501c1a6d44d1ba23647c31b4c9b1d>.
- San Mateo County Municipal Code. Chapter 7.30: Noise Regulations. <https://www.cityofsanmateo.org/DocumentCenter/View/1888/ORDINANCE-NO-2004---16?bidId=>.
- San Mateo County Important Farmlands Map. 2016. California Department of Conservation. Division of Land Resource Protection. Farmland Mapping and Monitoring Program. <ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/smt16.pdf>.
- Schweizer, T., and Chesemore, D. L. 1996. Recent and historical raptor populations in Fresno, Madera, and Merced counties, California. *Trans. W. Section Wildl. Soc.* 32:18–22.
- Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds 1*. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Shuford, W. D., and Metropulos P. J. 1996. The Glass Mountain breeding bird atlas Project: Preliminary results, 1991 to 1995. Report to Inyo Natl. Forest. Available from PRBO Conserv. Science, 3820 Cypress Dr., #11, Petaluma, CA 94954.
- Spautz, H. 1999. Common Yellowthroat brood parasitism and nest success vary with host density and site characteristics. *Studies Avian Biol.* 18:218–228.
- Superior Court of California. 2007. Grand Jury. County of San Mateo, Hall of Justice. Summary of Tsunami Alert and Evacuation on the San Mateo County Coast. https://www.sanmateocourt.org/documents/grand_jury/2006/TsunamiReportFinal.pdf.
- Thompson, C. D., and Anderson, S. H. 1988. Foraging behavior and food habits of Burrowing Owls in Wyoming. *Prairie Nat.* 20:23–28.
- Todd, L. D., and Skilnick, J. 2002. Large clutch size of a Burrowing Owl, *Athene cunicularia*, found in Saskatchewan. *Can. Field-Nat.* 116:307–308.
- United States Department of Agriculture. 1961. Soil Survey of San Mateo Area California. https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA637/0/sanmateo.pdf.
- U. S. Fish and Wildlife Service. 1985. Recovery plan for the San Francisco garter snake (*Thamnophis sirtalis tetrataenia*). Portland Oregon. (No electronic version is available)

- US Fish and Wildlife Service. 2016a. Intra-Service Biological Opinion on the issuance of a 10(a)1(A) permit to the Midpeninsula Regional Open Space District for the San Francisco Garter Snake and California Red-Legged Frog Habitat Enhancement Projects at their Open Space Preserves in San Mateo and Santa Clara counties, California. 08ESMF00-2010-F-0044-2. Sacramento, CA.
- US Fish and Wildlife Service. 2016b. NATIVE ENDANGERED & THREATENED SP. RECOVERY ENDANGERED & THREATENED WILDLIFE, Permit Number: TE225974-2. Issued to Midpeninsula Regional Open Space District. Sacramento, CA.
- U.S. Fish and Wildlife Service. 2016. Information for Planning and Consultation (IPaC). Available online at <https://ecos.fws.gov/ipac/>. Accessed: December 1, 2018.
- Williams, D.F. 1986. Mammalian species of special concern in California. California Department of Fish and Game (pp. 45-46).
- Williams, D.F., J. Verner, H.F. Sakai, and J.R. Waters. 1992. General biology of major prey species of the California spotted owl. USDA Forest Service Gen. Tech. Rep., PSW-GTR-133:207-221.
- York, M., Rosenberg, D. K., and Sturm, K. K. 2002. Diet and food-niche breadth of Burrowing Owls (*Athene cunicularia*) in the Imperial Valley, California. *W. North Am. Nat.* 62:280–287.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.

Appendix A. Rangeland Management Plan

This page intentionally left blank.

Toto Ranch
Tunitas Creek Open Space Preserve
Rangeland Management Plan



PREPARED FOR:

Midpeninsula Regional Open Space District
330 Distel Circle
Los Altos, CA 94022
(650) 691-1200

PREPARED BY:

Clayton Koopmann, California Certified Rangeland Manager (CRM) #M-100
Koopmann Rangeland Consulting
March 2018



CONTENTS

I. Property Summary Information

Easement Summary Information Page 3

II. Executive Summary

Introduction and Background Page 4

III. Purpose of Rangeland Management Plan

Introduction and Background Page 6

IV. Goals & Objectives of RMP

Goals and Objectives Page 6

V. Existing Resources and Infrastructure

Land Use Information Page 10

Improvements Page 12

Soil Description Page 13

Vegetation Descriptions Page 18

Water Sources Page 21

Wildlife Page 23

Existing Agricultural Infrastructure Page 24

Rangeland Condition Page 29

VI. Capacity for Conducting Agricultural Uses

Grazing Capacity Estimate Page 31

Dairy Capacity Page 33

Additional Livestock, Equine, and Poultry Capacity Page 33

Field Crop Capacity Page 34

VII. Management Recommendations & BMPs

Rangeland Livestock Operations..... Page 35
Pathogen Reduction & Risk Management Page 40
Special Status Species Management Page 41
Invasive Plant Control Page 44
Additional Small Livestock Production Page 46

VIII. Improvements & Maintenance Recommendations

Fence Repair and Installation..... Page 46
Road Repairs and Maintenance Page 47
Water Infrastructure Improvements..... Page 47
Vegetation Management Page 47

IX. Recommended Monitoring Protocols

Monitoring..... Page 50

References

References..... Page 55

Certification

CRM (Plan Preparer) Certification Page 56

Attachments:

Attachment - AStock Photos of Toto Ranch, 2017
Attachment - B.....Guidelines for RDM Monitoring, UC ANR
Attachment – C Vegetation Composition Species List (Observed)
Attachment – DCRLF Management Recommendations for Toto Ranch

I. PROPERTY SUMMARY INFORMATION:

Owner(s): Midpeninsula Regional Open Space District

Contact Person: Coty Sifuentes-Winter, Natural Resources Department

Phone Number: (650) 691-1200

Property Address: 20800 Cabrillo Highway S.
Half Moon Bay, CA 94019

Mailing Address: 330 Distel Circle
Los Altos, CA 94022

Date of Property Acquisition: November 30, 2012

Conservation Easement: 2007

Easement Holder: Coastside Land Trust; Reassigned to Peninsula Open Space Trust (POST) upon acquisition by Midpeninsula Regional Open Space District (Midpen) in 2012.

Assessor's Parcel #
And Acreage: 081-060-101; 081-060-100; 081-060-110; 081-060-120 / 952.49 acres

Major watershed: Tunitas Creek

Type of land use: Livestock grazing/Residential

Zoning: PAD, Planned Agricultural District

Location

Description: Toto Ranch is located on the east side of Highway 1 in unincorporated San Mateo County, approximately 9 miles south of Half Moon Bay and 1 mile north of the town of San Gregorio. Toto Ranch is adjacent to State Highway 1 and is bordered to the north by Tunitas Creek. Private grazed rangelands are present to the south and east of Toto Ranch. Toto Ranch is accessed via a paved/gravel driveway off Highway 1.

II. EXECUTIVE SUMMARY: Rangeland Management Plan (RMP)

PROPERTY DESCRIPTION & HISTORY:

The Toto Ranch property (Ranch) is located within the San Mateo County Coastside Protection Area in unincorporated San Mateo County approximately 9 miles south of the town of Half Moon Bay, California (Exhibit-A). The Ranch is comprised of four (4) assessor's parcel numbers totaling 952.49 acres located to the east of and adjacent to State Highway 1 and bordered to the north by Tunitas Creek and Dry Creek. The Ranch is north-northwest facing and topography primarily ranges from gently rolling to moderately steep slopes with two steep canyons that run south-north into the Tunitas Creek stream corridor. The level to gently rolling areas of the Ranch support annual grasslands and coastal scrub habitat with heavy coyote brush encroachment. The steeper canyon areas are comprised of dense brush and riparian corridors. Eucalyptus trees and Monterey Cypress are present in the farmyard area as well as a large, dense, eucalyptus stand east of the farmstead. Elevation ranges from 20 feet near Tunitas Creek in the northwest corner to 885 feet on the ridge top along the south border.

Historically the Ranch was used for production agriculture, with active row crop farming on the swales and ridge tops during the mid-1900's. Presently the Ranch is used primarily for cattle grazing. The existing tenant resides on the property and grazes beef cattle year round on the grassland portion of the Ranch. In addition to cattle grazing, the tenant raises a variety of domestic livestock including horses, chickens, pigs, goats, sheep, alpacas, and milk cows in the farmstead area located near the center of the property. Livestock infrastructure includes adequate perimeter fence, livestock water troughs, a functional corral/processing facility, and "cow tight" interior pasture fencing. Water troughs around the farmstead area and front pastures are fed via a windmill powered well and residential water is provided via a natural spring just south of the farmstead. Two perennial stockponds, multiple springs, and ten (10) seasonal ponds/catchments are located throughout the Ranch providing water for livestock and valuable habitat for wildlife. The Ranch drains south to north into Dry Creek and Tunitas Creek, totaling approximately 9,000 feet of perennial stream frontage. Tunitas Creek is a direct tributary to the Pacific Ocean.

OWNERSHIP AND MANAGEMENT GOALS:

Toto Ranch was acquired by Midpeninsula Regional Open Space District (Midpen) in 2012 with an agricultural conservation easement (Easement) in place covering the entire property. Midpen's conservation grazing goals are to manage District land utilizing livestock grazing that is protective of natural resources and compatible with public access; to maintain and enhance the diversity of native plant and animal communities; manage vegetation fuel for fire protection; help sustain the local agricultural economy, and preserve and foster appreciation for the region's rural agricultural heritage. In order to achieve the goals of the conservation grazing program, this

Rangeland Management Plan (RMP) will provide a framework around which resource managers, land managers, and grazing tenants can make rangeland management decisions on the Ranch with adaptive management changes.

As stipulated in this RMP, conservation management practices are to be implemented by Midpen and the grazing lessee for all grazing areas of the Ranch, and applied specifically to livestock grazing operations and rangeland management. Conservation management practices include but are not limited to; maintenance and construction of livestock water developments (including onsite ponds), livestock fencing and corrals, ranch roads, and vegetation management to protect and enhance habitat for wildlife, native flora, and water quality and fire protection. Shrubland and forest areas that are not suitable for livestock grazing provide valuable wildlife habitat and should be managed to protect and enhance habitat value and connectivity for wildlife migration.

MANAGEMENT RECOMENDATIONS & RESPONSIBILITIES:

The Ranch should be operated by one lessee with a multi-year grazing lease. Conservation grazing using cattle should continue on rangeland portions of the Ranch outside of the farmstead area. Cattle loading/off-loading and processing should occur in the corral located within the farmstead area. All domestic livestock production including horses, sheep, goats, chickens, pigs, turkeys, etc. should be confined to the farmstead area.

The Ranch should be grazed year round, dependent upon available forage and livestock water, with cattle rotated between the five (5) existing pastures. If available forage and/or stock water is not adequate to support grazing livestock, cattle should temporarily be removed from the Ranch or grazing restricted to seasonal use. Water use shall be prioritized for cattle grazing the rangeland pastures under the conservation grazing program with secondary water use applied to domestic livestock within the farmstead area.

The estimated stocking rate for an average forage production year is 632.0 Animal Unit Months (AUMs) or 53 animal units year round, but would significantly increase with a reduction in coyote brush in the grasslands. Stocking rates for the Ranch will vary annually based on available forage and water and should be adjusted accordingly to accommodate available resources.

The monitoring program for grazed Midpen land must ensure that specified rangeland uses are in compliance with the applicable land use regulations and the land stewardship goals, objectives, and implementing guidelines. Midpen staff will use rangeland/habitat health checklists and photo point monitoring forms to monitor grasslands annually in the fall prior to rainfall.

III. Purpose of Rangeland Management Plan

The purpose of this RMP is to provide a framework for resource managers, land managers, and grazing tenants to make rangeland management decisions on the Ranch resulting in adaptive management changes to grazing practices, as needed (e.g. stocking rate reduction due to drought). The RMP addresses appropriate rangeland management practices for soil and water conservation, erosion control, pest management, nutrient management, water quality, and habitat protection on the Ranch.

This RMP should be reviewed at least every 10 years, or sooner, and updated in the event of significant changes in land use or management practices, or a change in ownership. An updated RMP may expand the specific plan for the conduct of commercial agricultural uses to include activities that are not currently being conducted on the Toto Ranch, but that are consistent with the Easement and resource management policies of Midpen.

IV. Goals and Objectives of RMP

The goals and objectives of the Rangeland Management Plan are to:

- A. Describe appropriate historic, current, and potential future agricultural uses.
- B. Inventory existing agricultural resources, including soils, water sources, grassland vegetation, forage quality and production, croplands, and infrastructure.
- C. Determine capacity for conducting viable agricultural uses.
- D. Establish provisions for minimizing erosion and transport of potential pollutants into creeks.
- E. Provide a list of Best Management Practices (BMPs) for climate related impacts, grazing standards, invasive species management, water resources and conservation.
- F. Provide specific guidance for the conduct of agricultural uses that complies with the restrictions contained in the Easement. The plan will include, as appropriate, Animal Unit Equivalent (AUE), ranch forage production estimates, available forage, crop production estimates, and capacity for any other agricultural uses described in the RMP.

The Coastal Annexation Area Mission Statement of Midpen is ^[1]:

"To acquire and preserve in perpetuity open space land and agricultural land of regional significance, protect and restore the natural environment, preserve rural character, encourage viable agricultural use of land resources, and provide opportunities for ecologically sensitive public enjoyment and education. The District will accomplish this mission as a cooperative endeavor with public agencies, non-profit organizations, and individuals with similar goals."

In the spirit of the Mission Statement, in September 2006 Midpen formulated Goals, Policies, and Implementation Measures for potential areas of grazing land within the District

GOAL:

Manage District land with livestock grazing that is compatible with public access, to maintain and enhance the diversity of native plant and animal communities, manage vegetation fuel for fire protection, sustain the local agricultural economy, and preserve and foster appreciation for the region's rural agricultural heritage.

GRAZING MANAGEMENT POLICIES:

Policy GM-1: Ensure that grazing is compatible with and supports wildlife and wildlife habitats.

Policy GM-2: Provide necessary infrastructure to support and improve grazing management where appropriate.

Policy GM-3: Monitor environmental response to grazing on District lands.

Policy GM-4: Utilize different livestock species to accomplish vegetation management objectives.

Policy GM-5: Preserve and foster existing and potential grazing operations to help sustain the local agricultural economy.

Policy GM-6: Provide information to the public about the region's rural agricultural heritage.

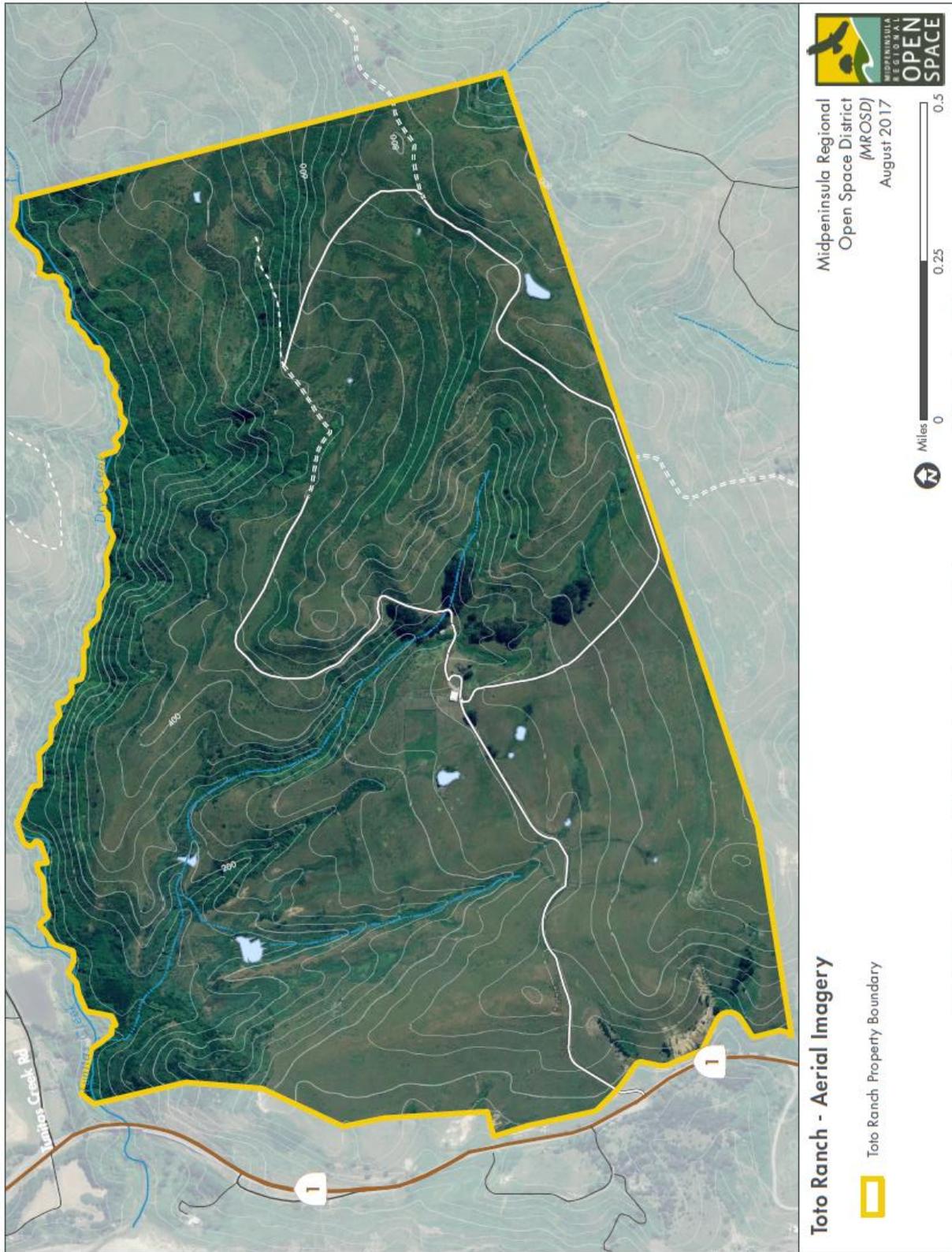
Policy GM-7: Provide public access in a manner that minimizes impacts on the grazing operation.

Policy GM-8: Grazing operations on District lands in the Coastside Protection Area will be managed in accordance with the policies established in the Service Plan for the San Mateo County Coastal Annexation Area.



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

EXHIBIT – B



V. Existing Resources and Infrastructure:

Agricultural resources include elements necessary to continue agricultural uses on the Toto Ranch. These include appropriate soils, sufficient water, adequate forage, and supporting infrastructure. These agricultural resources are described below to establish the fact that the Toto Ranch is capable, at a minimum, of sustaining the current agricultural uses and that it has the potential to sustain additional agricultural uses supported by the agricultural resources.

LAND USE INFORMATION

HISTORIC LAND USE:

The property was originally owned by Alexander Gordon, a State assembly member, who in 1872 built Gordon's Chute near the mouth of Tunitas Creek, an ill-fated ramp for sliding farm goods from the top of the cliffs to ships anchored in the rolling surf. Gordon's Chute was blown away in a heavy storm in 1885 ^[2]. The Machado family, originally from Portugal, settled the property in the late 1800s, and ranched on the property for close to 100 years. The property was historically grazed with Holstein dairy cows and many of the hillsides and ridgetops were dryland farmed with hay and oats ^[2]. The Scutchfield family acquired the Ranch in the late 1970s and cattle grazing continued while farming operations ceased ^[3]. In 2008, POST purchased the property from the Scutchfield family. Midpen purchased the property from POST in 2012 and continued grazing operations with the existing residential/grazing tenant, Erik and Doniga Markegard. The property has been continuously grazed for over 120 years.

CURRENT LAND USE:

The Markegard family leases the property and resides on the Ranch (separate residential lease). The Ranch is currently used primarily for grass-fed beef cattle production on the productive and accessible grasslands. The tenant also produces a number of other agricultural commodities including pasture pork, chickens, eggs, goats, lambs, and turkeys that are marketed through a Community Supported Agriculture (CSA) purchasing program ^[4]. A small number of dairy cows are maintained for milk production as part of a cooperative Herd Share arrangement. The tenant hosts agricultural workshops and field days on the Ranch throughout the year. In addition to cattle, a number of horses and llamas/alpacas/emus are kept on the property and currently graze the grasslands outside of the farmstead area.

Current land uses on the ranch include:

Livestock grazing (Beef Cattle) - Approximately 941 acres
Farmstead Area – Approximately 11.3 acres
(House, barns, corrals, and flight pens)

SURROUNDING LAND USE:

The surrounding rural landscape is dominated by established ranches used primarily for beef cattle production and row crop production. The region has undergone a recent increase in poultry, grass-fed meat, and egg production as well as farmstead creamery products. The highly productive flats in the region, where farmable, are ideal for certain vegetable crops, hay, and cut flower production.

The adjacent properties to the east and south of Toto Ranch are primarily grazed rangeland with associated residential/farm buildings. The land that borders the Ranch to the north includes a number of small residential lots and small farm fields in addition to grazed rangelands. State Highway-1 and the Pacific Ocean border the Ranch to the west.

In a regional context, for San Mateo County, agricultural production continues to provide significant total gross revenue value of \$135,440,500 annually ^[5]. According to the San Mateo County Crop Report, livestock ranchers struggled with drought over the past several years resulting in an estimated decline of 22 percent in stocking rates; however, livestock numbers recovered well through 2016 posting a 14 percent increase over 2015.



Figure-1: Looking south over the Toto Ranch. Highway-1 and the Pacific Ocean to the right with surrounding rangelands to the south and east of the Ranch. Several small residential parcels neighbor Toto Ranch, located along the north side of Tunitas Creek. Note the heavily wooded, steep Dry Creek and Tunitas Creek riparian corridors (bottom of photo) that comprises much of the northern border of the Ranch. Photo Credit – POST.



IMPROVEMENTS

BUILDINGS:

The Ranch headquarters is located at 20800 Cabrillo Highway South and is accessed directly off Cabrillo Highway South (Highway 1) via a $\frac{3}{4}$ mile long paved/gravel driveway. All structures on the Ranch are located within residential lease area (Exhibit-C). The tenants currently reside in a recently improved 2,620 sf. ranch house. Other buildings within the farmstead area include a modern 4,390 sf. metal-sided barn, a wooden barn, and several small outbuildings and sheds [2].

The farmstead location is visible from Highway-1 and portions of Tunitas Creek Road. Improvements within the main farmstead area include:

- 2,620 ft² residence (renovated in 2012) – Good condition
- 4,390 ft² metal-sided barn with utilities – Excellent condition
- 1,325 ft² Hay Barn – Fair condition with damage to roof

ELECTRICITY AND ACCESS EASEMENTS:

Electricity is provided to the Ranch headquarters by Pacific Gas and Electric (PG&E) via utility poles that cross the ranch, stemming from a main line on Tunitas Creek Road. Municipal water is not available on the Ranch.

Figure-2: Aerial view of the farmstead area and associated buildings including hay barn (bottom right), residence (center), metal-sided shop/barn (top left) and the livestock corral (top center).

Table-1: Delineation of soil types per acre and percent on the Toto Ranch.

SOIL SURVEY DATA – TOTO RANCH, SAN MATEO COUNTY, CA			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CLC2	Colma loam, sloping, eroded	27.6	2.9
CID2	Colma loam, moderately steep, eroded	115.9	12.2
CIE2	Colma loam, steep, eroded	61.1	6.4
ClF2	Colma loam, very steep, eroded	23.0	2.4
CmF3	Colma sandy loam, steep and very steep, severely eroded	20.7	2.2
Gbf2	Gazos loam, very steep, eroded	58.5	6.1
GsE2	Gazos and Lobitos stony loams, steep, eroded	1.9	0.2
GsF2	Gazos and Lobitos stony loams, very steep, eroded	21.0	2.1
LIE2	Lobitos loam, steep, eroded	11.8	1.2
LIF2	Lobitos loam, very steep, eroded	80.7	8.5
Ma	Mixed alluvial land	12.5	1.3
Rb	Rough broken land	45.7	4.8
SkB	Soquel loam, gently sloping	0.6	0.1
Ta	Terrace escarpments	0.6	0.1
TcD2	Tierra clay loam, moderately steep, eroded	7.8	0.8
TeC2	Tierra loam, sloping, eroded	7.8	0.8
TeD2	Tierra loam, moderately steep, eroded	19.0	2.0
TeE2	Tierra loam, steep, eroded	256.2	26.9
TeE3	Tierra loam, steep, severely eroded	175.9	18.5
TxB	Tunitas loam, gently sloping	4.5	4.7
WmD2	Watsonville loam, moderately steep, eroded	0.9	0.1
WmE3	Watsonville loam, moderately steep and steep severely eroded	2.7	2.8
Totals for Area of Interest (AOI)		952.3	100.0%

The **Colma and Colma loam** soils series consists of deep, well drained soils that formed in material weathering from softly consolidated or weakly consolidated marine sediments. Colma soils are on the foothills and have slopes of 9 to 75 percent. The mean annual precipitation is about 27 inches ^[6]. Used mainly for range and watershed lands, small areas have been cleared and planted to hay/silage. Where not farmed, typical vegetation composition consists of coyote brush, Lupine, and poison oak, with an understory of annual grasses and forbs with a few perennial grasses ^[6]. Colma soils are well drained with medium to rapid runoff, suitable for year-round use by grazing livestock without impacting soil stability or creating soil compaction provided prescribed levels of forage are left on the ground.

The **Gazos loam** soil series consists of moderately deep to bedrock, well drained soils that formed in material weathered from sandstone and shale. Gazos soils are on hills and have slopes of 9 to 75 percent. The mean annual precipitation is about 22 inches ^[6]. Used mostly for livestock grazing, a few areas have been cultivated for growing small grains and hay. Where not cultivated, vegetation primarily consists of annual grasses and forbs with brush and some oak trees ^[6]. Gazos loam soils are well drained with high to very high runoff and moderately slow permeability making them suitable for year-round grazing by livestock. It is important to leave adequate levels of forage on the soil surface to protect soil integrity and minimize the risk of erosion.

The **Lobitos loam** soil series consists of moderately deep, well drained soils that formed on moderately hard sandstone and shale. Lobitos soils are on uplands and have slopes of 5 to 50 percent. The mean annual precipitation is about 30 inches ^[6]. Used mostly for pasture and rangeland, some areas have been cultivated to grow grain, hay, barley, and flax. Where not cultivated, vegetation primarily consists of annual grasses and forbs with some brush including coyote brush, cascara berry, and poison oak ^[6]. Lobitos loam soils are well drained with moderate to rapid runoff and moderately slow permeability making them suitable for year-round grazing by livestock. It is important to leave adequate levels of forage on the soil surface to protect soil integrity and minimize the risk of erosion.

The **Tierra** soil series consists of deep, moderately well drained soils that formed in alluvial materials from sedimentary rocks. Tierra soils are on dissected terraces and low hills and have slopes of 2 to 50 percent. The mean annual precipitation is about 18 inches ^[6]. Used for grazing, growing grains, and growing small grains, and small areas for growing a large number of crops, though many cultivated areas have been reverted to grass. Where not cultivated, vegetation composition is primarily annual grasses and forbs ^[6]. Tierra soils are moderately well drained with slow to rapid runoff and very slow permeability. Tierra soils are suited to year-round livestock grazing, though areas with notably slow permeability are susceptible to soil compaction and grazing should be delayed until soil is firm enough to withstand grazing pressure, typically summer and fall months.

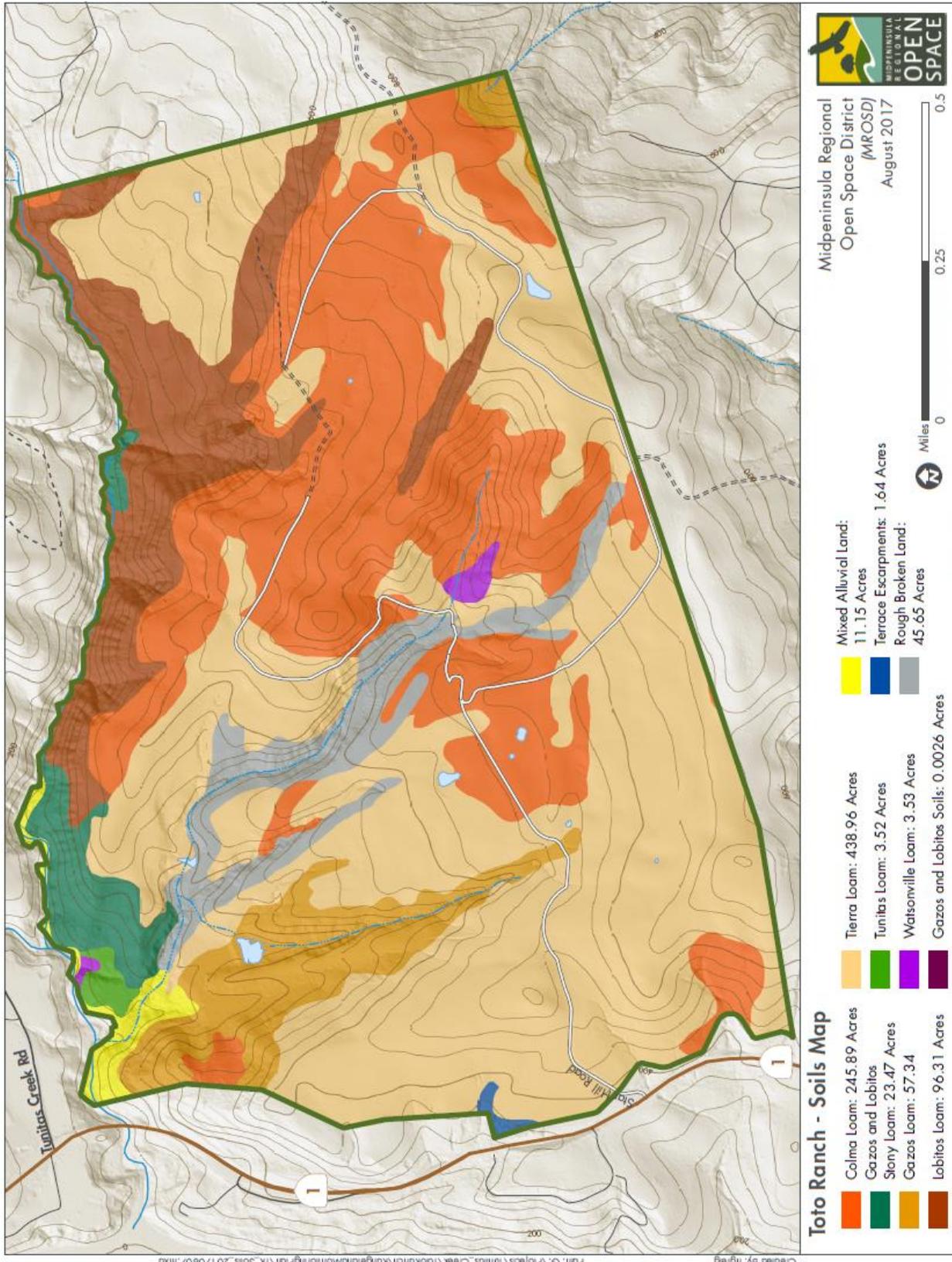
The **Tunitas** soil series consists of very deep, moderately well drained soils. They have formed from fine textured alluvium from mixed basic igneous and sedimentary rock sources. Tunitas soils are on nearly level to moderately steep fan terraces and alluvial fans. The mean annual precipitation is about 25 inches ^[6]. Most bodies of this soil class are cultivated, primarily used to grow crops including artichokes Brussels sprouts, flax, small grains, and grain hay. Some sites are used as irrigated pasture for grazing ^[6]. Tunitas soils are moderately well drained with slow to medium runoff and slow permeability. Areas often receive excess water by runoff from surrounding lands and lower lying areas may have temporary high water table during rainy seasons (winter). These soils are very limited on the Ranch but grazing should occur during dry summer months when soils are firm enough to withstand grazing pressure.

The **Watsonville** soil series consists of deep, somewhat poorly drained soils that formed in alluvium. Watsonville soils are on old coastal terraces and valleys and have slopes of 0 to 50 percent. The mean annual precipitation is about 28 inches ^[6]. Watsonville soils are commonly

used as irrigated pasture and to grow field crops, row crops, and specialty crops such as strawberries and Brussels sprouts. Where not cultivated, vegetation typically consists of annual grasses, forbs, and a few coastal chaparral plants ^[6]. These soils are somewhat poorly drained because perched water tables occur during periods of heavy water applications. Slow to rapid runoff and very slow permeability make Watsonville soils very susceptible to soil compaction. Livestock grazing should be delayed until dry summer months when soils are firm enough to withstand grazing pressure.

On steeper, more erosion-prone slopes and riparian corridors susceptible to soil compaction, grazing should be delayed until soil is firm enough to withstand grazing pressure without impacting soil stability. Livestock grazing should be managed to protect the soil from erosion as loss of the surface layer can severely decrease forage productivity. The risk of erosion can be reduced by maintaining adequate plant cover and allowing sufficient residual dry matter (RDM) to remain on the soil surface at the conclusion of the grazing season.

DRAFT



VEGETATION DESCRIPTION

Overall existing rangeland conditions on the grazed pastureland on the Toto Ranch range from poor to excellent, depending on the forage type, presence of invasive vegetation, and RDM. Infestations of coyote brush and invasive thistles have historically reduced the quality of range conditions by outcompeting desirable vegetation and acting as a barrier to shade out seedlings of desirable vegetation on much of the Ranch. The majority of the ranch is comprised of rolling open grasslands/coastal scrub, heavily influenced by coyote brush encroachment. The steep drainages and riparian corridors are comprised of dense brush/woody vegetation and willows. A large stand of eucalyptus trees are present just east and south of the farmstead area. Overall, the vegetation diversity and level of desirable vegetation on the Ranch is excellent and supports an abundant, diverse wildlife population while maintaining a highly productive agricultural value.

RANGELAND PASTURES:

A combination of annual grassland and coastal scrub habitat covers approximately 60-65 percent of the Ranch comprised of a diverse vegetation composition, ranging from 100 percent annual grassland to areas heavily influenced by coyote brush. The vast majority of the grassland forage species are introduced non-native palatable grasses and low forbs that are desirable for livestock grazing. Grassland and scrubland habitats are present on the ridge tops and gentle slopes throughout the Ranch. Upland slopes and ridge tops on the Ranch were historically dryland farmed but were returned to grazed pastureland during the 1970s. These areas are highly productive and relatively free of invasive thistles, except for sparse patches. Dense woody vegetation dominates many of the small drainages and steeper canyon lands within the grazed pasture. While these areas provide little palatable forage for livestock, they provide shaded locations for loafing, particularly along fringe areas adjacent to the grasslands. Vegetation diversity and overall forage production have historically been limited in the lower-lying portions of the ranch, dominated in many areas by dense brush and willows. Invasive plant control efforts by the landowner have reduced the presence and dispersal of invasive vegetation on the Ranch when compared to historic levels. In addition to invasive plant control, the tenant has mowed coyote brush for several years, increasing desirable forage in many of the front pastures between the farmstead and Highway-1. A comprehensive vegetation assessment was conducted on April 11, 2017, included as Attachment-C to this plan.



Figure-3: Exemplary upland habitat on the Toto Ranch comprised annual grasslands impacted by coyote brush encroachment. Many of the grassland/scrub habitat is comprised of about 60 percent annual grassland and 40 percent coyote brush.

RIPARIAN AND AQUATIC HABITAT:

A number of ephemeral streams originate on the Toto Ranch, flowing south to north into Dry Creek and Tunitas Creek. Tunitas and Dry Creeks are perennial streams that flow east to west along the north border of the Ranch. Vegetation types within the riparian corridors are very similar across the Ranch, comprised of dense woody vegetation including brush, willows, alders, and boxelder trees.

Two (2) perennial stockponds, one (1) seasonal stockpond, and several smaller seasonal catchments are present on the Ranch. In addition, a number of natural springs are located throughout the Ranch. Vegetation composition around the ponds is primarily annual grassland and coyote brush with the exception of the “Quarry Pond” which is surrounded by willows. Aquatic habitat adjacent to and within the stockponds consists of sedges, rushes, and a variety of other aquatic species. Stockponds and catchments located in the grasslands tend to have invasive thistles around them. A list of riparian and aquatic vegetation species observed during the April 2017 site visit are listed in Table 2.1 below.

Table 2.1 – Riparian and aquatic vegetation observed during an April 2017 site visit includes:

<u>RIPARIAN/AQUATIC VEGETATION (OBSERVED) – April 2017</u>	
<u>Latin Name</u>	<u>Common Name</u>
<i>Acer negundo</i>	Boxelder
<i>Alnus rhombifolia</i>	White alder
<i>Alnus rubra</i>	Red alder
<i>Azola filiculoides</i>	Water fern
<i>Carex bolanderi</i>	Bolander’s sedge
<i>Carex spp.</i>	Sedges
<i>Eleocharis macrostachya</i>	Pale spikerush
<i>Hydrocotyle ranunculoides</i>	Water pennywort
<i>Juncus bufonius</i>	Toad rush
<i>Juncus effuses</i>	Soft rush
<i>Juncus patens</i>	Spreading rush
<i>Juncus phaeocephalus</i>	Brown-headed rush
<i>Juncus spp.</i>	Rushes
<i>Juncus xiphioides</i>	Irisleaf rush
<i>Luzula comosa</i>	Pacific woodrush
<i>Nasturtium officinale</i>	Watercress
<i>Oenanthe sarmentosa</i>	Water parsley
<i>Typha latifolia</i>	Cattails
<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Rumex crispus</i>	Curly dock
<i>Salix spp.</i>	Willows

INVASIVE VEGETATION:

Invasive vegetation has historically impacted the growth of desirable vegetation including forage for grazing livestock. During an April 2017 site visit, a few scattered individual woolly distaff (*Carthamus lanatus*) plants were identified in the flats near the farmstead. Milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*) and bull thistle (*Cirsium vulgare*) are found in scattered locations across the Ranch in low densities, though these thistles tend to vary in abundance annually based on precipitation patterns but typically don't dominate grasslands under moderate grazing conditions in San Mateo County.

Onion grass (*Romulea rosea*) is found growing throughout the annual grasslands across many parts of the Ranch. Onion grass occurrences in San Mateo County are becoming more common but have not yet been rated by the California Invasive Plant Council (Cal-IPC). Onion grass is a small, erect perennial herb with bulbous roots and produces a small purple flower in the spring (Figure-4). Onion grass is difficult for grazing animals to digest and if consumed in large quantities, can create a fiber block in cattle. There are currently no viable treatments or control measures recommended for onion grass on rangelands.

Invasive plants found in the riparian corridor are primarily limited to fennel (*Foeniculum vulgare*), Himalayan blackberries (*Rubus armeniacus*), and poison hemlock (*Conium maculatum*). French broom (*Genista monspessulana*), a woody perennial, has become established in portions of Tunitas and Dry Creek. French broom is classified as a "High" concern by Cal-IPC as it spreads rapidly and will outcompete desirable vegetation. See Invasive Weed Control in Section VII for management recommendations.

Table 2.2 – Cal-IPC Rate Invasive plant species list.

INVASIVE VEGETATION (OBSERVED) – April 2017

<u>Latin Name</u>	<u>Common Name</u>	<u>Cal-IPC Rating</u>
<i>Carduus pycnocephalus</i>	Italian Thistle	Moderate
<i>Carthamus lanatus</i>	Woolly distaff thistle	Moderate (alert)
<i>Cirsium vulgare</i>	Bull Thistle	Moderate
<i>Conium maculatum</i>	Poison hemlock	Moderate
<i>Cortaderia jubata</i>	Purple pampas grass	High
<i>Delairea odorata</i>	Cape Ivy	High
<i>Foeniculum vulgare</i>	Fennel	High
<i>Genista monspessulana</i>	French Broom	High
<i>Helminthotheca ecioides</i>	Bristly Ox-tongue	Limited
<i>Silybum marianum</i>	Milk Thistle	Limited

Table 2.3 – Rangeland weeds not desirable for livestock grazing.

INVASIVE VEGETATION (OBSERVED) – April 2017

<u>Latin Name</u>	<u>Common Name</u>	<u>Cal-IPC Rating</u>
<i>Baccharis pilularis</i>	Coyote brush	Not Rated
<i>Romulea rosea</i>	Onion Grass	Not Rated
<i>Solanum furcatum</i>	Forked nightshade	Not Rated
<i>Solanum douglasii</i>	Greenspot nightshade	Not Rated
<i>Xanthium spinosum</i>	Spiny cocklebur	Not Rated



Figure-4: Onion grass (*Romulea rosea*) found on the Toto Ranch. Note the small purple flower and bulbous root balls.

WATER SOURCES

The Toto Ranch has historically lacked ample water supply, particularly under drought conditions, to provide adequate residential and stock water year round. Livestock water within the farmstead and pastureland adjacent to the farmstead is provided through a number of water troughs. The water troughs are supplied via two (2) wells on the ridge near the south property boundary; one well is pumped via a solar pump and the second via a windmill (Figure-5). In addition to the developed water systems, a network of stockponds and seasonal catchments provide stock water throughout the Ranch. A number of natural springs are present but not currently developed to provide stock water. Livestock do not have access to Tunitas Creek or Dry Creek and creeks are not considered viable water sources for the livestock operation.

Residential water for the farmstead area is provided via a natural spring located on the ridge to the south of the farmstead. Refer to Toto Ranch Water Infrastructure Map (Exhibit-E).

Figure-5: Windmill powered well located on the ridge along the southern property boundary. Well water is pumped into storage tanks and then flows via gravity to the farmstead area where water is provided to livestock in a number of water troughs.





While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

WILDLIFE

Wildlife is abundant throughout the Toto Ranch. The riparian corridors, particularly around the stockponds, provide habitat for various aquatic and amphibian species, including the federally listed California red-legged frog (CRLF). Black tailed deer, coyote, bobcats, badgers and many other animals are present on the Ranch.

Special Status Species¹

The California Natural Diversity Database lists a number of special status wildlife species found within the Tunitas Creek watershed, most of which are found in the lower reaches and tidal areas. A large group of Midpen staff and specialized biologists surveyed Toto Ranch in April of 2017 and developed a comprehensive list of wildlife species observed on the Ranch. Special status wildlife species potentially found in the upper portions of the watershed, and found either historically or currently on the Toto Ranch include:

A. Animals

AMPHIBIANS/REPTILES:

Rana draytonii, California red-legged frog - Federal threatened, CA species of special concern
Thamnophis sirtalis tetratania, San Francisco garter snake – and State Federal endangered

BIRDS:

Athene cunicularia, Burrowing owl – CA species of special concern
Circus cyaneus, Northern Harrier – CA species of special concern
Geothlypis trichas sinuosa, San Francisco common yellowthroat – USFW bird of conservation concern & CA species of special concern
Selasphorus sasin, Allen’s Hummingbird - USFW bird of conservation concern

FISH:

Oncorhynchus kisutch, Coho Salmon - Federal endangered & State endangered
Oncorhynchus mykiss irideus, Steelhead Trout – Federal threatened

MAMMMALS:

Neotoma fuscipes annectens, San Francisco dusky-footed woodrat – CA species of special concern
Taxidea taxus, American badger – CA species of special concern

B. Plants

Plagiobothrys chorisianus var. chorisianus, Choris’ popcorn flower – CNPS Rank 1B.2 & Midpen BMP

¹ This information is used for planning purposes only

EXISTING AGRICULTURAL INFRASTRUCTURE

➤ Agricultural Buildings

Agricultural buildings located on the Ranch include a 4,390 ft.² metal-sided barn/shop with utilities and a 1,325 ft.² hay barn. The metal-sided barn/shop building is located in the main yard, includes running water, power, concrete floor, and is in good condition. The hay barn is located just east of the residence and is in fair condition structurally; however, the roof is in poor condition.

➤ Corrals and Congregation Areas

A set of wood livestock corrals are located within the farmstead area used for processing and shipping/receiving livestock. The corrals are old but in fair condition and function adequately for the existing livestock operation on the Ranch. The corral is accessible year-round by truck/trailer and semi-trucks via an all-weather gravel road.

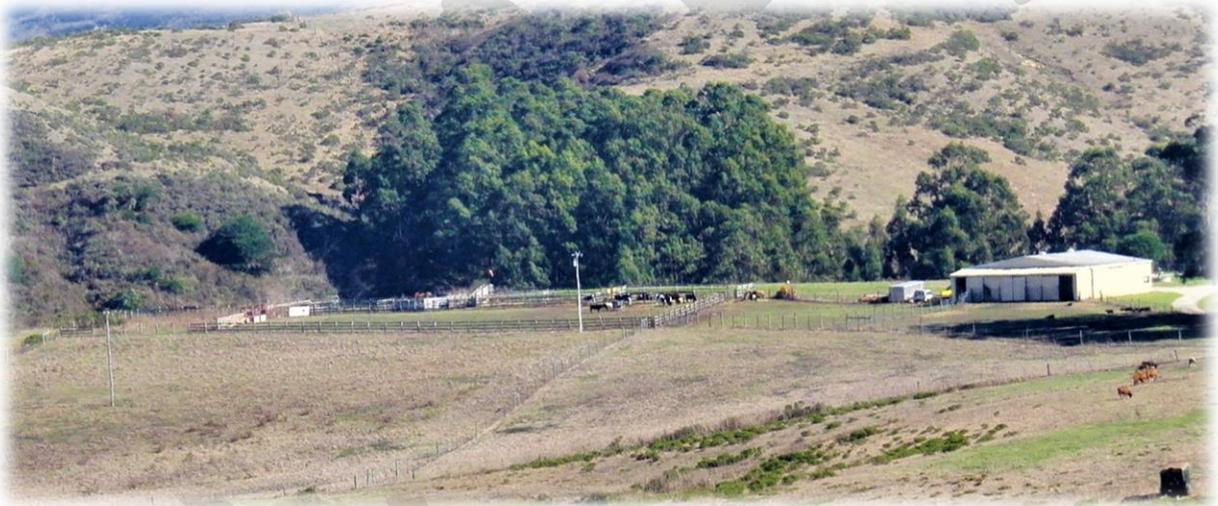


Figure-6: Wooden livestock corral with metal-sided barn/shop building (right). Small pastures or flight pens are ideal for running sheep, goats and other small livestock (foreground).

➤ Water Sources

Water is provided to livestock primarily through a number of plastic, concrete, and galvanized water troughs located within the farmstead area and nearby pastures. All water troughs should be equipped with wildlife escape ramps to prevent entrapment of wildlife. Water is primarily supplied by a windmill/well and solar pump/well. Water is collected in one 2,500 gallon and two (2) 5,000-gallon water storage tanks near the wells and flows via gravity to the farmstead before distribution to the troughs in/around the farmstead.

A network of fourteen (14) stockponds and seasonal water catchments provide stock water throughout the remainder of the Ranch, though water is often seasonal, particularly under drought conditions. Livestock tend to rely primarily on trough water around the farmstead during late summer and fall months. Increased water distribution and placement of new water troughs would increase livestock distribution and forage utilization in more remote pastures. Residential water is provided via a natural spring above the residence, collected in a 5,000-gallon water storage tank, and then pumped to the house.



Figure-7: A plastic water trough in the pasture south of the residence. Note the invasive thistle and poison hemlock growing around the trough. These plastic troughs are designed to be temporary and should be replaced with galvanized or concrete troughs in grazed pastures. A wildlife escape ramp is missing from this trough and should be installed to protect wildlife that may fall into the water.

➤ Roads

State Route-1 (Cabrillo Highway), a well-traveled, paved State Highway delineates the west property boundary of the Ranch for approximately 1.2 miles. The main entrance to the Ranch originates off State Route-1, comprised of a paved/gravel road. The driveway, part of historic Star Hill Road, continues east for approximately 3/4 of a mile to the farmstead area. The driveway, where paved is in good condition; however the gravel sections are in poor condition with numerous large potholes. The driveway receives heavy year-round use by the residential/grazing tenant with added impacts from the many field day events the tenant hosts. While the gravel section of the driveway is in poor condition, when properly maintained, the driveway poses no risk to downstream water quality.

In general, roads on the Ranch are in fair to good condition, though minimally maintained. Most Ranch roads are minimally graded with native vegetation ground cover present, often times delineated by vehicle tracks in the vegetation from continued use by the tenant. While many of the roads are stable and in good condition, several areas are impacted by active gullying/rutting from surface water flow. Winter rains will continue to cause damage to the road surface and potentially transport sediment into local streams. In addition, a number of roads, particularly along the back half of the Ranch, are overgrown with brush creating hazardous access conditions for vehicles and pose a fire risk from vehicle ignition sources during hot dry conditions.

A ranch road beginning in the farmstead and looping around to the back half of the Ranch is impassible due to a large seep/spring creating a mud bog. The road was historically accessible but has not been used in several years. If road repairs are undertaken in this location, (installation of culvert or ford crossing, road reroute, or other) engineering oversight should ensure correct sizing and placement of erosion control features, to allow access and protection of wetland features associated with the spring.



Figure-8: Gully/rutting activity along an insloped road just south of the farmstead. Large gully caused by surface water flow during winter storm events. Road should be re-graded and water diversion points installed to relieve surface flow to protect the integrity of the road.

➤ Fencing

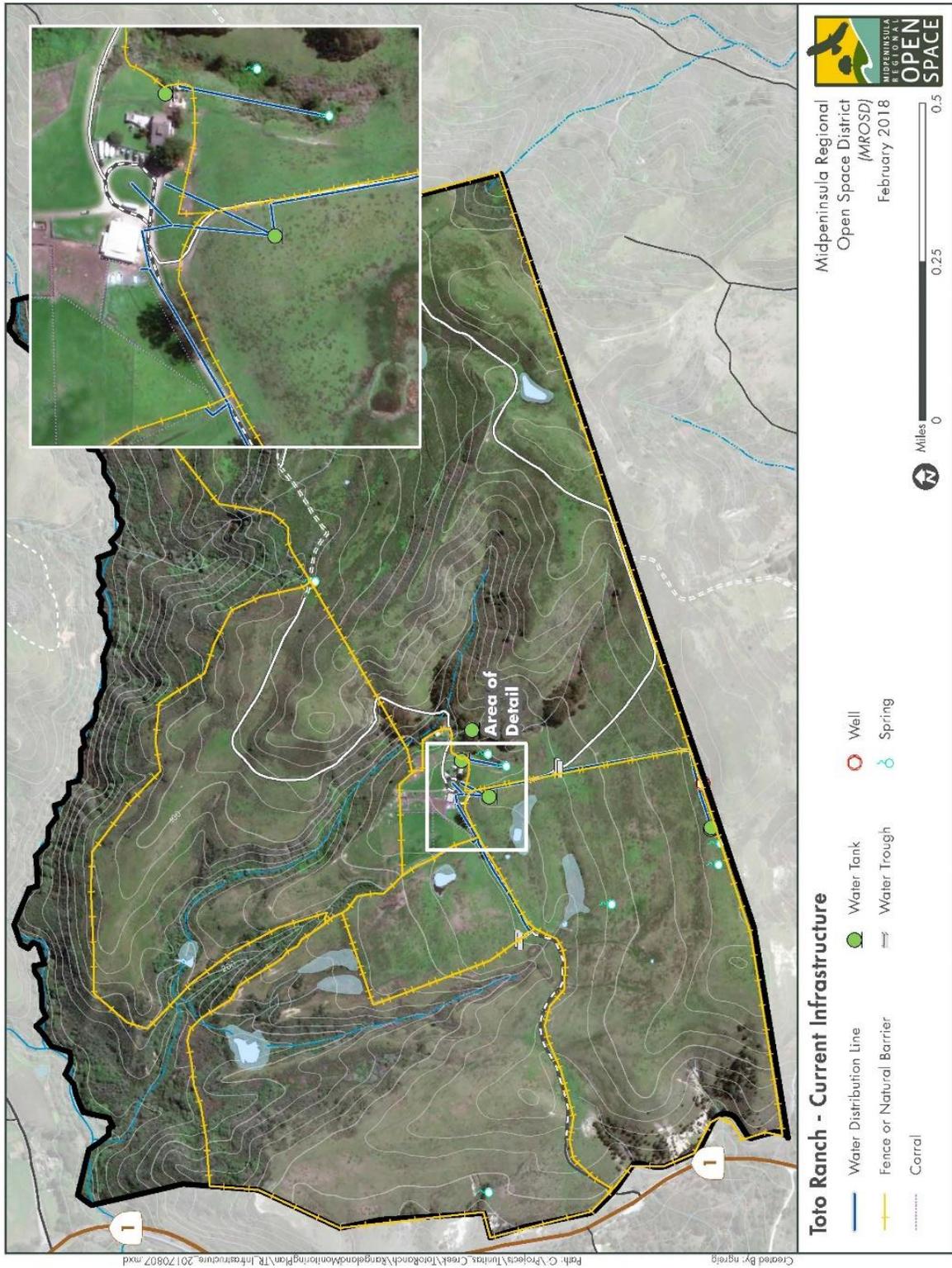
Toto Ranch is secured on all borders by a combination of “New Zealand style” smooth wire fencing and natural barriers. Interior pasture fencing currently divides the ranch into five (5) main pastures with numerous additional small pastures around the farmstead. Interior pasture fencing is comprised of “New Zealand style” fencing in varying condition, barbed wire fence, and natural barriers. Maintenance of the “New Zealand style” fencing is ongoing as fences are relatively old and the smooth wire used for the fencing tends to break often when compared to traditional barbed wire fencing. Landowner has installed new barbed wire fencing along some pasture boundaries. Natural slope, rock, and brush barriers have been used historically to contain cattle in many places on the Ranch; however, the brush barriers would be ineffective if wildfire should burn boundaries of the grassland areas.

The grazing tenant installed a Management Intensive Grazing (MIG) system consisting of approximately 60 small grazing paddocks, constructed of temporary electric fencing. The MIG, located west of the farmstead, is designed for high-intensity, short duration grazing as cattle are regularly rotated between paddocks during the “green” growing season, typically January through June. No notable resource management benefits have been derived through use of the MIG system.



Figure-9: Sample of New Zealand style smooth wire fencing on the Toto Ranch. The high tinsel smooth wire is susceptible to damage and often breaks. Most fences on the ranch are older and in varying condition.

EXHIBIT-F (Existing Infrastructure Map)



While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

RANGELAND CONDITION

The Toto Ranch is comprised of approximately 60 percent annual grasslands and/or grassland-coastal scrub, which have historically been farmed, and more recently grazed with cattle. Grazed rangeland pastures on the ranch total approximately 940 acres excluding the farmstead area. Of the 940 acres of pastureland, approximately 546 acres are comprised of annual grassland or a coastal scrub/grassland mix that provide palatable forage for livestock.

The current grazing tenant, Erik and Doniga Markegard dba Markegard Family Grass-fed, has resided upon and leased the grazing rights on Toto Ranch since the late 1980s while under private ownership and continuing under current ownership by Midpen. Markegard Family Grass-fed currently grazes the rangeland pastures on Toto Ranch with beef cattle, a combination of stocker cattle and cow/calf pairs raised primarily to market as grass-fed beef.

Current forage conditions on the Ranch appear good with abundant palatable forage available for livestock, with an even mix of dry standing forage and emerging green vegetation. Forage conditions and residual dry matter (RDM) on the property indicate an appropriate stocking rate in relation to current forage production ^[7]. Livestock distribution and overall forage utilization vary based on available stockwater. Natural water sources have been limited by drought conditions over the past four years and livestock have primarily relied on water sources near the farmstead area. As a result, livestock distribution and overall forage utilization have been lower than expected, especially on the eastern half of the Ranch. The current rotational grazing regime provides good control of livestock distribution and forage utilization across the Ranch provided stockwater is available.

➤ Forage Quality

Forage quality in addition to forage quantity (annual production) play a key role in determining carrying capacity for a pasture and for the entire ranch. Forage quality as well as forage production vary somewhat across the Ranch based on soil type, topography, aspect, invasive vegetation, and water. In general, forage quality is good with a high abundance of palatable, nutritious grasses and forbs. Forage quality in some areas is negatively impacted by the presence of invasive vegetation. Several of the steeper, forested/brushy slopes provide little to no palatable forage for livestock.

Mineral and nutrient supplements are currently provided to livestock on the ranch to maximize productivity and maintain livestock health, though it is not known if mineral and/or nutrient supplements are necessary to account for potential nutrient deficiencies in native forage. A thorough nutrient analysis may be performed on forage samples from the Ranch, if desired by the livestock operator, to more accurately determine forage nutrient quality and livestock supplement requirements.

➤ Forage Production

Palatable forage production ranges from fair to excellent across the Ranch excluding the steeper, wooded slopes and dense brushy canyons. Forage production may be slightly lower around rocky outcroppings or eroded slopes, as the soil tends to be shallow, which can limit rooting and nutrient/water uptake by plants. Palatable forage production can be impacted by the presence of invasive vegetation such as distaff thistle and predominantly coyote brush, which outcompete desirable vegetation, and is evident on many sites throughout the Ranch. Highly palatable annual grasses and low growing forbs comprise the majority of vegetation available for grazing livestock. Based on the available standing forage observed during an April 2017 site visit, the current stocking rate is adequate when compared to annual forage production on the Ranch ^[7], though the stocking rate tends to vary seasonally.

Estimated annual forage production for the Toto Ranch is determined through estimates based on soil class provided in the San Mateo County Soil Survey (USDA, 1985). Non-forage producing areas of the Ranch, including the developed farmstead, stockponds, forested slopes, and dense brushy canyons have been deducted from the total grassland acres utilized to calculate available dry weight forage production shown in Table-6. Dry weight forage production estimates per soil class are shown in Table-3:

Table-3: Total forage production estimates per soil class provided by NRCS.

Soil Map Unit		Approx. Acres	Total Dry Weight Forage Production (lbs./acre)		
			Unfavorable Year	Normal	Favorable Year
CIC2-D2-E2	Colma loam	246	1,800	2,500	3,000
GbF2	Gazos loam	57	1,000	1,500	1,800
GsF2	Gazos-Lobitos stony loam	23	1,000	1,500	1,800
LIF2	Lobitos loam	96	1,500	2,250	2,700
Ma	Mixed Alluvial Land - stony	11	1,000	1,500	1,800
Rb	Rough Broken Land - rocky	46	1,500	2,250	2,700
Ta	Terrace Escarpments – sandy	2	1,000	1,500	1,800
TeD2-E2-E3	Tierra loam	439	2,000	2,500	3,500
TxA	Tunitas loam	4	1,000	1,500	1,800
WmA	Watsonville loam	4	1,000	1,500	1,800
Total Grazed Acres		952			

VI. Capacity for Conducting Agricultural Uses

A capacity assessment of agricultural uses on the Toto Ranch has been approximated by reviewing both current and historic agricultural uses and other factors. Information provided in the following section establishes a basis for determining potential levels of agricultural uses on the property by quantifying the carrying capacity based on existing infrastructure, forage production, soil quality, water availability, and space while protecting ecological resources.

GRAZING CAPACITY ESTIMATE

Rangeland livestock production is the primary agricultural use on the Toto Ranch in terms of acres in production. Forage production estimates are utilized to determine livestock carrying capacity and an estimated range of stocking rates. Proposed carrying capacity estimates for the Ranch are established using forage production estimates based on soil class units derived from the San Mateo County Soil Survey ^[8].

Table-4: Animal Unit Equivalents.

Animal Unit Equivalents	
Animal Kind & Class	Animal Unit Equivalent
Cow, dry	1.00
Cow, with calf	1.00
Bull, mature	1.50
Horse	1.25
Replacement Heifer (400-700 lbs.)	0.50
Replacement Heifer (700-1,000 lbs.)	0.75
Sheep, mature	0.25
Lamb, 1 year old	0.15

¹ An animal unit month (AUM) is the amount of dry forage consumed by one animal unit in one month (assuming consumption of dry weight forage equal to 3.3% of body weight), roughly equivalent to 1,020 pounds.

Table-5 depicts available forage, per the Soil Survey descriptions, for 'favorable', 'normal', and 'unfavorable' production years. 'Available forage' is calculated by deducting the RDM desired at the end of the grazing season (average of 1,000 lbs. per acre) from the total forage production. Based on available forage on the currently grazed pasture area of the Ranch, leaving an average of 1,000 pounds of RDM, the estimated carrying capacity ranges from 957.6 AUMs in a favorable year to 365.4 AUMs in an unfavorable year with an average carrying capacity of 632.0 AUMs in normal production years (Table-6).

- Favorable Production Year:
957.6 AUMs = Approximately 80 cows year-round.
- Average Production Year:
632.0 AUMs = Approximately 53 cows year-round.
- Unfavorable Production Year:
365.4 AUMs = Approximately 31 cows year-round.

Table-5: Available dry-weight forage for grazing livestock (currently grazed pastures) derived from NRCS Soil Survey data. Calculations assume leaving an average of 1,000 pounds per acre of RDM and 10% forage loss due to natural conditions such as wind, trampling, etc. Acreage has been deducted for the farmstead area and dense brush/wooded areas that provide little to no palatable forage (393.5 acres).

Soil Map Unit		Approx. Acres	Available Dry Weight Forage Production (lbs./acre)		
			Unfavorable Year	Normal	Favorable Year
CIC2-D2-E2	Colma loam	146	800	1,500	2,000
GbF2	Gazos loam	0	0	0	0
GsF2	Gazos-Lobitos stony loam	0	0	0	0
LIF2	Lobitos loam	76	500	1,250	1,700
Ma	Mixed Alluvial Land - stony	0	0	0	0
Rb	Rough Broken Land - rocky	46	500	1,250	1,700
Ta	Terrace Escarpments – sandy	0	0	0	0
TeD2-E2-E3	Tierra loam	279	1,000	1,500	2,500
TxA	Tunitas loam	0	0	0	0
WmA	Watsonville loam	0	0	0	0
Total Grazed Acres		547			

Table-6: Estimated carrying capacity for Toto Ranch based on calculated available forage production on grazeable acres.

Soil Map Unit	Approximate Grassland Acres	Estimated Carrying Capacity (Animal Unit Months)		
		Unfavorable Year	Normal	Favorable Year
CIC2-D2-E2	146.0	93.4	175.2	233.6
LIF2	76.0	30.4	76.0	103.4
Rb	46.0	18.4	46.0	62.6
TeD2-E2-E3	279.0	223.2	334.8	558.0
TOTAL	547.0	365.4	632.0	957.6
Year-round Stocking Rate in Animal Units (AUs) (AUMs ÷ 12 months)		30.5	52.7	79.8

Stocking rates should be adjusted downward or upward annually depending on precipitation (distribution and quantity) and annual forage production. Standing forage will determine pasture rotation, at the livestock operator's discretion, provided they remain within the prescribed forage standards. At no time should there be significant areas of bare soil void of vegetation cover present in the grazed pastures. A minimum of two to three inches of forage should be left as ground cover during both the growing season and dry summer and fall months. Table-6 details the estimated carrying capacity for the Ranch, in AUMs and AUs, as derived from forage production data provided in the NRCS Soil Survey. The estimated carrying capacity for the Ranch is approximately comparable to historic stocking levels.

Coyote brush is well established in many of the steeper canyons and has expanded into the ridgetops and open grassland areas over time. Coyote brush encroachment in the grasslands has reduced forage production by 50 to 80 percent in many pastures. The landowner has attempted mechanical control of the coyote brush by mowing, primarily in the front pastures between the farmstead and State Route-1. The mowing has reduced the size of the individual plants but has done little to reduce the quantity and percent cover of the coyote brush. A coyote brush encroachment management plan should be developed for the Ranch. Future brush control efforts, including chemical control, should be considered following the recommendations in the coyote brush management plan to maintain the estimated carrying capacity.

DAIRY CAPACITY

The current tenant maintains a small number of dairy cows that are used for milk production as part of a cooperative Herd Share program. A large-scale dairy operation has never been a part of operations on the Toto Ranch and adequate infrastructure including loafing barn, suitable milk parlor, and wastewater treatment infrastructure, are not currently available. Instating a dairy operation on the Ranch is not recommended based on infrastructure requirements, associated economic constraints, and potential ecological/water quality impacts.

ADDITIONAL LIVESTOCK, EQUINE, AND POULTRY

The Ranch is currently used primarily for grass-fed beef cattle production on the productive and accessible grasslands. The tenant also produces a number of other agricultural commodities including pasture pork, chickens, eggs, goats, lambs, and turkeys that are marketed through a Community Supported Agriculture (CSA) purchasing program^[4]. In addition to cattle, a number of horses and llamas/alpacas/emus are kept on the property and currently graze the grasslands outside of the farmstead area. A number of small pens, flight pens, coops and additional infrastructure are currently established within the farmstead area to support the production of small livestock and poultry. Tenant has experienced issues of predation on small livestock by coyotes and mountain lions in the past. Small livestock including pasture pigs, chickens, sheep, goats, turkeys, and llamas should be restricted to the designated farmstead area and associated

small pastures. Pasture raised pigs create a large ground disturbance prone to erosion and promote the growth of invasive thistles. Pigs should be restricted to flat areas in the farmstead. Landowner's horses and/or working ranch horses, used as part of the grazing operation or for personal non-commercial use, may be kept on the property. Though not a current use, breeding, training, raising and selling horses (Horse Operations) are not considered agricultural uses and are not recommended on the Toto Ranch. Boarding outside horses should be prohibited. Horses should be restricted to the farmstead area and associated small pastures; horses should not be permitted to graze rangeland pastures outside of the designated farmstead area.

FIELD CROP/ORCHARD PRODUCTION

Portions of the Toto Ranch, primarily ridge tops, were historically farmed for silage/grain crops during the early to mid-1900s but have not been farmed since that time. The landowner does not plan to implement a large-scale cultivated farming operation on the Ranch and plans to continue use of the pastures for livestock grazing to foster and enhance habitat for wildlife. While Toto Ranch has suitable land for farming, sediment from the highly erodible soils on the Ranch would negatively impact downstream water quality and disrupt/destroy valuable wildlife habitat. Cultivated farming operations are not recommended in any capacity on the Ranch.

The tenant may grow vegetable crops and/or tree crops for personal use provided such production is performed within the farmstead area. Vegetable crops considered for planting by the tenant must be approved by Midpen's Natural Resources Department prior to planting and should not include any species considered by the California Invasive Species Council (<http://www.cal-ipc.org>) as "invasive", such as fennel. Trees imported for planting on the property must be pre-approved by Midpen's Natural Resources staff and soil associated with trees and potted plants must be tested for the presence of phytophthora prior to entering the property. Any and all soils associated with potted plants and/or trees that test positive for phytophthora are strictly prohibited on the property. Prior written consent may be required by Midpen and location of vegetable garden must be pre-approved by Midpen staff. Vegetable gardens and/or small orchards should be located in an area that will not impact downstream water quality and will not decrease the grazing capacity of the Ranch.

VII. Management Recommendations & Best Management Practices (BMPs):

The Toto Ranch has a long history of diversified agricultural production. The following management recommendations and Best Management Practices (BMPs) will help ensure the sustainability of agricultural production on the Ranch while protecting rangeland health, soil stability, water quality and the control of invasive vegetation to cooperatively conserve and enhance habitat for wildlife.

RANGELAND LIVESTOCK OPERATION

➤ Vegetation Prescriptions:

Leaving prescribed levels of residual dry matter (RDM) on the ground surface will provide a grassland seed crop for the following season, minimize the risk for soil erosion and sedimentation, protect water quality and reduce the presence of invasive vegetation. To protect soil stability, minimize the risk of sedimentation into local streams, and the spread of invasive vegetation, all grazed pastures on the ranch should meet the following RDM performance standards per average slope at the conclusion of the grazing season:

- 0-30% Slopes – An average minimum of two to three inches of forage – approximately an average of 800-1,000 pounds per acre per Natural Resource Conservation Service (NRCS) and University of California Cooperative Extension (UCCE) definition.
- Greater than 30% Slopes – An average minimum of three to four inches of RDM – approximately an average of 1,000-1,200 pounds per acre per NRCS and UCCE definition.

At no time should there be significant areas of bare soil void of vegetation cover in any of the grazed pastures, particularly on steep upland slopes or areas adjacent to riparian corridors. A minimum of two to three inches of forage should be left as ground cover during both the growing season and dry summer and fall months.

➤ Grazing Season:

A light to moderate year-round rotational grazing regime is best suited for the Toto Ranch. Rotating livestock between pastures, particularly when grazing for a short duration, will require a greater commitment by the livestock manager in terms of time and monitoring, but will ultimately enhance biodiversity, aesthetics and overall forage production. Lack of available stockwater has historically limited grazing capacity during the late summer and fall months, particularly under drought conditions. If limited water availability during summer and fall months persists, Midpen may elect to implement a seasonal grazing regime or a partially seasonal grazing regime with higher stocking rates during winter and spring and reduced stocking during the summer and fall.

In a rotational grazing regime, standing forage will determine pasture rotation, at the livestock operator's discretion, provided they remain within the recommended forage standards. On steeper, more erosion prone slopes, and riparian pastures with softer soils, grazing should be delayed until soil is firm enough to withstand grazing pressure without impacting soil stability. Livestock grazing should be managed to protect the soil from erosion as loss of the surface layer can severely decrease long-term forage productivity.

➤ Water Supply:

Livestock generally prefer the cleaner, cooler water in troughs. Developing alternative water sources will reduce dependence by livestock on stream channels/stockponds, minimizing potential impacts to aquatic vegetation and stream bank stability. In addition to stockponds, a number of galvanized, concrete, and plastic troughs are located within the farmstead and in pastures to the south and west of the farmstead, all fed via the wells on the ridge southwest of the farmstead.

A number of stock water troughs are located within the farmstead/corral and in pastures adjacent to the farmstead, including numerous plastic troughs. More durable, permanent concrete or galvanized troughs should replace the plastic troughs. Continue to monitor water infrastructure and complete maintenance and repairs as necessary. Wildlife escape ramps should be installed in all water troughs on the Ranch.

The livestock water system providing water to the farmstead and water troughs in pastures adjacent to the farmstead, including the wells, solar pump, windmill, pipes, and storage tank are in excellent condition. Despite the quality infrastructure, low water yield from existing wells often limits livestock grazing capacity during summer and fall months. Water from the wells should be used strictly for livestock water and shall not be used for pasture irrigation. Irrigating annual grasslands does not provide an ecological benefit.

A large, naturally occurring spring in Field-3 located along the loop road has made the road impassible. Developing the spring following District guidance for wildlife friendly spring development and installing a solar powered pump, storage tank, and water troughs will provide a valuable water supply to Field-3, which lacks sufficient stock water. Developing this water source will allow properly timed grazing to promote distribution of the Choris' popcorn flower, which is growing near the spring. Additionally, developing the spring and distributing water to troughs in the uplands of the pasture will reduce the use of the spring by livestock and minimize the risk of the Choris' popcorn flower being trampled/damaged by cattle. A thorough assessment of the site should be performed to determine potential construction impacts and hydrologic function of the site which may affect the nearby Choris' popcorn flower population. If determined that construction is feasible without impacting the population, continue subsequent monitoring of the Choris' popcorn flower population at this site to determine changes in density and distribution and amend management practices as necessary to enhance habitat for the population. See Proposed Infrastructure & Improvements Map for location of proposed water infrastructure.

➤ Stockponds:

Landowner should perform routine maintenance of stock ponds, including de-silting and vegetation management to maintain water storage capacity, habitat value, and protect downstream water bodies from sedimentation, as necessary. Maintaining the spillway and berm on the stockponds will preserve storage capacity, extend lifespan of stockponds, and enhance habitat for aquatic species. Stockponds on the ranch are in good condition with the exception of

a series of small ponds located near the driveway in pastures west of the farmstead. While these ponds are small, and often seasonal, they provide a valuable water source for livestock. Well developed stockponds providing valuable wildlife habitat and an important water source for wildlife and livestock should be prioritized for maintenance and repairs over small seasonal ponds and/or catchments.

An analysis of stockponds should be performed by the landowner to determine which stockponds should be considered for maintenance and repairs based on water rights, their habitat value, stockwater value, and risk to downstream water quality. Smaller stockponds or seasonal catchments may be decommissioned and restored to natural drainage to protect downstream water quality if determined to not provide significant habitat value or an important water source for livestock.

Perennial ponds, suitable seasonal stockponds (for which water rights exist) and their associated surrounding upland habitat should be enhanced to support California red-legged frog which currently occur on site, as well as a population of San Francisco garter snake which was documented as occurring along Tunitas Creek from Highway 1 to Dry Creek during research conducted by Barry from 1971-1983 (California Natural Diversity Database).

Pond management activities require a suite of regulatory agency approvals and should not be undertaken unless approved by the District Natural Resources Department.

➤ Supplemental Feed:

Proper placement of livestock watering facilities and supplemental feed/mineral stations will promote good livestock distribution. Supplemental feed (mineral tubs, salt blocks, etc.) should be placed on uplands and ridge tops away from water sources and riparian features. It is recommended that supplemental forage provided to livestock be certified as “Weed Free”. If certified weed free hay is not available, locally produced supplemental forage (hay) that is fed in pastures should be thoroughly inspected by Midpen Natural Resource Department staff prior to feeding to ensure it does not contain invasive vegetation that may spread seed into pastures. Supplemental feeding should not be used to extend the grazing season beyond the point at which the prescribed RDM levels are reached in the pastures.

➤ Fencing and Corrals:

Landowner should maintain existing ranch infrastructure in good condition and make repairs or improvements as necessary. Maintaining quality, functional infrastructure, including fencing and corrals, will increase the ease of livestock handling and effectiveness of rotating livestock between pastures as well controlling livestock access to sensitive riparian corridors. Providing safe facilities will provide a low-stress atmosphere for livestock and minimize risk of injury.

While most perimeter fence around Toto Ranch is “cow tight”, many sections of the New Zealand style smooth wire fence along the west and south property boundaries are old and failing.

Sections and/or all of the western and southern boundary fences should be replaced with barbed wire cattle fence as existing fence fails. Use Midpen specifications for livestock fencing including galvanized wire, steel t-posts, and galvanized pipe braces.

Install a new section of barbed wire livestock fence southeast of the farmstead to split Field-3 into two separate pastures. Dividing this pasture will make management of the Choris' popcorn flower more feasible by allowing grazing tenant to rotate cattle and properly time grazing. Additionally, by aligning the new fence to bisect pond TC-06, the pond can be used as a water source for both pastures and grazing can be timed to protect emergent vegetation for CRLF. The fence should extend from the south property line north to an existing cross-fence that runs east from the farmstead (approximately 3,100 linear feet). See Proposed Infrastructure and Improvements map for new fence alignment.

Old fencing that does not act as a pasture barrier may impede wildlife travel or injure wildlife/livestock. Old fencing should be removed and disposed of at a waste facility. Fencing in the MIG areas should be decommissioned and removed, as there is not significant resource management benefits to the system under annual rangeland conditions and seasonal water supply. Additionally, the MIG system creates an aesthetic impact to the scenic coastline for future recreational visitors.

➤ Herd Health:

Maintaining a healthy, productive livestock herd is fundamental to profitability and sustainability. A herd health program that includes appropriate inoculations is recommended. De-worming livestock and providing additional nutrients will further increase productivity.

➤ Ranch Roads:

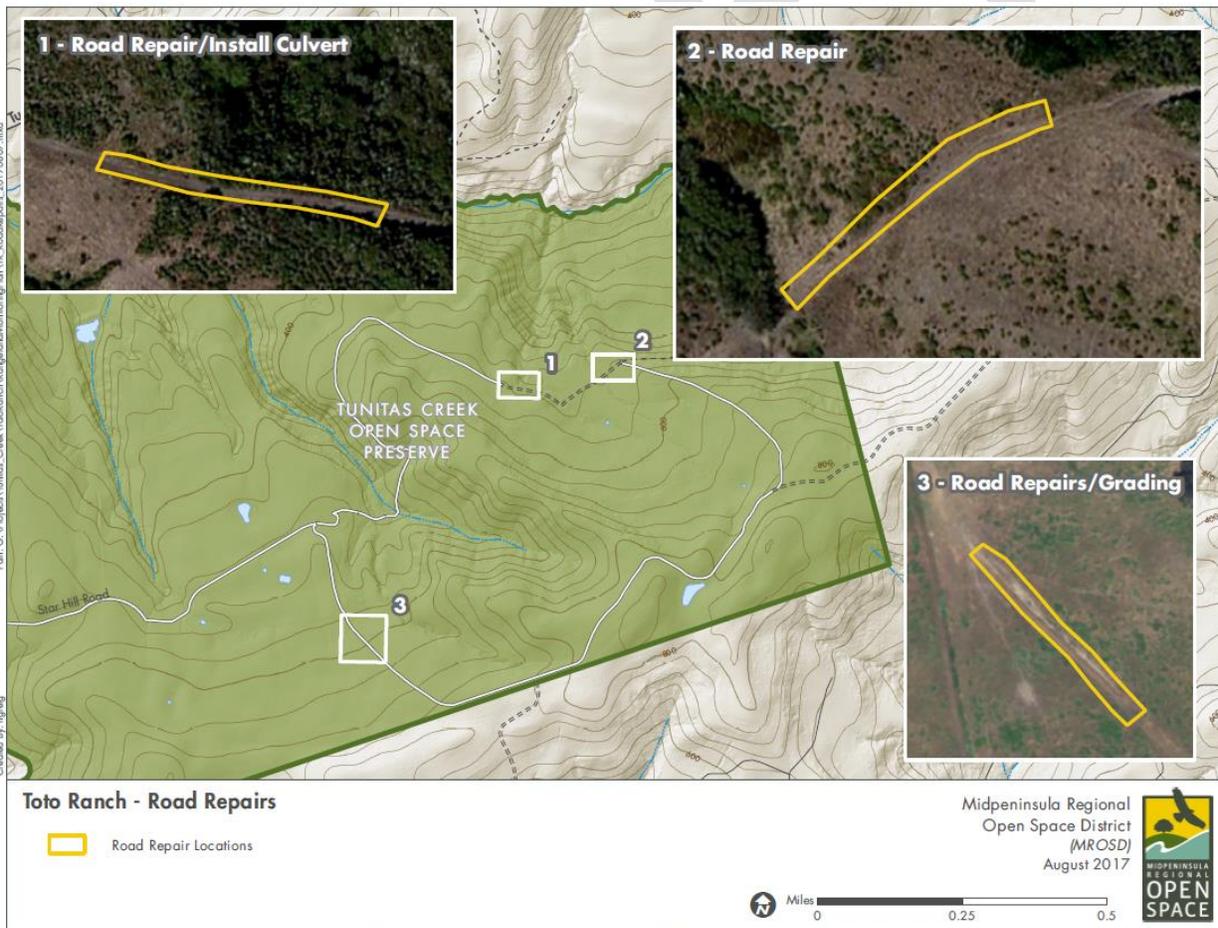
Ranch roads provide access for the grazing operation, infrastructure/ranch maintenance, restoration work, recreation, and emergency response. Landowner and/or grazing tenant should work to maintain ranch roads in good condition. Routine maintenance may include cleaning ditches and culverts, particularly during storm events, is important. Maintaining road grades, water diversions, and water bars during winter months to minimize water flow on road surfaces is important in reducing potential soil erosion and road damage. Mowing vegetation on road surfaces is recommended to provide a safe driving environment. Mowing, as opposed to grading, is recommended to leave a vegetation cover on the road surface that helps hold soil in place during storm events and reduce the risk of erosion and damage to ranch roads. Additionally, mowing roads will not create a soil disturbance that can lead to increased spread of invasive plant species.

Two sections of ranch road are in poor condition with large ruts creating hazardous driving conditions and causing continued sedimentation of downstream waterways. These sections of road should be repaired to prevent continued damage to the driving surface and protect water

quality on the Ranch (Exhibit-G). Improvements may including rocking the ditch, re-grading the road bed, revegetating the road bed/ditch, installation of rolling dips/water diversions, and installation of erosion control products such as straw waddles or silt fence. The main gravel driveway between State Route-1 and the farmstead has many large potholes that should be graded/filled to make access to the Ranch easier, but the driveway, when properly maintained, is currently not at risk of affecting natural resource values on the property.

Any road repairs that may discharge sediment into downstream watercourses may require permits from regulatory agencies prior to implementation. Proposed road work should first be approved by District natural resources staff to ensure regulatory compliance.

EXHIBIT-G – PROPOSED ROAD REPAIRS & MAINTENANCE



➤ Drought Preparedness

Agricultural production has historically provided a significant source of income for the Ranch and continues to be an important factor in maintaining its sustainability. Drought conditions can severely hinder the operational capacity and productivity of a ranch and can threaten long-term sustainability. Planning ahead to accommodate for a drought can alleviate some of the potential impacts such as lack of forage, lack of water, herd health, mineral deficiencies, and overall lack of production by livestock when droughts occur. The following management practices can help alleviate the impacts of drought:

- Maintain a clean, reliable water source for livestock and maintain an increased water storage capacity. The Ranch currently has a good water supply system in place, though water production is often limited during summer/fall months. Develop additional water sources such as springs and wells if feasible. If water yield increases, increase water storage by adding additional water storage tanks for livestock drinking water.
- Lower stocking rates to slightly below the recommended carrying capacity for the forage production year to provide a small surplus of forage to carry livestock through the fall until new, green forage is available. If drought conditions persist, lower stocking rates further to extend the grazing season and use of available forage.
- Implement a grass banking system. Save forage in a designated pasture by minimizing or eliminating grazing pressure during the late spring and summer. If available forage is depleted in grazed pastures, forage will be available in the grass bank pasture.
- Store supplemental forage, such as hay, that can be fed to livestock to supplement the natural forage during a drought.
- Provide livestock with mineral/protein supplements to increase forage utilization, herd health, and overall productivity.

PATHOGEN REDUCTION AND RISK MANAGEMENT

Livestock waste contains many microorganisms such as bacteria, viruses, and protozoa. Some of these microorganisms do not cause sickness in animals or humans, however, some are pathogens, meaning they are capable of causing disease in animals and/or humans. Pathogens can be transmitted to humans directly through contact with animals and animal waste or indirectly through contaminated water or food. Common pathogens responsible for health related ailments in humans include cryptosporidium, E. coli, leptospira, and salmonella. The following BMPs should be implemented to help reduce the risk of animal waste contaminating water sources within and downstream of the Toto Ranch:

- Restrict livestock access to Tunitas Creek, Dry Creek, and perennial tributaries to both water courses to eliminate fecal deposits in the waterway.

- Maintain a natural vegetative buffer of no less than thirty (30) feet from the top of bank in Tunitas Creek, Dry Creek, and perennial tributaries. The vegetative buffer will act as a natural filter to trap potential pathogens before they reach the water body.
- Domestic swine have a high frequency of salmonella. Restrict pasture swine rearing to flat pens within the farmstead area and maintain a minimum 100 foot vegetative buffer between swine and perennial streams.
- Control runoff and leaching from stockpiled manure, confined livestock, and corral facilities. Maintain a 100 foot vegetative buffer between corrals/confined livestock pens and perennial streams.
- Fly and vermin control in livestock facilities may also reduce the spread and subsequent infection of other animals with pathogenic bacteria. Flies and bird fecal samples from cattle farms in the U.S. have tested positive for *E. coli*. Numerous studies indicate that *Salmonella* can survive for at least several days, and for as long as nine months, on insects and rodents, and for up to five months in rodent feces. Work to control flies and rodents in the farmstead area. Additionally, remove excess fecal waste from livestock including sheep, goats, horses, chickens, cattle, alpacas and swine within the confined livestock pens and corrals to reduce fly and insect presence.
- Provide off-stream livestock water sources such as water troughs to reduce the use of streams by cattle and other livestock for water.
- Implement a comprehensive livestock husbandry program including appropriate and timely inoculations and de-worming to minimize the risk of contracting and/or spreading disease to other livestock, humans, and wildlife.

SPECIAL STATUS SPECIES MANAGEMENT

California red-legged frog

Managing the intensity and timing of livestock grazing is important in managing waterways and upland habitat for the California red-legged frog (CRLF) as it has important consequences in terms of emergent vegetation and water quality important for breeding. Maintaining stockponds and controlling non-native predators are also important factors in protecting and enhancing habitat for CRLF. In general, livestock use of stockponds is beneficial for CRLF^[9]. Appropriate timing and grazing intensity around stockponds can produce positive ecological benefits on vegetation cover, nutrient levels, and turbidity conducive to CRLF breeding and subsistence. For more specific management recommendations, please reference Attachment-D to this plan^[10].

San Francisco garter snake

Management for California red-legged frog is also beneficial to San Francisco garter snake. Use of vegetation and/or fencing off portions of ponds to provide adequate escape habitat during the frog mating season (Dec to March) and San Francisco garter snake breeding season (March to June and September to October) and young frog emergence period (July to September) can be beneficial for both species.

Managing surrounding upland habitats for a mosaic of microhabitats (some open grassland, some brush, some downed woody debris areas, etc.) can also be beneficial for successful management of San Francisco garter snake.

Choris' Popcorn Flower

Choris' popcorn flower is an annual herb found in coastal prairie and coastal scrub habitats in San Mateo and portions of Santa Cruz County, listed by CNPS as "fairly endangered". The species is at risk from urban development, however, under rangeland conditions, primary threats to the species result from foot traffic/trampling and competition from non-native plants/annual grasses [11]. Choris' popcorn flower typically blooms from March-June [11] and will benefit from the reduction of annual/non-native vegetation through timed livestock grazing prior to bloom (December-February). Once flowers have dropped seed, livestock grazing may commence, typically in July. Continue to monitor for presence of the specie and note any changes in distribution and abundance of known populations. Adjust timing of grazing as necessary to promote reproduction. If trampling or vehicle traffic is noted to impact the Choris' popcorn flower, temporary fencing may be installed to protect populations.



Figure-10: Choris' popcorn flower is a rare, native annual herb found in multiple locations throughout the Toto Ranch. Special attention should be paid to avoid populations of Choris' popcorn flower when implementing projects and routine maintenance on the Ranch. Implement BMPs as necessary to protect existing populations.

Map of Sensitive Resources Redacted

INVASIVE PLANT CONTROL

Available forage production has been impacted by non-palatable invasive plant species resulting in reduced germination of desirable forage. Invasive plants decrease forage productivity, impact livestock health, impact wildlife habitat value, and create significant fiscal impacts to the landowner/lessee. Implementing an integrated approach to controlling pest plants is critical to the success of improving forage production and quality in grazed pastures. To prevent an increase in the current extent of invasive vegetation and avoid the introduction of new invasive species on the Ranch, the landowner should manage the ranch with the minimum goal of containing the weed infestation to its current extent and preventing the introduction of new invasive species. Invasive plant control methods must be consistent with the District's IPM program and all invasive species treatment must adhere to Midpen's Integrated Pest Management Plan (IPMP) and follow BMPs prescribed in the IPMP.

The following recommended practices are designed to reduce the presence of invasive vegetation, protect soil and water quality, and promote beneficial forage production.

- Adjust the stocking rate in order to maintain a minimum of two-three inches of beneficial, vegetation ground cover at all times.
- Application of a selective broadleaf herbicide in the spring can be an effective strategy for the control of purple starthistle and wooly distaff thistle, particularly when treating large infestations that are not easily controlled through manual methods. Follow-up inspection and manual removal of late germinating plants during the summer is can help control late germinating plants following initial herbicide treatment. A pest control recommendation must be issued from a Pest Control Advisor for any herbicide application on the property.
- Manually remove wooly distaff by digging or cutting out the plant at least five inches below the soil surface before they begin to flower. After flowering, the plants should be bagged and removed from site as seeds will continue to mature and ripen after the plant has been cut.
- Mowing can be used to manage invasive thistles, provided it is well timed and used on plants with a high branching pattern. Mowing at early growth stages results in increased light penetration and rapid regrowth of the weed. If plants branch from near the base, regrowth will occur from recovering branches. Repeated mowing of plants too early in their life cycles (rosette or bolting stages) or when branches are below the mowing height will not prevent seed production, as flowers will develop below the mower cutting height. Plants with a high branching pattern are easier to control, as recovery will be greatly reduced. Even plants with this growth pattern must be mowed in the late spiny or early flowering stage to be successful. An additional mowing may be necessary in some cases. Be sure to mow well before thistles are in flower to prevent seed spread.
- Prioritize thistle removal where the likelihood of seed spread is high such as road sides, cattle trails and loafing areas.

- **French broom** is limited on the Ranch and best controlled early as seeds remain viable in the soil for decades. Once well established, removal is extremely resource intensive. Pulling shrubs with weed wrenches is effective for broom removal in small infestations. The weed wrench removes the entire mature shrub, eliminating re-sprouting.
- Over-seed (30 lbs./acre) infested areas at the onset of the fall rainy season with a beneficial pasture seed mix to help shade out invasive plants and reestablish desirable forage in the pastures. A pasture seed mix consisting of early germinating, rapid growth grasses and forbs, that includes low growing vegetation as well as taller grasses, is recommended. A common mix that can be effective in erosion control as well as competing against invasive vegetation in similar coastal regions includes a mix of rose clover (*Trifolium hirtum*), wild oats (*Avena fatua*), Italian ryegrass (*Festuca perennis*), and Filaree (*Erodium cicutarium*), all of which currently exist on the property and provide highly palatable forage for grazing livestock. Midpen's Natural Resources Department staff should approve all seed mixes prior to application.
- Carefully monitor areas where outside feed is brought in for new invasive species and remove new weeds before they become established. If feasible, feed Certified Weed Free Hay or locally sourced hay to minimize the risk of introducing new invasive plant species.
- Do not import outside soil or fill material. It is often contaminated with invasive species and is not consistent with Easement terms.
- Be aware of seed transport on ranch equipment and clean vehicles/equipment as needed. All personnel working in infested areas shall take appropriate precautions to not carry or spread weed seed or plant and soil diseases outside of the infested area. Such precautions will consist of, as necessary based on site conditions, cleaning of soil and plant materials from tools, equipment, shoes, clothing, or vehicles prior to entering or leaving the site.
- Contact the local Natural Resource Conservation Service (NRCS) for funding and technical assistance to help with integrated pest management practices.
- **Onion Grass** is present on Toto Ranch and there are no known control methods applicable to rangeland conditions. Continue to check with UCCE, NRCS, and County Ag Department to determine if control options become available. Implement control measures for onion grass if they become available.

Implement an integrated approach described above to identifying and treating invasive plants on the Ranch that are impacting forage production and grassland health including but not limited to coyote brush, yellow starthistle, wooly distaff thistle, Italian thistle, bull thistle and onion grass. Work with Midpen, UCCE and/or local NRCS or RCD to determine best options and timing for specific treatments.

ADDITIONAL/SMALL LIVESTOCK PRODUCTION

Small domestic livestock including but not limited to sheep, goats, chickens, geese, pigs, llamas/alpacas, and horses should be confined to the designated farmstead area. Well established infrastructure including corrals, water sources, flight pens, coops, etc. exist within the farmstead and are suitable for the production of small domestic livestock/poultry. Domestic livestock such as sheep, goats, and chickens often attract natural predators that may inadvertently affect cattle grazing on the rangeland pastures. As such, small domestic livestock should be confined to enclosed pens/barns at night to minimize the risk of predation. Production of “pasture pork” or raising of domestic pigs should be limited to pens on flat areas within the farmstead area to minimize runoff of waste and reduce the risk of impacts to water quality.

VIII. Improvements and Maintenance Recommendations Budget

Fence Repair and Installation

Install a new barbed wire livestock fence to separate Field-3 into two (2) separate pastures. Full replacement of west and south property line fences is recommended over time. Partial replacement of significantly damaged/failing sections may also be completed as an alternate to full replacement. Replacement of the west boundary fence should be prioritized over the south boundary fence, though work may be completed over several years. While 5-strand barbed wire fence is more effective, a wildlife friendly fence using 4-strand barbed wire with a smooth bottom wire is also effective, though the smooth bottom wire is susceptible to damage and may require frequent repairs. Either style fence can be made wildlife friendly if the bottom wire is situated an average of 16”-18” above the ground allowing wildlife to cross underneath while functioning to contain livestock. West boundary fenceline along State Route-1 should be 6-strand barbed wire fence to ensure cattle do not get out on the highway. Below is a list of proposed fencing improvements for the Toto Ranch.

- A. West Property Boundary Fence Replace (entire replacement)
- B. Field-3 Cross-Fence Install
- C. South Property Boundary Fence Replace (entire replacement)
- D. Removal of Old Fence/Unused Fence/MIG
- E. Partial fencing of ponds may be considered as an adaptive management strategy for CRLF and SFGS
- F. Two Additional water tanks in the windmill area (if water yield increases)
- G. Two new westerly troughs off driveway for Pasture 1 & 2.

Road Repairs and Maintenance

Most roads on the ranch are in good condition and require little annual maintenance. The two (2) sections of road that show signs of rutting/gully activity should be repaired to maintain road integrity and protect downstream water quality. Additionally, if the Field-3 spring is developed and road surface dries out, a culvert or ford crossing should be installed and minor grading/brushing will be required to make road passable. Special attention should be given to Choris' popcorn flower near this location and potential impacts to the population should be mitigated for. While the access driveway between State Route-1 and the farmstead area provides year-round access and is adequate for land management and the agricultural operation, landowner may wish to improve driveway to accommodate recreational use and the heavy vehicle traffic by the tenant's field day and workshop guests.

- A. Road Repairs (access road south of farmstead) (see Exhibit G, #3)
- B. Road Repairs (Field-3) (see Exhibit G, #1 and #2)
- C. Road Repairs (Driveway)

Water Infrastructure Improvements

Water infrastructure improvements will enhance livestock distribution and overall forage utilization as well as potentially extending the grazing season, which is currently affected by the lack of stockwater during summer/fall months. Reference the Proposed Infrastructure map for location of proposed water system improvements.

- A. Replace Plastic Water Troughs (In and around farmstead)
- B. Install New Waterline and Trough North of Farmstead
- C. Field-3 Water System (spring, pump, tank, pipe, and troughs)
 - a. Project to be completed if no negative long term impacts to Choris' popcorn flower
- D. Ensure wildlife escape ramps are present in all troughs
- E. Any spring developments must adhere to the District's wildlife friendly spring development designs.

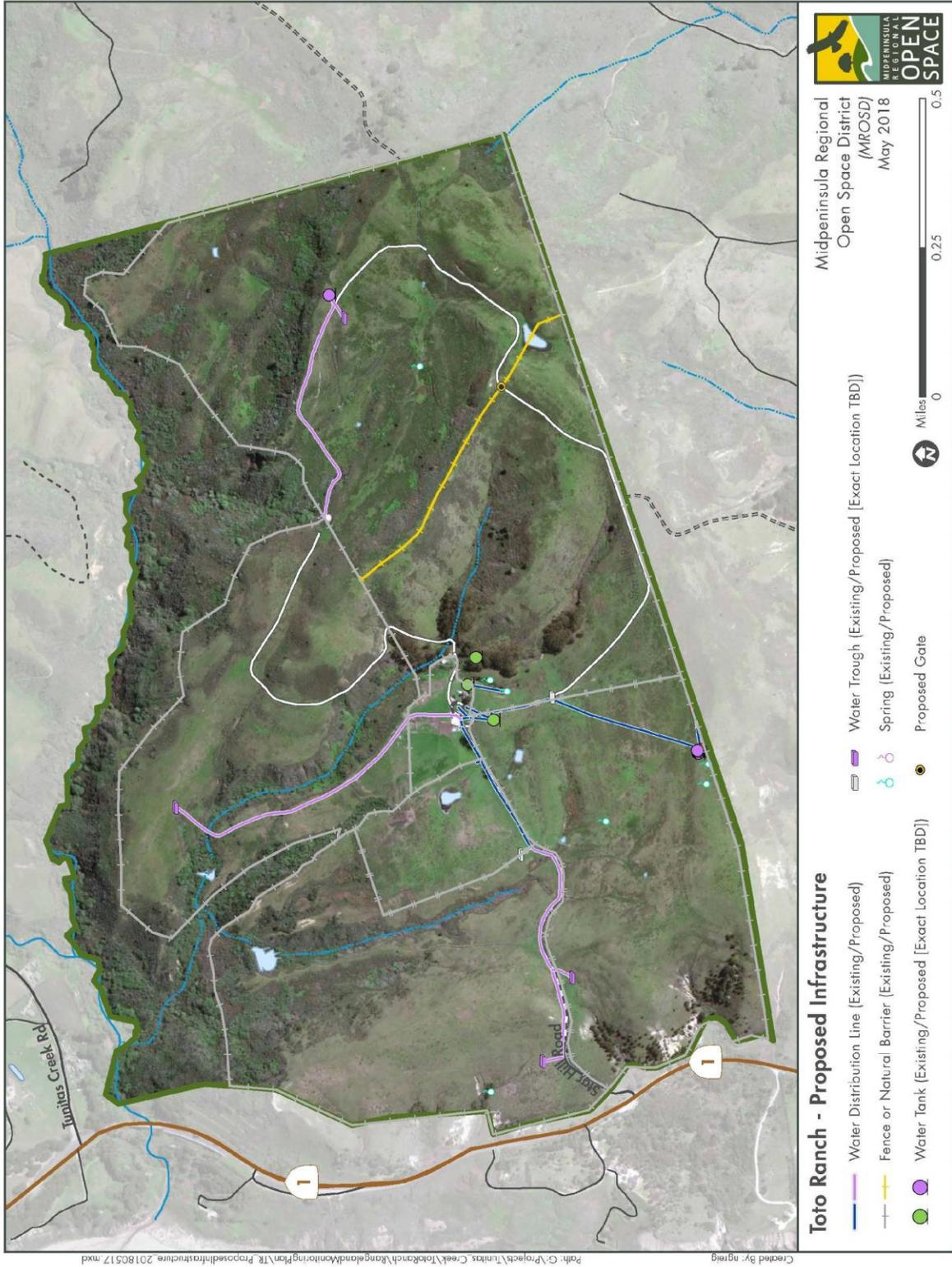
Vegetation Management

Implement an integrated approach that is consistent with the District's IPM Program to controlling invasive vegetation with a focus on woolly distaff thistle, French broom, onion grass, and coyote brush. Manual, mechanical, biological, and chemical control measures may be implemented including but not limited to timed grazing, mowing, hand digging, herbicide application, reseeding, and burning/torching. Estimated annual costs for treatment of invasive vegetation will vary based on presence and distribution of invasive vegetation and treatment methods. Develop a strategic plan for control of coyote brush on the Toto Ranch with a focus on ridge tops, around stockponds, and populations of Choris' popcorn flower.

Coyote brush is well established in many of the steeper canyons and has expanded into the ridgetops and open grassland areas over time. Coyote brush encroachment in the grasslands has reduced forage production by 50 to 80 percent in many pastures. The landowner has attempted mechanical control of the coyote brush by mowing, primarily in the front pastures between the farmstead and State Route-1. The mowing has reduced the size of the individual plants but has done little to reduce the quantity and percent cover of the coyote brush. A coyote brush encroachment management plan should be developed for the Ranch. Future brush control efforts, including chemical control, should be considered following the recommendations in the coyote brush management plan to maintain the estimated carrying capacity.

DRAFT

EXHIBIT-I – PROPOSED INFRASTRUCTURE IMPROVEMENTS



IX. Recommended Monitoring Protocols

The monitoring program for the grazed rangeland pastures on the Toto Ranch is designed to ensure that the specific rangeland uses are in compliance with this Rangeland Management Plan, the agricultural conservation easement, and the land stewardship goals and objectives.

It is recommended that the landowner/operator establish a routine monitoring protocol for the Toto Ranch. The following guidelines outline suggested monitoring criteria:

- Monitor forage utilization and livestock distribution trends to ensure appropriate RDM remains on the ground to achieve desired resource management objectives, including soil stability and water quality.
- Monitor the condition of livestock infrastructure, including water systems, gates and fencing, to ensure conformity with the terms of the easement and to improve rangeland and grazing management practices.
- Monitor non-native invasive vegetation with an emphasis on location, distribution and abundance of plant species. Describe methods for treatment or control of invasive species (grazing, herbicide application, mowing, etc.) and vegetation response to treatment methods.
- Monitor ponds to ensure habitat for special status wildlife species free of invasive predators such as fish and/or bullfrogs.
- Monitor desirable vegetation including native grasses, wildflowers, and trees with an emphasis on location, distribution, and abundance. Describe any impacts, positive or negative, observed as a result of agricultural practices (farming and/or grazing).
- Monitor vegetation that was planted as part of restoration or remediation work (where applicable) with an emphasis on location, distribution, abundance, and survival rate.
- Natural climatic changes (drought, floods, fire, etc.), geologic process, and biologic cycles beyond the landowners control should be noted and described as applicable.
- Stocking rates, herd type, and duration of grazing should be noted where applicable.

Monitoring observations can be used as a guideline for adaptive management changes, as needed, based on the results of annual monitoring. To evaluate the above listed monitoring criteria, several baseline photo monitoring points can be retaken and a monitoring form completed for each site on an annual basis. Monitoring should occur in the fall prior to the first fall/winter rainfall of the year. Photos in Attachment-A to this plan can be utilized as photo monitoring points for the landowner/operator and be used as a reference on which to base future monitoring comparisons. A sample photo monitoring form can be found under Exhibit-G. Annual monitoring visits conducted by Midpen staff will document and photograph any concerns, trends, and general overall resource conditions observed throughout the property.

Recommended Monitoring Items:

- ✓ **Residual Dry Matter (RDM):** RDM levels can be recorded using pounds per acre and measurements can be calculated or ocular estimates dependent on the skill set and experience of the monitor. RDM average standards are based on the University of California Cooperative Extension (UCCE) and Natural Resources Conservation Service (NRCS) prescribed grazing performance standards. The prescribed RDM standard for moderate grazing is an average minimum of 800-1,000 pounds per acre of dry matter (two to three inches of standing RDM) on slopes of 0 to 30 percent, and 1,000-1,200 pounds per acre of dry matter (three to four inches of standing RDM) on slopes greater than thirty percent. Leaving prescribed levels of RDM on the ground surface will provide a grassland seed crop for the following season, minimize the risk for soil erosion and sedimentation, and protect water quality. Please reference Attachment-B, 'Guidelines for Residual Dry Matter on Coastal and Foothill Rangelands in California', for more detailed information on RDM standards and data collection.

RDM measurements should be taken in the fall of each year at sites that are exemplary of the average RDM level in a pasture. Areas that are heavily frequented by livestock or do not adequately represent the average RDM level in a given pasture should be exempt from data collection. The following is a list of areas that should be avoided when collecting RDM samples or measurements:

- a. Areas that have burned
 - b. Roads
 - c. Corrals, and associated lanes and holding fields/traps
 - d. Sites with low soil fertility (rock outcrops, sandy soils) or high tree cover
 - e. Areas within 150 feet of water sources, stockponds, supplemental feeding sites
 - f. Areas subject to damage by wildlife such as feral pigs
 - g. Areas that are or have been recently cultivated
- ✓ **Plant Communities Observed:** Include a list of the plant communities observed within view of the photo point for example annual grassland, woodlands, wetlands, etc. Note any measurable trends or transition between plant community types from the prior year.
 - ✓ **Invasive Species Observed:** Include a list of observed invasive plant species noting relative abundance, location, and density. Note any differences from the prior year.
 - ✓ **Infrastructure:** Identify infrastructure relevant to the grazing and/or agricultural operation (water troughs, tanks, fencing, irrigation lines) noting location, current condition and need for adjustments or repairs.
 - ✓ **Soil Erosion:** Identify areas that are at risk for erosion or where soil loss has occurred as a result of surface water flow, wind, fire, or human activity. These sites may include gullies,

bare ground exposure, landslides, ruts, or notable surface runoff. Note historic activity and any current activity. Recommend soil protection measures.

- ✓ **Access Road Observations:** Note condition of road including surface condition, vegetation cover, culverts, recent maintenance or grading, and water diversion measures that are in place. Identify any signs of erosion, rutting, or gulying on the road surface or below road, particularly downstream of channel crossings.
- ✓ **Wildlife Observed:** Identify wildlife species observed at location of the photo point including specie information and relative abundance. Observations of special status species shall be reported to the District Natural Resources Department to be included in annual reporting to regulatory agencies.
- ✓ **Annual Precipitation:** Note the rainfall, in total inches, for the season. Keeping annual precipitation records is important in determining whether rainfall amount and distribution were average, below average, or above average. In average and above average rainfall years the RDM performance standards should be met. In below average rainfall years, RDM performance standards may be exceeded, but not for more than a period of two consecutive years. Annual stocking rates and grazing duration should be adjusted annually to accommodate forage production and annual precipitation.

GRAZING MONITORING CHECKLIST (SAMPLE)

SITE NAME _____ DATE _____ PHOTO POINT _____

MONITOR(S): _____

MEASURED RAINFALL (_____ INCHES): [] < AVERAGE [] AVERAGE [] >AVERAGE

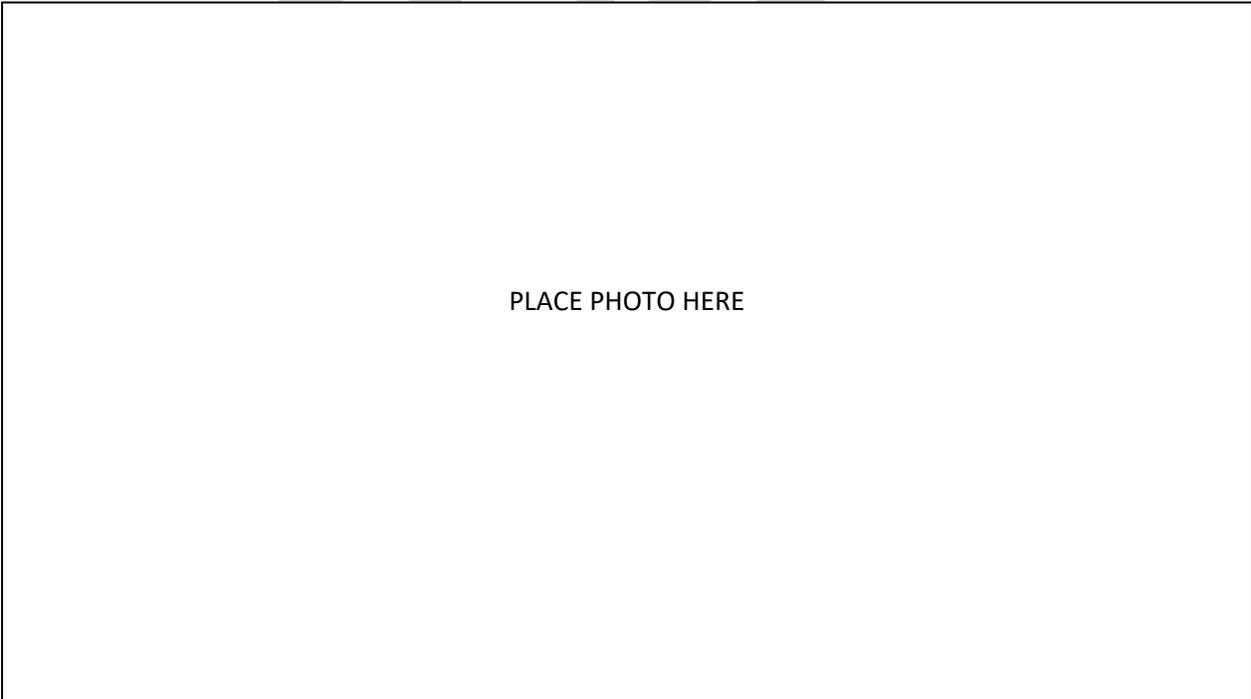
MONITORING ITEMS:

___ RESIDUAL DRY MATTER (RDM) LBS. PER ACRE: _____ 0-30% slope _____ >30% slope
Estimated [] Actual Measurement []

___ PLANT COMMUNITIES OBSERVED:

- [] Annual Grassland [] Mixed Forest [] Coyote Brush/Scrub
- [] Oak Woodland [] Aquatic Habitat [] Riparian Habitat
- [] Other Communities: _____
- [] Native Grasses: _____

___ WILDLIFE OBSERVED:



INFRASTRUCTURE / ROADS (Improvements, Condition, New Items, Future Concerns, etc.):

PONDS /STREAMS /AQUATIC FEATURES (Access, Vegetation, Water Clarity, Culverts, Spillways, etc.):

VEGETATION (Invasives, Natives, Thatch Amount, Encroachment, Plant Mortality, etc.):

*Relative Abundances: 1 = 1-10 / 2 = 10-100 / 3 = 100+ / 4 = Dominant Vegetation Type

EROSION CONCERNS (Gullying, Rilling, Slides, Surface Runoff, Bare Soil, etc.):

GENERAL NOTES (Cattle info, Landscape Changes, etc.):

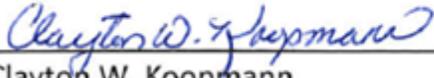
DISCUSSION ITEMS/CONCERNS:

REFERENCES

1. Resource Management Policies, Midpeninsula Regional Open Space District (PDF). https://www.openspace.org/sites/default/files/Resource_Management_Policies.pdf. Pages 53-57. Accessed 07/12/2017.
2. Agenda Item 7. Midpeninsula Regional Open Space District Board of Directors Meeting #12-36. R-12-109. November 14, 2012.
3. PERSONAL COMMUNICATION: Markegard, Erik (grazing tenant). June 2017. Personal communication with Clayton Koopmann.
4. PERSONAL COMMUNICATION: Markegard, Doniga (grazing tenant). June 2017. Personal communication with Clayton Koopmann.
5. Annual Crop Report, San Mateo County. 2016. San Mateo County Agricultural Commissioner's Office.
6. National Cooperative Soil Survey. Soilseries.sc.egov.usda.gov. 2014.
7. Natural Resources Conservation Service (NRCS). 2007. San Mateo County, California (CA041) Soil Data, (Version 5, Dec 10, 2007).
8. Soil Survey of Marin County, California, Volume 38. Soil Conservation Service. 1985.
9. PERSONAL OBSERVATION: Koopmann, Clayton. April 2017 site visit.
10. California Invasive Plant Council, *Invasive Plant Inventory Database*. <http://www.cal-ipc.org/paf>. August 2014.
11. US Fish and Wildlife Service (USFWS). 2004. Endangered and threatened wildlife and plants: Determination of threatened status for the California red-legged frog. *Federal Register* 61(101):25813-25833.
12. Managing Rangelands to Benefit California Red-Legged Frogs and California Tiger Salamanders. Lawrence D. Ford, Pete A. Van Hoorn, Devii R. Rao, Norman J. Scott, Peter C. Trenham, and James W. Bartolome. Chapters 4, 5, and 8. September 2013.
13. Agricultural Management Plan. *Sage and Associates*. 2016.
14. Guidelines for Residual Dry Matter on Coastal and Foothill Rangelands in California. University of California Cooperative Extensions (UCCE). Publication 8092. 2002.
15. California Natural Diversity database last accessed online January 2018.

PLAN PREPARED BY:

Having prepared this Rangeland Management Plan (RMP), I certify that it is consistent with the purpose and requirements, as set forth in the relevant RMP Provisions. As with any plan, this RMP should be viewed as a living document, subject to periodic update and review as needed to reflect changing on-farm conditions over time. The RMP should be updated at least every ten years, or in the event of significant changes in the use, management, or ownership of the Property.



Clayton W. Koopmann

January 10, 2018
Date

Clayton W. Koopmann, B.S., Agricultural Management & Rangeland Resources; Owner Koopmann Rangeland Consulting; California Board of Forestry Registered Certified Rangeland Manager #100

DRAFT



ATTACHMENT – A

2017 Baseline Photos: Toto Ranch Photo Point Location Map

(Baseline photos can be used as reference for establishing photo-monitoring points annually by the landowner. Long term trends can be noted when comparing the baseline photo updates against the original baseline photos.)

DRAFT

ATTACHMENT – B

Guidelines for Residual Dry Matter Monitoring
University of California

DRAFT

ATTACHMENT – C

Vegetation Composition Specie List (Observed): Toto Ranch

DRAFT

ATTACHMENT – D

Recommended management approach and best management practices for California red-legged frogs on the Toto Ranch

Managing Rangelands to Benefit California Red-Legged Frogs & California Tiger Salamanders – Chapters 4, 5 & 8

DRAFT

Appendix B. Existing Permits/Guidance

This page intentionally left blank.

Existing Permits and Guidance Documents

The grazing recommendations and proposed projects outlined in the Midpeninsula Regional Open Space District (Midpen) Toto Ranch Range Management Plan (RMP) must be implemented in accordance with the recommendations and requirements from the following existing permits and guidance documents.

- CDFW Streambed Alteration Agreement Notification No 1600-2012-0444-R3 (2018)
- Basic Policy of the Midpeninsula Regional Open Space District (1999)
- California Land Conservation (Williamson Act) Contract (Planning File No. AP 84-4, Board of Supervisors Resolution No. 46568, recorded in San Mateo County Records as Document No. 85015218 on February 15, 1985)
- Service Plan for the San Mateo Coastal Annexation Area (2002)
- San Mateo Coastal Annexation Draft Environmental Impact Report (2002)
- Midpeninsula Regional Open Space District's Resource Management Policies (2018)
- Midpeninsula Regional Open Space District's Integrated Pest Management Program Guidance Manual (2014)
- Midpeninsula Regional Open Space District's Integrated Pest Management Program Environmental Impact Report (2014)
- Midpeninsula Regional Open Space District's Preliminary Use and Management Plan (2012)
- Regulations for Use of Midpeninsula Regional Open Space District Lands (2014)
- Midpeninsula Regional Open Space Toto Ranch Bat Roost and Acoustic Survey (2018)
- RWQCB Waste Discharge Requirements and Water Quality Certifications for Routine Maintenance Activities for Mid-Peninsula Open Space District, Order No. R2-2010-0083 (2010)
- USFWS Intra-Service Biological Opinion on the issuance of a 10(a)1(A) permit to the Midpeninsula Regional Open Space District for the San Francisco Garter Snake and California Red-Legged Frog Habitat Enhancement Projects at their Open Space Preserves in San Mateo and Santa Clara counties, California (2016)
- USFWS Native Endangered and Threatened Species Recovery Permit (2016)

This section provides a summary of all avoidance and minimization measures from the listed permits and guidance documents, discussed by biological resource type or species. A summary table of avoidance and minimization measures and the guidance documents is included in **Table 2** in Section 1.5, Proposed Project Components, of this IS/MND.

The resource agencies and Midpen previously identified avoidance and minimization measures to reduce the potential for take of special-status species and to reduce the impacts to biological

resources to a less than significant level on a number of Midpen's preserves. The avoidance and minimization measures discussed below will be implemented concurrently and in conjunction with the implementation of the RMP.

*Although the summary of avoidance and minimization measures in this section and table are sufficient for impact analysis under CEQA, please note that neither this section, nor **Table 2** or **Table 8**, should be used in place of the existing guiding documents and permits listed above for regulatory/permit compliance.*

1. Ponds and Wetlands

Midpen is responsible for the preservation of ponds through maintenance of artificial impoundment structures, especially where ponds provide habitat for sensitive aquatic species or provide watering sources for terrestrial wildlife (Midpen 2014a). To accomplish this, Midpen will monitor, repair, modify, and maintain stock ponds (Midpen 2014a). In addition, Midpen will manage agricultural leases and easements to maximize the protection and enhancement of riparian areas and water quality (Midpen 2014a).

1A. Pond Monitoring and Annual Work Plan

Annual monitoring includes a field assessment of water quality and conditions of aquatic habitats containing spawning, breeding, or rearing habitat for special-status fish, reptile, amphibian, or other aquatic species (Midpen 2014a). The results of monitoring activities will be used to identify opportunities for habitat maintenance and enhancement, and may include vegetation management and/or the development and implementation of BMPs to manage vegetation to improve watershed productivity and water quality (Midpen 2014a).

An annual work plan shall be submitted to the USFWS and shall describe proposed pond enhancement or pond creation activities. The annual plan will specify the ponds where work will be performed, the dates during which the work will be performed, and a description of the work to be performed, including monitoring. The annual plan must be approved by the USFWS prior to implementation. Pond enhancement activities (emptying, dredging) should take place between August 15 and November 1 (CDFW 2018; USFWS 2016a and 2016b).

1B. Pond Berm Repairs/Maintenance

Berm Repairs/Maintenance are defined as any activity that results in the repair or maintenance of an existing earthen berm structure either through vegetation clearing or minor earthwork (CDFW 2018). This task includes filling in low spots on the berm surface and removal of woody vegetation on berm faces and repair of smaller scale earthen berms that are not regulated by the Division of Dam Safety. Berm repairs may only be completed with the following restrictions.

- Berm repairs are confined to existing berm structures and may not involve relocation or upsizing of any existing berms (CDFW 2018).
- Berm repairs shall adhere to the terms and conditions of the USFWS Recovery Permit Number: TE225974-2, dated 12/22/16, and CDFW Memorandum of Understanding “Research and Recovery of San Francisco Garter Snake and California Tiger Salamander” dated April 6, 2017 (CDFW 2018).
- Vegetation removal is limited to existing berm top, face, and no more than a six (6) foot buffer around the existing berm (CDFW 2018).

1C. Pond Outlet Repairs/Maintenance

Repair of existing human made outlet channels and pipes associated with small scale earthen berms in order to remove blockages, replace failing or undersized outlet channels or pipes, to remove accumulated vegetation or sediment, or to place erosion control may be implemented with the following restrictions.

- Work may only occur when the channel is dry adhering to the terms and conditions of the USFWS Recovery Permit Number: TE225974-2, dated 12/22/16, and CDFW Memorandum of Understanding “Research and Recovery of San Francisco Garter Snake and California Tiger Salamander” dated April 6, 2017 (CDFW 2018).
- Vegetation removal is limited to no more than a six (6) foot buffer around the existing channel and may not extend into nearby natural drainages. Limited vegetation removal may occur on the pond access road to provide safe equipment access to the pond site (CDFW 2018).
- No more than 200 feet of channel or 60 feet of pipe can be repaired in each location, including the sum of both banks (CDFW 2018).
- A secondary outlet pipe may be installed to provide an emergency overflow in the event of blockage of the primary pond outlet/spillway (CDFW 2018).

1D. Pond Basins Repairs/Maintenance

Repair of pond basins to remove accumulated sediment, invasive vegetation or to improve aquatic habitat conditions. Basin repairs may only be completed with the following restrictions.

- Basin repairs involving earthwork or re-contouring may only occur when the pond is dry or when following the terms and conditions of the USFWS Recovery Permit Number: TE225974-2, dated 12/22/16, and CDFW Memorandum of Understanding “Research and Recovery of San Francisco Garter Snake and California Tiger Salamander” dated April 6, 2017 (CDFW 2018).
- Basin repairs are confined to existing pond footprint and may not involve relocation or upsizing of any existing ponds (CDFW 2018).

- Vegetation removal is limited to invasive vegetation (including native species) having a detrimental impact to aquatic habitat conditions within the existing pond basin and banks (CDFW 2018).
- Wetland vegetation removal is limited to that caused by direct removal of built up vegetation or sediment removal or to allow access to the pond basin for re-contouring (CDFW 2018).

1E. Pond Trash Cleanup

This task includes removal of non-natural materials from jurisdictional lakes, ponds and channels under the following restrictions.

- Hazardous materials may only be removed under the professional guidance of a hazardous materials consultant with notification to both CDFW and the Regional Water Quality Control Board (CDFW 2018).
- All work is to be done with hand tools, including come-along cable pullers, except that vehicle mounted winches may be used to remove collected or very heavy materials from the channel.
- Vegetation removal is limited to that caused by direct removal or minor trimming to allow access to the channel or material to be removed (CDFW 2018).
- Access points may be opened no more than every 50 yards to remove materials. No grading and only limited vegetation removal shall take place to open an access point (CDFW 2018).

1F. Preconstruction Surveys Prior to Pond Maintenance, Enhancement, and Creation

Activities including mechanical dredging, excavating, and bulldozing for shoring up earthen berms or leveling spillways will require pre-activity visual surveys as well as monitoring during the activities.

Pre-activity surveys will take place the day prior to the proposed maintenance or construction actions (see preconstruction surveys in **Special-Status Species** and **Raptors and Birds** sections below). In addition, biologists will determine routes to be marked for vehicle travel off of marked improved roads, extent of project disturbance, areas of ground disturbance where exclusion fencing will be required, how many biological monitors will be required during the actions based on the size of the affected area and the density of affected CRLF, and the presence of special-status species or nesting birds that may be affected by project activities (CDFW 2018; USFWS 2016a and 2016b). Buffers to avoid impacts to any species or nests present can be set up during these surveys.

Surveys and monitors will normally not be required for small scale pond maintenance activities using hand tools and fewer than five persons per one half acre (CDFW 2018).

Surveys and monitors during the pond repair and maintenance activities will only be conducted by federal and state permitted biologists in accordance with their permits (CDFW 2018).

1G. Implementation of Pond Maintenance, Enhancement, and Creation Activities

Pond enhancement and pond creation activities include vegetation removal, basin deepening or recontouring and sediment removal, berm repair and strengthening, and planting vegetation, all of which may be performed manually or using light and/ or heavy machinery. Draining of ponds to perform the authorized work should only occur during the part of the year when the tadpole life stage of the frog has been completed and before the subsequent breeding season. In northern California, this corresponds to a work period between August 15 and November 1 (USFWS 2016a).

Within two days of the start of work on a pond, that pond will be sampled by a qualified biologist to ensure that all frogs from that pond are in the post-metamorphic stage and will be minimally affected by draining the pond (USFWS 2016a and 2016b).

Exclusion fencing will be placed, at a minimum, around the immediate work area where machinery will be operating. During activities involving mechanized equipment, biological monitors will maintain exclusion fencing and evaluate work performed during pond activities. Monitors are required to temporarily stop any work that they believe may harm the San Francisco Garter (SFGS). Work will not resume until a satisfactory method is agreed upon to minimize take of the CRLF or SFGS (USFWS 2016a).

Vehicles traveling to and from the work site off of established ranch roads must travel slowly (5 mph) and be preceded by a monitor to ensure that snakes or other animals will not be run over by the passing vehicle. Vehicle monitors need not be trained biologists (USFWS 2016a).

For vegetation removal on berms or other sites with known California red-legged frog observances, vegetation shall be cut down to 3 inches by hand tools (weed whacker, etc.). Once the ground is visible, a visual survey for the snake and frog shall be conducted. If no sensitive species are found in the area, removal of vegetation may continue by mowing or mechanized equipment very slowly with a biological monitor walking in front of the equipment to observe. If a snake or frog is observed, all activities shall cease, and the USFWS shall be notified immediately. Snakes and frogs can be relocated only if a person is permitted by the USFWS and approved by CDFW for this specific project to handle the snake or the frog (USFWS 2016a).

Vegetation management activities that could result in the destabilization of stream banks or increase sediment input into waters of the State are prohibited (RWQCB 2010).

Vegetation management activities shall not adversely impact the riparian zone, shade, canopy coverage, or habitat. Overall impacts of vegetation management activities shall improve beneficial uses (RWQCB 2010).

If CRLF or SFGS are known to occur in a particular pond, cattails, tules, and emergent vegetation shall be removed by hand when feasible. If mechanized equipment is used, two biological monitors or qualified biologists shall be onsite monitoring the scoop bucket while scooping and watching each load unload. Vegetation removed shall be placed directly into a disposal vehicle and removed from the site. Vegetation shall not be piled on the ground unless it is later transferred, piece by piece, under the direct supervision of the biological monitor or qualified biologist or is going to remain on site for erosion control or slash and not be moved or disturbed. Soil shall not be stockpiled on the ground unless it is on a paved surface or staging area where there are no burrows (USFWS 2016a).

In work areas containing emergent vegetation (e.g., tules, cattails), vegetation shall be inspected for California red-legged frog eggs masses prior to work. A buffer of vegetation at least 10 feet in diameter shall be left around any egg masses found. Permittee shall keep a record of any sites where egg masses are found and shall conduct vegetation removal at these sites prior to November 1 in subsequent years. Staff shall avoid entering the channel to avoid dislodging egg masses. Trimming activities shall be performed from the banks, if possible (USFWS 2016a).

Shooting, trapping, and gigging of aquatic species will be conducted only by a qualified biologist with experience in the identification of CRLF. Inadvertently trapped CRLF will be released immediately upon discovery (USFWS 2016a).

All staging will occur on adjacent access roads or previously disturbed areas. Soil and rip-rap will be staged in areas that have been previously disturbed (i.e., service road, turnouts, etc.). If repair activities affect the active channel, the work area will be isolated from flowing stream segments using silt fences, wattles, and/or cofferdams and restored to pre-project conditions after maintenance is complete (RWQCB 2010).

Maintenance of bridges and culverts, stream bank stabilization, vegetation management and habitat enhancement will reduce the amount of sediment delivered to maintained channels and will enhance habitat for rare and endangered species (RWQCB 2010).

2. Creeks and Streams

Maintenance of bridges and culverts, stream bank stabilization, vegetation management, and habitat enhancement will reduce the amount of sediment delivered to maintained channels and will enhance habitat for rare and endangered species (RWQCB 2010).

2A. Preconstruction Surveys Prior to Maintenance, Enhancement, and Construction In and Near Creeks and Streams

Preconstruction surveys prior to maintenance, enhancement, and construction in and near creeks and streams, including culvert replacement and/or repair, vegetation management, and erosion control will require pre-activity visual surveys as well as monitoring during the activities (CDFW 2018; USFWS 2016a and 2016b).

Pre-activity surveys will take place the day prior to the proposed maintenance or construction actions (see preconstruction surveys in **Special-Status Species** and **Raptors and Birds** sections below). In addition, biologists will determine routes to be marked for vehicle travel off marked/improved roads, extent of project disturbance, and the presence of special-status species or nesting birds that may be affected by project activities. Buffers to avoid impacts to any species or nests present can be set up during these surveys (CDFW 2018; USFWS 2016a and 2016b).

Surveys and monitors must be on site during the pond repair and maintenance activities will only be conducted by federal and state permitted biologists in accordance with their permits (CDFW 2018).

2B. Culvert Replacement

Replacement of any existing concrete, wood, plastic (ABS, HDPE etc.) or metal pipe culvert up to 48 inches inner diameter (unless authorized to be a larger diameter by resource agencies) may be replaced with the following restrictions.

- Work shall be done only when the channel is dry, except in perennial streams or during wet weather years in which the channel does not dry. In these instances, work will be scheduled during periods of low flow and must adhere to Midpen's dewatering BMPs and the associated Regional Water Quality Control Board Waste Discharge Requirements and Water Quality Certification covering the proposed work. When working within wet channels there will be a designated water quality monitor to monitor and document turbidity entering and exiting the work site (CDFW 2018; USFWS 2016a and 2016b).
- The new culvert shall typically be as large as or larger than the existing culvert unless the original culvert was oversized or a natural obstruction such as bedrock is encountered. For anything other than an ephemeral drainage, the culvert shall be sized where feasible to convey a 100-year flow or cover the entire channel width (CDFW 2018; USFWS 2016a and 2016b).
- Total earthwork shall not exceed 80 cubic yards per culvert, not including any energy dissipater (CDFW 2018; USFWS 2016a and 2016b).
- The new culvert shall be installed at or below grade (CDFW 2018; USFWS 2016a and 2016b).

2C. Culvert Repair/Maintenance

Standard practice is to clean culverts of obstructions once they are 10-20% blocked. Culverts with recurring blockages are cleaned annually, regardless of the amount of blockage. Sediment, vegetation or debris shall be removed using handtools in creeks supporting salmonids, unless other methodology is submitted to CDFW in writing during annual project notifications. Sediment, vegetation or debris may be removed with mechanized equipment in creeks that do not provide habitat for salmonids. Removal of up to a maximum amount of five (5) cubic yards per culvert is covered under some permits (CDFW 2018).

Culverts that are more than 1/3 blocked may be cleaned at any time, even during periods when the channel is wet, with the following restrictions.

- Up to 3 cubic yards of material may be removed, using hand tools only, under any conditions.
- Removal of amounts greater than 3 cubic yards requires that the channel be dewatered first, and heavy equipment may be used with written approval from CDFW (CDFW 2018).
- The total cumulative area of disturbance shall not exceed 150 feet of channel or 2,000 square feet of area, whichever is less (CDFW 2018).
- After completion of the work, the disturbed area shall immediately be treated with erosion control Best Management Practices (BMPs) sufficient to control turbidity and sediment loss (CDFW 2018; RWQCB 2010).
- Nearby perched or otherwise unstable fill may be removed as well, up to 10 cubic yards (CDFW 2018).
- No coho salmon are present (CDFW 2018; USFWS 2016a and 2016b).

2D. Minor Culvert Relocation Where the Road or Trail Is Not Also Being Relocated

Relocation or replacement of a culvert with a rolling dip within 25 feet of the original location to correct poor drainage conditions or improve sediment control with the following restrictions.

- The total amount of earthwork may not exceed 80 cubic yards (CDFW 2018).
- Work shall be done only when the channel is dry, except in perennial streams or during wet weather years in which the channel does not dry. In these instances, work will be scheduled during periods of low flow and must adhere to Midpen's dewatering BMPs and the associated Regional Water Quality Control Board Waste Discharge Requirements and Water Quality Certification covering the proposed work. When working within wet channels there will be a designated water quality monitor to monitor and document turbidity entering and exiting the work site (CDFW 2018).

- The new culvert shall be installed at or below grade and shall include an energy dissipater or down drain as appropriate (CDFW 2018).
- Where feasible, the new culvert shall accommodate a 100-year flow or the entire channel width, whichever is greater or more feasible (CDFW 2018).
- Vegetation removal is limited to no more than a five-foot buffer around the culvert and to trimming of no more than 20% of any individual tree canopy within that five-foot buffer (CDFW 2018).

2E. Removal of Existing Culverts or Replacement with Rolling Dips or Fords

Removal of culverts and filling in of the associated cross drain or replacement with a rolling dip or ford, with the following restrictions.

- No more than one culvert may be removed for every hundred yards of trail or road length if the culvert is in a natural channel (CDFW 2018).
- If the channel is non-natural (created by the original emplacement of the culvert), any number of culverts may be removed (CDFW 2018).

2F. New Culvert Installation (Non Stream-Crossing Culverts)

New culverts may be installed to maintain existing roads and trails with the following restrictions.

- New culverts shall not be installed in streams but shall be limited to engineered drainage ditches associated with roads and trails (CDFW 2018).
- If an existing road or trail has an inadequately drained inboard ditch (excessive length between existing ditch relief culverts or dips), 1 new ditch relief culverts (where rolling dips would be insufficient) may be placed as directed by Best Management Practices and/or by the project engineer to adequately convey storm water and reduce sediment to downstream watercourses (CDFW 2018).

2G. Ford and Swale Replacement, Repair, or Maintenance (Includes Drain Lenses and Causeways)

Ford or swale replacement with culverts, bridges or small puncheons, shall be submitted to CDFW in writing through annual project notifications (CDFW 2018).

Full replacement of existing fords or repair/maintenance by replacing rock and removing sediment and woody debris can be undertaken with the following restrictions.

- No use of chemicals, concrete, mortar or other sealants or adhesives (CDFW 2018).
- This category applies only to narrow width trails and emergency vehicle/multi-use trails where the drainage does not support salmonids (CDFW 2018).

- The ford is not on an intermittent or perennial drainage or, if it is, the ford has been confirmed by CDFW to not be considered a barrier to the movement of aquatic organisms (CDFW 2018).
- Vegetation removal is limited to no more than a five-foot buffer around the existing ford and to trimming of no more than 20% of any individual tree canopy within the five-foot buffer only (CDFW 2018).
- All work shall be done when the channel is dry, except in perennial streams or during wet weather years in which the channel does not dry. In these instances, work will be scheduled during periods of low flow and must adhere to Midpen's dewatering BMPs and the associated Regional Water Quality Control Board Waste Discharge Requirements and Water Quality Certification covering the proposed work (CDFW 2018).
- When working within wet channels there will be a designated water quality monitor to monitor and document turbidity entering and exiting the work site (CDFW 2018).

2H. Bank Stabilization, Replacement, Repair, and Maintenance

Small bank and streambed erosion control projects must minimize water quality and erosion impacts. For repair only (not new construction), rip-rap may be replaced above or below failed sections of structures to aid in integrity of those structures. Riprap of proper size and weight to withstand high water flows will be set below grade and keyed into the bank (CDFW 2018; RWQCB 2010). Work will be confined to the damaged or failed sections and immediate adjacent bank area affected by the damage failure. No more than 40% of bank repairs in a given year will use "hard" or impervious structure design without prior consultation with CDFW (CDFW 2018; RWQCB 2010).

Streambank areas receiving rock slope protection shall be back-filled with appropriate native or clean imported topsoil. The topsoil will fill some portions of the voids in the rock slope protection above the normal high water mark and provide a substrate for revegetation efforts. This work will be done manually using hand tools and power tools such as a toter or mule for single-track trail environments or an excavator or dump truck when needed for multiuse trails or roads (CDFW 2018; RWQCB 2010).

Other bank stabilization measures that may be employed include broadcast and hydro-seeding, riparian vegetation planting, slopes armored with rocks or sandbags staked with live willow and other bioengineering techniques such as willow staking, live willow pole drains, vegetated crib walls, log or rock weirs (CDFW 2018; RWQCB 2010).

Riparian trees shall be protected from damage to the greatest extent possible during repair and replacement (CDFW 2018; RWQCB 2010).

2I. Implementation of Maintenance and Enhancement Activities Near Creeks and Streams

Manage vegetation to improve watershed productivity and water quality (Midpen 2014a; RWQCB 2010). Vegetation management activities that could result in the destabilization of stream banks or increase sediment input into waters of the State are prohibited (RWQCB 2010). Vegetation management activities shall not adversely impact the riparian zone, shade, canopy coverage, or habitat (Midpen 2014a; RWQCB 2010).

Utilize existing, develop, define and implement best management practices (BMPs) to protect water quality (Midpen 2014a).

Monitor water quality and condition of aquatic habitats containing spawning, breeding, or rearing habitat for special-status fish, reptile, amphibian, or other aquatic species (Midpen 2014a).

2J. Integrated Pest Management Associated with the Use of Chemicals In and Near Creeks and Streams

When conducting chemical treatments within or with potential to affect waters and with the potential to discharge directly or indirectly to waters of the U.S., Midpen must consult with the San Francisco Bay RWQCB, CDFW, and USFWS, which may require Midpen to submit a Notice of Intent to Discharge and develop an Aquatic Pesticide Application Plan (RWQCB 2010, Midpen 2014a and 2041b). The permit includes design and operational BMPs that must be implemented to reduce the level of contaminated runoff, including monitoring and reporting to document and minimize pollutant discharge and ensure pollutants do not adversely affect waters (RWQCB 2010, Midpen 2014a and 2041b). If pollutants are found to be exceeding water quality standards application must stop, or additional BMPs must be developed to bring the activities into compliance (RWQCB 2010, Midpen 2014a and 2041b).

3. Trail Construction and Maintenance (Project-Related)

3A. Routine Trail Maintenance

All Routine Maintenance Activities will be done in accordance with the Midpen's Best Management Practices and Species Avoidance Measures for Routine Maintenance work.

Identify, avoid, and minimize significant impacts of altered water flow on plants and animals, including aquatic organisms (Midpen 2014a). When necessary, restore hydrologic processes altered by human activity by installing erosion control materials and structures, removing culverts and drainage diversions where appropriate, and using improved drainage structures that minimize alteration of hydrology (Midpen 2014a).

The appropriate resource agencies shall be contacted regarding any trail alignments or other improvements that may impact sensitive habitats, special-status species, or their habitat. Plant

replacement shall be native to the area and suitable for the site conditions (Midpen 2002a, 2014c and 2014a).

3B. Vegetation Removal for Trail Maintenance

Removal of native vegetation shall be avoided as much as possible; existing native vegetation shall only be removed as necessary to accommodate the trail clearing width. The minimum horizontal clearing width from physical obstructions varies based on the type of trail but should be no less than two feet from the outer limits of the trail tread and shall be determined on a case by case basis to protect special natural features (Midpen 2002a, 2014c and 2014a). Maximum vertical distance from overhanging branches shall be 12 feet on trails open to equestrian or bicycle use (Midpen 2002a, 2014c and 2014a). Maximum vertical distance from overhanging branches shall be eight feet on hiking trails. Clearing shall be determined on a case-by-case basis to protect special natural features.

Good pruning practices should be followed when vegetation growth must be cleared. Ground cover plants and low shrubs should not be cleared beyond the original construction stand. The construction stand shall be defined as the trail tread width plus 1-2 feet from each side of the edge of the trail tread (Midpen 2002a, 2014c and 2014a). Noxious plants (listed by California Invasive Pest Plant Council) shall be controlled along trails and the edges of staging areas in a timely manner.

3C. Trail Construction and Siting

Any new road and trail installation project will be described in the annual work plan and approved by the USFWS prior to the start of the project (USFWS 2016a and 2016b).

Align new trails to avoid impacts to sensitive habitats, special-status species, and heritage and significant trees (Midpen 2014a). If any impacts to sensitive species may occur, Midpen will consult with the appropriate agencies (e.g., CDFG, USFWS, NMFS) to ensure that impacts will be avoided or mitigation is adequate (Midpen 2002a).

Trail design shall include barriers to control trail use and prevent environmental damage. Barriers may include fences, vegetation, stiles, and/or fallen trees or branches (Midpen 2002a, 2014c and 2014a).

When parallel to a stream or riparian zone, trails shall generally be set back from the top of bank or from the outside edge of the riparian zone, whichever is greater, except where topographic, resource management, or other constraints or management objectives make such a setback not feasible or undesirable. Riparian setbacks may be adjusted on a case-by-case basis based upon advice of a qualified biologist and with the concurrence of reviewing agencies, where applicable (Midpen 2002a, 2014c and 2014a).

Trail crossings of streams and drainages shall be designed to minimize disturbance through the use of bridges, fords, or culverts, whichever is least environmentally damaging. Bridges and culverts shall be designed so that they visually and functionally blend with the environment and do not substantially interfere with the movement of native fish. Sufficient depth and velocity of water through the culvert shall exist in fish-bearing streams for passage of native fish and other native aquatic species during high and low flow conditions. Equestrian trail access shall be restricted at fish-bearing streams during critical times, such as during spawning, unless bridges and culverts are provided for horse use (Midpen 2002a).

Trails and other improvements shall avoid wetlands and other jurisdictional waters, including seasonal wetlands, seeps, springs, and farm ponds, wherever possible (Midpen 2002a). When not possible to avoid these features, trails, roads, and staging areas, shall be constructed so that streams are not permanently diverted nor interrupted, runoff is not concentrated, and potential water pollution and stream bank erosion and sediment delivery are minimized (Midpen 2014a). A wetlands biologist will conduct reconnaissance-level surveys of all improvements in areas with potential wetlands, and a formal wetland delineation will be required for any improvements that may directly impact wetlands (Midpen 2002a). Any improvements adjacent to wetland areas will be constructed so that fills avoid and minimize wetland impacts and minimum setbacks are allowed. Where feasible, setbacks from wetlands and other jurisdictional waters shall be a minimum of 25 feet for trails and 50 feet for staging areas and other improvements (Midpen 2002a).

3D. Trail Drainage and Erosion Control

This task includes removal of sediment from roads and trails to improve drainage and prevent or repair erosion. Specific applications are listed below.

- Cleaning roadside/trailside ditches. Limited to no more than 10 cubic yards of soil per 100-yard length of road/trail. Also allows associated vegetation removal (CDFW 2018).
- Slough and berm removal. Over time, use of trails and roads tends to compact and lower the road or trail surface, trapping drainage on the travel surface. This task allows for occasional removal (every 3-5 years) of that material, not to exceed 5 cubic yards per 100-yard length of road/trail and not to exceed 10 cubic yards per 100 yard length of road (CDFW 2018).
- Cleaning sediment accumulation in rolling dips. Rolling dips that are constructed in a drainage are considered in jurisdiction of CDFW, and removal of up to 2 cubic yards of sediment per 100-yard length of road/trail may occur (CDFW 2018).
- Landslide removal. Up to 5 cubic yards per event may be removed or up to 2 cubic yards under any conditions with the following restrictions:
 - Up to 2 cubic yards of material may be removed, using hand tools only, under any conditions (CDFW 2018).

- Removal of amounts greater than 2 cubic yards requires that the channel be dewatered first and heavy equipment may be used if submitted to CDFW in writing through annual notification process and where no coho salmon are present (CDFW 2018).
- The total area of disturbance shall not exceed 150 feet of channel or 2,000 square feet of area, whichever is less (CDFW 2018).
- The disturbed area shall immediately be treated with erosion control materials sufficient to control turbidity (CDFW 2018).
- Nearby perched or otherwise unstable fill shall be removed as well, up to 5 cubic yards (CDFW 2018).

3E. Minor Trail Relocation

Minor relocation of trails and roads may be implemented to improve drainage, remove paths from environmentally sensitive areas or achieve better stability.

The following restrictions apply to narrow width trails.

- The new location shall be no more than 400' upslope or downslope of the existing location (CDFW 2018).
- New crossings shall be free-span bridges in creeks providing salmonid habitat or free-span bridges or mortar or concrete free fords in creek without salmonid habitat.
- New culvert installation in relocated trails must be permitted by CDFW (CDFW 2018).
- Vegetation removal is limited to no more than a six (6) foot buffer around the new crossing and to trimming of no more than 20% of any individual tree canopy in that six-foot buffer (CDFW 2018).
- All work is to be done when the work area is dry, and the work period is outside the rainy season (CDFW 2018).
- Work must be completed during the allowable work periods identified in regulatory permits (CDFW 2018; RWQCB 2010; USFWS 2016a and 2016b).

The following restrictions apply to relocation of other trails and roads.

- The new location must be no more than 400' upslope or downslope of the existing location (CDFW 2018).
- The total amount of earthwork may not exceed 7,525 cubic yards (CDFW 2018).
- New crossings shall be free-span bridges in creeks providing salmonid habitat or free-span bridges or mortar or concrete free fords in creeks without salmonid habitat (CDFW 2018).
- If a new culvert will be used for stream crossings, Permittee must apply for a separate/new permit from CDFW (CDFW 2018).

- All work is to be done when the work area is dry, except in perennial streams or during wet weather years in which the channel does not dry. In these instances, work will be scheduled during periods of low flow and must adhere to Midpen's dewatering BMPs and the associated Regional Water Quality Control Board Waste Discharge Requirements and Water Quality Certification covering the proposed work. When working within wet channels there will be a designated water quality monitor to monitor and document turbidity entering and exiting the work site (CDFW 2018; RWQCB 2010).
- Vegetation removal is limited to no more than a five-foot buffer around the new crossing and to trimming of no more than 20% of any individual tree canopy with the five-foot buffer.
- Existing access routes shall be used wherever suitable to minimize impacts of new construction in special-status species habitats. Realignment will be implemented where necessary to avoid adverse impacts on resources (Midpen 2002a).

3F. Trail Closures and Restricting Use

Midpen shall manage human activities to control erosion. For example, areas where trails are eroding or causing erosion to adjacent areas should be abandoned, and where feasible, restored to a natural condition. Poorly designed or sited roads should be rerouted. Trails in areas prone to erosion should be closed to bicycle and equestrian use during the wet season (Midpen 2002a and 2014a). Techniques for limiting use may include, but are not limited to physical access controls and seasonal or intermittent closures (Midpen 2002a).

A particular trail or other facility may need to be closed during seasonal periods to protect special-status species, to protect habitats where overuse threatens resource values, or for other reasons to protect biological resources (Midpen 2002a). Where a trail or surrounding habitat warrants special notice limiting trail use, the trail shall be clearly designated and should be equipped with use signs and appropriate barriers to discourage unauthorized use. Missing or damaged signs, gates, fences, and barriers shall be repaired or replaced as soon as possible. Closure notices shall include the reason(s) for the closure, an estimate of how long the facility will be closed, and a telephone number to call for further information (Midpen 2002a).

Periodic monitoring of known sensitive habitats adjacent to trails or other facilities shall be conducted to determine if unacceptable soil compaction or other adverse impacts are occurring (Midpen 2002a). If monitoring reveals that undesirable soil compaction or impact to a sensitive habitat is occurring, barriers or other appropriate measures (such as trail rerouting) shall be employed as needed to discourage off-trail use. Brush or other aesthetically acceptable barriers can be used to cover illegal trails, abandoned trails, or shortcuts to discourage use until natural vegetation returns (Midpen 2002a).

3G. Permanent Trail Closure

Should sensitive habitat be impacted such that it necessitates permanently closing a trail or staging area, a management program to rehabilitate the area will be developed (Midpen 2002a). Such a program shall include disking and replanting or other techniques appropriate to the habitat type to return the site to a natural condition and sufficiently blocking the trail with barriers to effectively prohibit use. Management shall include monitoring the site to ensure that it returns to a natural condition without the intrusion of invasive exotic plants. Management shall also include design elements, maintenance, and monitoring to ensure that erosion is minimized. Construction and maintenance of trails will require the trimming and/or removal of vegetation along the trail route and staging areas (see **Vegetation Removal to Maintain Trails, Roads, or Staging Areas**, below).

3H. Exclusion Fencing for Federally Listed Species

If the biological monitor or qualified biologist determines that sensitive species are not within the work area, equipment or materials may be moved onto the work site and project activities may commence under the observation of the biological monitor (USFWS 2016a and 2016b). If federally listed species are found in routine maintenance activity sites using large equipment to remove sediment, they shall be excluded from the project site (USFWS 2016a and 2016b). USFWS approved exclusion fencing shall be installed around the sediment removal site, staging areas and any areas where fill may be dumped. After installation of the fence barrier, a biological monitor or qualified biologist shall daily inspect the project work area, staging and stockpiling area prior to the commencement of activities (USFWS 2016a and 2016b).

3I. Vegetation Removal to Maintain Trails, Roads, or Staging Areas

Maintenance of trails, roads, and staging areas includes the following activities: removal of vegetation, including root masses and trimming, where a road or trail or other surface or structure is being damaged; where plant growth blocks channels or reduces water flow; to protect water supply facilities; to allow adequate site distance for safety and aesthetic reasons; to provide emergency, maintenance, and recreational access to facilities; and to meet local fire codes; Control of invasive and non-native plants; managed livestock grazing; mowing, mastication, and manual control; native vegetation plantings to enhance riparian and aquatic habitats and to treat disturbed area (CDFW 2018).

Non-native vegetation removal includes management of nonnative species through mowing, mastication, manual removal, bio-control (i.e. livestock or natural predator insects), shading, removal of trees that may impact facilities next to streams, ponds or bed and banks of streams, natural resources and/or water quality, and the replanting of native vegetation. Vegetation removal will not exceed 2,000 square feet at each location unless identified in the Midpen's Integrated Pest Management Work Plan submitted annual to CDFW (CDFW 2018).

Native vegetation planting in habitat enhancement and restoration areas includes installation of temporary irrigation, planting of locally collected native vegetation, weed control, and the installation of vegetation protective structures; and the installation of native vegetation and use of bioengineering techniques. Straw wattles, coir rolls, certified weed-free straw, erosion mats, etc. will be used to prevent erosion, minimize bank impacts, and prevent soil loss. If installed in an area where impacts to listed species could occur, wildlife friendly netting shall be utilized (CDFW 2018).

There shall be no vegetation removal in excess of what is necessary to allow the level of access needed and to accommodate routine maintenance activities, passage of emergency vehicles where appropriate, and for defensible space or public safety. No vegetation shall be removed by excavation or cutting off below the soil unless approved in writing by CDFW (CDFW 2018).

Invasive plant material removed during work activities shall be appropriately handled in order to prevent spread of invasive species including the following.

- Suitable onsite disposal areas shall be identified to prevent the spread of weed seeds (CDFW 2018).
- Invasive plant material shall be rendered nonviable when being retained onsite. Permittee shall desiccate or decompose plant material until it is nonviable. Depending on type of plant, disposed plant material can be left out in the open as long as roots are not in contact with moist soil, or can be covered with a tarp to prevent material from blowing or washing away (CDFW 2018).
- Permittee shall monitor all sites where invasive plant material is disposed on-site and treat any newly emerged invasive plants (CDFW 2018).
- When transporting invasive plant material off-site for disposal, the plant material shall be contained in enclosed bins, heavy duty bags, or a securely covered truck bed. All vehicles used to transport invasive plant material shall be cleaned after each use (CDFW 2018).

4. Special-Status Plants

4A. Preconstruction Special-Status Plant Survey

Conduct surveys for special-status plants during the appropriate season before significant site-specific development or any unusual anticipated increase in use. Modify the project or use to avoid impacting such plants (Midpen 2014a).

Prior to the start of project activities, a qualified biologist shall conduct protocol level surveys for sensitive plant species during the peak blooming period (CDFW 2018). Survey methodology available at: http://www.wildlife.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf.

4B. Choris' Popcorn Flower: Rare Plant Exclusion

In jurisdictional areas having suitable habitat characteristics and within ¼ mile of known occurrence, rare plant exclusion measures shall be implemented as described below.

Rare Plant Exclusion

If Choris' popcorn flowers or other rare plant species are found or known to occur near any project area, the location shall be flagged, and Midpen avoidance and protection measures, which also conform to CDFW and USFWS MOUs and permits, will be implemented (these measures are discussed in Table 1A, Table 2, the Biological Resources section and Biological Mitigation Measure 4B). Avoidance measures may include exclusionary fencing and establishing buffer zones; all rare plants and associated buffer zones shall be avoided during maintenance activities (CDFW 2018).

Special-Status Animals

5. Salmonids

5A. General Anadromous Fish Avoidance and Minimization Measures

No routine maintenance activity requiring dewatering shall be undertaken in creeks where known occurrences of coho salmon exist. Permittee shall notify the CDFW and apply for a separate/new permit (CDFW 2018).

Avoidance and minimization measures that apply to creeks and streams (see above) must be undertaken in coho- and steelhead-bearing creeks and streams.

5B. Enhance Habitat for Anadromous Fish

Inventory and assess stream reaches accessible to anadromous fish to identify impediments to fish passage and opportunities for habitat enhancement. Remove artificial barriers to fish passage where removal will enhance spawning and rearing habitats (Midpen 2014a).

Enhance spawning and rearing habitats for native fisheries through restoration. Prioritize restoration and enhancement of areas providing habitat to sensitive species.

5C. Monitor Sensitive Fish Species

Monitor sensitive fish species populations in Midpen waters (see **Table 2**).

5D. Integrated Pest Management In and Near Fish Habitat

To minimize impacts to coho and steelhead resulting from implementation of Midpen's IPMP, the following measures apply.

- Prior to conducting any mechanical or chemical IPM treatments in an area that is federally designated critical habitat for central California coast coho salmon or central California coast steelhead, the Midpen will consult with the USFWS, NMFS and CDFW as appropriate pursuant to ESA/CESA (Midpen 2014b and 2014c).
- Prior to conducting any mechanical or chemical IPM treatments in occupied habitat of central California coast coho salmon or central California coast steelhead, the Midpen will consult with USFWS, NMFS, and CDFW (Midpen 2014b and 2014c).

6. California Red-Legged Frog and San Francisco Garter Snake

As discussed in their species profiles, CRLF and SFGS often co-occur in the same aquatic and upland habitats because they both utilize aquatic habitats for foraging, breeding, cover, and dispersal, and because CRLF are a preferred prey species of SFGS. Typically, the shared habitats are in ponds and surrounding grasslands. In addition, CRLF also utilize creeks and streams for foraging, breeding, and dispersal habitat, whereas SFGS do not.

CRLF are known to occur at Toto Ranch, and SFGS are known to occur within 1 mile of Toto Ranch. Therefore, a number of management documents and regulatory permits have combined avoidance and minimization measures for these species. This section will do the same, with the most conservative measures utilized where effort and timing are similar. Requirements specific to either CRLF or SFGS are called out where appropriate or where the differences in requirements are significant.

6A. Compliance with Federal Permits for CRLF and SFGS

Any project activities must comply with USFWS Recovery Permit Number: TE225974-2, dated 12/22/16, and CDFW Memorandum of Understanding “Research and Recovery of San Francisco Garter Snake and California Tiger Salamander” dated April 6, 2017 (CDFW 2018; USFWS 2016a).

6B. Implement Avoidance and Minimization Measures for Ponds and Creeks and Streams

To protect CRLF and SFGS, avoidance and minimization measures that apply to ponds and creeks and streams (see above) must be undertaken in all ponds, creeks, and streams at Toto Ranch.

6C. Yearly Work Proposals for CRLF and SFGS Enhancement

Per USFWS and CDFW permits, annual work proposals must be submitted to these agencies. All maintenance activity proposals involving mechanized equipment and associated monitoring proposals must be approved by CDFW and USFWS prior to implementation (CDFW 2018; USFWS 2016a).

The annual work plan will include, as appropriate and applicable:

- an explanation of the purpose of each site-specific activity planned for that calendar year,

- the names and permit numbers of personnel conducting the work,
- a clear description of the methods to be used,
- the number and dates of activities,
- a map (at a minimum, a 1:24,000 scale U.S. Geological Survey (USGS) topographical map) depicting the location and boundary of the activity area(s),
- identification of existing habitat conditions in terms of vegetative composition/cover and the presence (density) of potential aestivation habitat or escape cover (e.g., burrows, rock formations, etc.) including pond buffer zones and refugia areas proposed for controlled burn activities, and
- identification of specific recovery tasks to be accomplished by each proposed activity (USFWS 2016b).

6D. Biological Monitors

Biological monitor(s) and/or qualified biologist(s) shall remain on the project site while routine maintenance activities are being conducted. Biological monitor(s) and/or qualified biologists shall be on the project site while routine maintenance activities are being conducted at these sites (CDFW 2018; USFWS 2016a).

The minimum number of qualified biological monitors required at each pond site will be determined in advance by either the ranch manager or a permitted biological consultant based on pond size, the amount and complexity of work to be performed, and the equipment to be used. This number of monitors will be approved by USFWS prior to the start of any work (USFWS 2016b).

Only biological monitors specifically authorized by the USFWS and CDFW to handle SFGS or CRLF (normally these will be individuals holding a federal recovery permit for the species) will be allowed to handle, transport, and relocate individuals of these species. When transporting individual SFGS and CRLF, precautions will be taken to ensure that the animals are not over-stressed and are maintained in safety. Such measures include: keeping animals in a cool, dark, and safe location (snake bag for SFGS and terrarium for CRLF), providing adequate hydration, maintaining a stable cool temperature to avoid over-heating, keeping animals isolated to prevent them from harming one another, and ensuring holding tanks or bags are kept clean to prevent the spread of any diseases (USFWS 2016b).

Prior to the start of work, areas will be identified by the biological monitor and approved by the USFWS and CDFW as acceptable locations to which San Francisco garter snake and the California red-legged frog may be relocated if these species are encountered within a work area. Relocation areas will be a minimum of 500 feet from the boundary of any work area and will not include staging areas or roads. No CRLF or SFGS will be removed from Toto Ranch or maintained in captivity overnight without prior notification and written approval by USFWS and CDFW unless the animal is in need of emergency medical assistance. Medical assistance will be

provided to injured animals by a USFWS-approved, certified wildlife veterinarian familiar with amphibian and reptile care (USFWS 2016b).

6E. Preconstruction Meeting and Construction Training

A chain-of-command for field crews and other on-site personnel will be established prior to commencement of all activities. This program will establish the biological monitors as the persons in charge of, and responsible for, all facets of project implementation. The specific chain-of-command will be defined at the pre-activity meeting to be held immediately prior to the initiation of work (USFWS 2016a and 2016b).

In addition, biological monitors will provide biological awareness training to all persons prior to beginning work. The educational program will discuss the sensitivity of CRLF and SFGS and their habitat, and include visual materials on species identification, procedures to follow when encountering any CRLF and/or SFGS species in the work area, penalties for take, and all work restrictions within the Midpen. In addition, pocket-sized photo cards depicting CRLF and SFGS will be distributed to all personnel. To maintain safety and limit any chance of take or habitat disturbance, a simple system of hand signals will be established for the monitors, truck drivers, equipment operators, and field personnel to use during habitat enhancement and related activities (USFWS 2016a and 2016b).

6F. Stop Work Authority for CRLF and SFGS

The biological monitor and/or qualified biologist shall have the authority to halt work activities that may affect CRLF adults, tadpoles, or egg masses and SFGS adults or nests/eggs until they can be moved out of harm's way (CDFW 2018; USFWS 2016a and 2016b).

6G. CRLF and SFGS Preconstruction Surveys

Prior to and within 48 hours of the planned start of project activities in and near ponds, wetlands, creeks, and streams, a focused survey for CRLF and SFGS using agency approved protocol shall be conducted by a qualified biologist to determine if they are in the area. If CRLF and/or SFGS are found, CDFW and USFWS shall be notified immediately to determine the correct course of action.

No more than 24 hours prior to conducting pond enhancement activities, visual surveys will be conducted by walking at least a 50-foot buffer area around the pond in an attempt to locate individual SFGS and CRLF (USFWS 2016b). A trained and permitted biologist will capture, transfer, and release in a safe area any SFGS and CRLF deemed to be in danger of being harmed by the prescribed enhancement activities. If a CRLF or SFGS is located during the pre-treatment surveys but escapes capture, the area where the snake or frog was lost will be marked by flag and a 50-foot (15 meter) radius will be actively patrolled during the work. If necessary, individual SFGS may be held in captivity in a pillow case for less than 24 hours and may later be released near the point of capture after the work has been completed. After the pre-treatment survey, an

avoidance strategy will be devised and presented to all individuals involved in the pond enhancement prior to starting any activities. The number of SFGS and CRLF encountered and transferred to safe areas or held in captivity during treatment will be reported to USFWS, and each individual SFGS will be photographed for use in identification (USFWS 2016b).

In work areas containing emergent vegetation (e.g., tules, cattails), vegetation shall be inspected for CRLF egg masses prior to work. If work cannot be postponed, a buffer of vegetation at least 10 feet in diameter shall be left around any egg masses found. Permittee shall keep a record of any sites where egg masses are found and shall conduct vegetation removal at these sites prior to November 1 in subsequent years (CDFW 2018).

During the surveys the lead biologist will mark any rodent burrows within the immediate work area that would be destroyed or otherwise affected by machinery or other maintenance activities and determine if they should be hand excavated to extract any CRLF or SFGS. Any SFGS found will be held in captivity until the activity is completed for the day using appropriate measures to avoid excessive stress of the animal (see **Biological Monitors**, above). Captive SFGS will be returned to the point of capture or to the nearest cover for release after the pond work has been completed for the day (USFWS 2016a).

6H. Egg Mass Avoidance

Staff shall avoid entering the channel to avoid dislodging egg masses. Vegetation trimming activities shall be performed from the banks, if possible (CDFW 2018).

6I. Seasonal Work Period in Ponds

If CRLF and/or SFGS are found in the pond and water is present in the pond, sediment removal and berm or outfall repair activities shall be performed from August 15 to November 1 (CDFW 2018).

6J. Agency Notification of Enhancement Activities for CRLF and SFGS

Dredging and de-watering operations shall be submitted to and approved by CDFW prior to commencement of activities (CDFW 2018).

6K. Vegetation Removal by Mechanized Equipment at CRLF and/or SFGS Sensitive Sites

For vegetation removal on berms or other sites within 1 mile of known CRLF and/or SFGS occurrences, vegetation shall be cut down to 3 inches by hand tools. Once the ground is visible, a visual survey for CRLF and/or SFGS shall be conducted. If no sensitive species are found in the area, removal of vegetation may continue by mowing or mechanized equipment very slowly with a biological monitor walking in front of the equipment to observe. If a CRLF and/or SFGS is observed, all activities shall cease and CDFW and USFWS shall be notified immediately. CRLF and/or SFGS can be relocated only if a person is permitted to handle CRLF and/or SFGS by the USFWS and approved by CDFW (CDFW 2018).

6L. Vegetation Removal at Ponds

If CRLF are found, cattails, tules, and emergent vegetation shall be removed by hand when feasible. If mechanized equipment is used, one or more a two biological monitors or qualified biologists shall be onsite monitoring the scoop bucket while scooping and watching each load unload. CDFW shall be notified during the annual project notification process when mechanized equipment will be used for vegetation removal at ponds (CDFW 2018).

6M. CRLF and SFGS Exclusion for Sediment Removal with Large Equipment

If CRLF and/or SFGS are found during preconstruction surveys, and routine maintenance requires the use of large equipment to remove sediment, CRLF and SFGS shall be excluded from the project site. USFWS/CDFW-approved exclusion fencing shall be installed around the sediment removal site, staging areas and any areas where fill may be dumped. After installation of the fence barrier, a biological monitor or qualified biologist shall daily inspect the project work area, staging and stockpiling area prior to the commencement of activities. If the biological monitor or qualified biologist determines that sensitive species are not within the work area, equipment or materials may be moved onto the work site and project activities may commence under the observation of the biological monitor (CDFW 2018; USFWS 2016a and 2016b).

6N. No Stockpiling of Vegetation

If CRLF and/or SFGS are found, vegetation removed shall be placed directly into a disposal vehicle and removed from the site. Vegetation shall not be piled on the ground unless it is later transferred, piece by piece, under the direct supervision of the biological monitor or qualified biologist or is going to remain on site for erosion control or slash and not be moved or disturbed (CDFW 2018).

6O. Vehicle Restrictions

In areas within 1 mile of CRLF and/or SFGS occurrences, any vehicle parked on site for more than 15 minutes shall be inspected by the biological monitor or qualified biologist before it is moved to ensure that CRLF and/or SFGS have not moved under the vehicle (USFWS 2016a and 2016b).

Corridors for travel of vehicles and heavy machinery to the pond site will be established at least 24 hours in advance of the proposed work. Corridors that are not established on marked improved roads (paved or unpaved) require special consideration for use by any vehicle. During the use of these off-road corridors by vehicles and machinery, a monitor will proceed directly before the vehicle or machinery to ensure all SFGS, CRLF, and observable wildlife is cleared from the pathway of the oncoming vehicle. Monitors will signal vehicles to stop if a CRLF or SFGS is on the pathway and will allow the animal to clear the pathway by its own direction. Any handling of SFGS or CRLF must only be done by a qualified permitted individual. Measures will be taken to minimize the number of vehicles allowed on the property. All vehicles involved with

the site-specific work that are not transported to the work site will be retained in a prearranged, marked parking area in a clearing as close to the main road as possible. At least one monitor will ensure wildlife is clear from the parking area while vehicles are arriving and leaving. All vehicles must stay on designated roads (CDFW 2018; USFWS 2016a and 2016b).

Refueling of equipment will be conducted on heavy-gauge tarps made of chemically resistant polypropylene or other impervious material with vertical sides for spill containment. These containment tarps will be set up under the equipment prior to servicing or refueling. Once the work is completed, the tarp and its contents must be immediately removed from the property and all contaminants properly disposed of off-site. BMPs will be implemented immediately in case of fuel spillage. All vehicles entering the site will carry a functional fire extinguisher (USFWS 2016a and 2016b).

6P. No Stockpiling of Soil

Soil shall not be stockpiled on the ground unless it is on a paved surface or staging area with no burrows (CDFW 2018).

6Q. Cease Activities for CRLF/SFGS in the Work Area

If CRLF and/or SFGS enters the work area, all work shall stop until the animal leaves on its own. Only biological monitors specifically authorized by USFWS and CDFW to handle the CRLF or SFGS will be allowed to handle, transport, and relocate individuals of these species. The biological monitor and/ or qualified biologist may halt work activities that may affect the CRLF or SFGS until they can be moved out of harm's way. When transporting individual CRLF or SFGS precautions will be taken to ensure that the animals are not over-stressed and are maintained in safety. Such measures include: keeping animals in a cool, dark, and safe location (snake bag for snakes and terrarium for frogs), providing adequate hydration, maintaining a stable cool temperature to avoid over-heating, keeping animals isolated to prevent them from harming one another, and ensuring holding tanks or bags are kept clean to prevent the spread of any diseases (CDFW 2018; USFWS 2016a and 2016b).

6R. California Red-Legged Frog Emergency Salvage and Recovery

Any red-legged frog egg masses or larvae observed in direct threat of drying or desiccation due to low water levels (e.g., egg mass found on high ground above the water level of a pond or stream or larvae found within a pond or stream that is currently very low and is known to dry or appears that it may dry prior to July 1) may be moved first into the pond or stream of origin (if no threat of drying) or into the nearest pond or stream reach having similar ecological conditions to those at the pond or stream reach of origin. Juvenile and adult red-legged frogs in direct threat of mortality or injury from human caused events (entrapment in human made structures, or in the

direct path of equipment during a restoration project) may also be moved to the nearest suitable aquatic feature (USFWS 2016a and 2016b).

Movement shall only occur to relocation sites within the same watershed (same sub-watershed preferred) within the same Preserve whenever possible. Exceptions shall be notified to the USFWS prior to conducting salvage activities. Dip and seine nets will be used to capture egg masses or larvae, and small containers will be used for transport.

6S. CRLF and SFGS Reporting Requirements

Both USFWS and CDFW will be notified immediately if any SFGS or CRLF are injured or killed during the course of any enhancement or management activities. All other incidental observations will be reported in the daily field monitoring form (CDFW 2018; USFWS 2016a and 2016b).

6T. Integrated Pest Management in CRLF and SFGS Habitat

Because Midpen's IPMP will be implemented at Toto Ranch in conjunction with the RMP, the following avoidance and minimization measures will be implemented.

- Prior to conducting any mechanical or chemical IPM treatments in an area that is both federally designated critical habitat and suitable aquatic habitat for CRLF or SFGS, Midpen will consult with the USFWS and CDFW as appropriate pursuant to ESA/CESA. Appropriate measures will be developed in consultation with USFWS and CDFW to ensure there is no loss of critical habitat for these species, or that unavoidable loss of critical habitat will be replaced through habitat enhancement or restoration. Such measures may include avoidance of breeding habitat, limiting activities to manual removal of vegetation, conducting activities outside the breeding season, or relocation and mitigation (Midpen 2014b and 2014c).
- Prior to conducting any mechanical or chemical IPM treatments within 15 feet of occupied habitat for CRLF or SFGS, Midpen will consult with USFWS and CDFW. Appropriate measures will be developed in consultation with USFWS and CDFW to ensure there is no take of these species, or that unavoidable take is fully compensated for through habitat enhancement or restoration activities, or purchase of mitigation credits. Shooting, trapping, and gigging of aquatic species will be conducted only by a qualified biologist with experience in the identification of CRLF and SFGS. Inadvertently trapped CRLF or SFGS will be released immediately upon discovery (Midpen 2014b and 2014c).
- If permanent loss of federally designated critical habitat cannot be avoided, compensation will be provided through protection and enhancement of habitat within Midpen properties, purchase of offsite mitigation credits, and/or contribution to

regional conservation and recovery efforts for the species as determined in consultation with USFWS and CDFW (Midpen 2014b and 2014c).

7. San Francisco Dusky-Footed Woodrat (SFDW)

In general, no grazing management or improvement projects proposed in the RMP will occur in chaparral or riparian habitat where SFDW and their nests occur. However, impacts to woodrat nests should be avoided during all maintenance and/or construction work.

7A. SFDW Protection Preconstruction Survey

A preconstruction survey for SFDW nests will be conducted prior to all construction and/or maintenance work near riparian and/or chaparral or scrub habitats. All routine maintenance work in the proximity of SFDW and/or their nests shall adhere to the BMPs in Exhibit B (CDFW 2018).

8. Special-Status Bat Species

No special-status bat species were detected during 2018 bat surveys, although these species may occur at Toto Ranch. If special-status bat species may be found in a project area that has impacts to potential roosting habitat, avoidance measures shall be implemented according to Midpen's bat BMPs (Midpen n.d.). These Bat BMPs are designed to avoid impacts to bat species and include the following actions.

8A. Preconstruction Surveys

In areas of suitable habitat, preconstruction surveys are required for the following bat species: Pallid bat, Townsend's big-eared bat, and western red bat (CDFW 2018). If signs of bats are evident and removal or disturbance of bats is necessary, a qualified biologist will conduct surveys for roosting bats prior to beginning work. Surveys will consist of daytime pedestrian surveys to look for visual signs of bats (e.g., guano), and if determined necessary, evening emergence surveys to note the presence or absence of bats. If evidence of bat roosting is found, the number and species of roosting bats will be determined. If no evidence of bat roosts is found, then no further study will be required. Bat detectors and/or infrared detectors may be used to supplement survey efforts but are not required (Midpen n.d.).

8B. Tree Removal

If bat roosting sites are located in trees to be removed, such removal will occur outside of the April through August nursery season if possible (CDFW 2018; Midpen 2014b and 2014c). If removal of trees greater than sixteen inches diameter at breast height (dbh) during the April through August nursery season cannot be avoided, a qualified biologist will conduct surveys for roosting bats where suitable large trees are to be removed. Surveys will consist of daytime pedestrian surveys to look for visual signs of bats (e.g., guano), and if determined necessary, evening emergence surveys to note the presence or absence of bats. If evidence of roosting bats

is found, the number and species of roosting bats will be determined. If no evidence of bat roosts is found, then no further study will be required (CDFW 2018; Midpen 2014b and 2014c). Bats go into a deep torpor period November 16 through February 15, no building or tree work (over 16" dbh) is allowable during this time (Midpen n.d.).

8C. Non-Tree Roost Exclusion

If surveys determine that special-status bats or maternity roosts are present and must be removed during the April through August nursery season, a bat exclusion plan shall be prepared and submitted to CDFW. The exclusion plan will describe the method of exclusion, which may include the use of one-way doors at roost entrances (bats may leave but not re-enter), or sealing roost entrances when the site can be confirmed by a bat expert to contain no bats. No bats will be excluded until the plan is approved by CDFW and alternative roosting habitat is available. The bats will be excluded from the roosting site before the site is closed (CDFW 2018; Midpen 2014b and 2014c).

If individual non-breeding and non-special-status bats are present, a qualified biologist may be retained to remove the bats and work may proceed year-round. If maternity roosting or special-status bat species are present at any time, no work is allowed without first excluding and providing alternate roost site(s) outside of the breeding season (Midpen n.d.). Alternate roost site(s) must be determined by Midpen Natural Resources staff or a consulting biologist and submitted to California Department of Fish and Wildlife before installation (Midpen n.d.). Whenever possible alternative roost site(s) will be provided 6 months to 1 year prior to the removal of maternity roosting habitat to allow bats adequate time to discover the new locations (Midpen n.d.). Alternative roost site(s) shall be monitored for occupancy by a qualified biologist within one year of installation. Contractors, Midpen staff, and others working in areas known to support maternity roost site(s) and/or special-status bat species will be provided biological awareness training by a qualified biologist prior to the commencement of work.

Because bats go into a deep torpor period November 16 through February 15, no building or tree work (over 16" dbh) is allowable during this time (Midpen n.d.).

9. Raptors and Birds

9A. Nesting Bird Surveys

If project activities are scheduled during the nesting season of raptors and migratory birds, a focused survey for active nests of such birds shall be conducted by the qualified biologist within 15 days prior to the beginning of project-related activities (CDFW 2018).

Surveys shall be conducted in all suitable habitat located at project work sites and in staging and storage areas. The minimum survey radii surrounding the work area shall be the following: i) 250 feet for passerines; ii) 500 feet for other small raptors such as accipiters; iii) 1,000 feet for larger

raptors such as buteos. The bird survey methodology and the results of the survey shall be submitted to the CDFW prior to commencement of project activities (CDFW 2018).

Nesting seasons shall be defined as followed: i) March 15 to August 30 for smaller bird species such as passerines; ii) February 15 to August 30 for raptors (CDFW 2018).

9B. Active Nests

An active nest is defined as a nest having eggs or chicks present, or a nest that adult birds have staked a territory and are displaying, constructing a nest, or are repairing an old nest. If active nests are found and work cannot be postponed, Midpen shall utilize the buffers and methods identified above (see Nesting Bird Surveys) and notify consult with the CDFW and the USFWS regarding appropriate action to comply with the Migratory Bird Treaty Act of 1918 and the FGC. If a lapse in project-related work of 15 days or longer occurs, another focused survey shall be conducted before project work is reinitiated. If active nests are found, Midpen shall consult with the CDFW and the USFWS prior to resumption of project activities (CDFW 2018).

9C. Active Nest Buffers

Active nest sites shall be designated as “Ecologically Sensitive Areas” and protected (while occupied) during project activities with the establishment of flagging or a fence barrier surrounding the nest site. The minimum distances of the protective buffers surrounding each identified nest site shall be the following: i) 500 feet for large raptors such as buteos; ii) 250 feet for small raptors such as accipiters; iii) 250 feet for passerines. A biological monitor or qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project-related activities. Nest monitoring shall continue during project-related construction work until the young have fully fledged, are no longer being fed by the parents and have left the nest site, as determined by a biological monitor (CDFW 2018).

9D. Nesting Habitat Removal or Modification

No trees or shrubs shall be disturbed that contain active bird nests until all eggs have hatched, and young have fully fledged (are no longer being fed by the adults and have completely left the nest site). To avoid potential impacts to tree or shrub-nesting birds, any trimming or pruning of trees or shrubs shall be conducted during the time period of September 16 to February 14 unless a preconstruction nesting bird survey has been conducted by a qualified biologist. No habitat removal or modification shall occur within the Ecologically Sensitive Area fenced nest zone even if the nest continues to be active beyond the typical nesting season for the species (the fencing must stay up until the young have fully fledged and will no longer be adversely affected by the project (CDFW 2018).

10. Integrated Pest Management

All invasive plant and animal removal will be conducted in accordance with Midpen's guidance documents, best management practices, avoidance and minimization measures, and mitigation measures identified in the Midpen Integrated Pest Management Program and EIR, existing permits, and CRLF injunction (USFWS 2016a and 2016b).

10A. Invasive Animal Control

No burrow fumigants, insecticides, or rodenticides will be used in habitats where federally listed species may occur. Only herbicides and fungicides that are part of a formal integrated pest management plan may be used, and only if they are used in accordance with the guidelines on the label and if they comply with the restrictions listed in the critical habitat designation and with the laws and regulations of the State of California (USFWS 2016a and 2016b).

Eradication of invasive animals (e.g. non-native fish, bullfrogs) by shooting, trapping, or gigging for the purpose of reducing predation on or competition with CRLF, must be authorized in writing by the Sacramento Fish and Wildlife Office prior to conducting removal activities (USFWS 2016a).

10B. Vegetation Management

Prior to conducting non-native (e.g., pampas grass) and native (e.g., cattail, cocklebur) plant removal or treatments (e.g., spraying with herbicide or fungicide, cutting, pulling, digging out), the permittee will make every reasonable attempt to ensure that SFGS and CRLF are not hidden within the plant or the residual plant matter to be treated (USFWS 2016b).

All vegetation management activities that could result in the runoff of herbicides that are not registered for aquatic use into waters of the State are prohibited (RWQCB 2010).

The Discharger shall select and apply herbicides according to the product label directions and uses approved by the U.S. EPA and the California Department of Pesticide Regulation, and per the CRLF injunction and applicable provisions of this Order (RWQCB 2010).

Only herbicides and surfactants registered for aquatic use will be applied to aquatic areas or within the banks of channels. Herbicides will not be applied during or within 24 hours prior to rain (RWQCB 2010).

11. Grazing

11A. Use Grazing for Vegetation Management

Livestock will be used for vegetation management to avoid the use of chemical herbicides, to control invasive vegetation, and promote the growth of native vegetation. Where livestock is used in

association with a specific routine maintenance project, vegetation removal will not exceed 2,000 square feet (0.05 acres) in size, 150 adjacent linear feet, or the minimum necessary to complete the operation, whichever is less, and livestock shall be managed and prohibited from creating or worsening existing erosion and sedimentation to flowing stream channels (RWQCB 2010).

Avoid seeding with rye grass (unless sterile), "Zorro" fescue, Harding grass, or other non-native aggressive plants after fires to control erosion (Midpen 2014a).

11B. Use Grazing for Habitat Enhancement

Manage native grassland sites to encourage reestablishment and perpetuation of California native grasses (Midpen 2014a).

Manage oak woodland to encourage reestablishment and perpetuation of California native oaks (Midpen 2014a).

Control invasive non-native plants (Midpen 2014a).

Encourage Midpen tenants to use native plants for landscaping to provide natural habitat (Midpen 2014a).

Protect and enhance the habitats and populations of special-status plant species (Midpen 2014a).

Identify and eliminate barriers (e.g. remove unnecessary fences, old barb wire, and other barriers) and provide safe crossings (e.g. protect established wildlife crossings and use wildlife friendly fencing) to enhance wildlife movement on a regional basis (Midpen 2014a).

11C. Grazing by Horses

All domestic livestock production including horses, goats, chickens, pigs, turkeys, etc. should be confined to the Agricultural Lease area. Up to four (4) horses may be kept on the property. Boarding outside horses should be prohibited, and breeding, training, raising and selling horses (Horse Operations) are not considered agricultural uses and are not recommended on the Toto Ranch. Horses should be restricted to the Agricultural Lease area and associated small pastures; horses should not be permitted to graze rangeland pastures outside of the designated Agricultural Lease area. However, horses may be used for cattle operations in rangeland. A separate lease will be prepared for the Agricultural Lease portion of the ranch (Midpen 2014a).

Appendix C. Air Quality

This page intentionally left blank.

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

Toto Ranch RMP Fencing Repair
San Mateo County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.73	Acre	0.73	31,798.80	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - schedule from client

Off-road Equipment - Based on description from client - mostly hand tools, possibly drill

Off-road Equipment -

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	PhaseEndDate	6/9/2021	1/15/2021
tblConstructionPhase	PhaseStartDate	1/21/2021	1/4/2021
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6500e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-004	1.6000e-004	0.0000		1.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0220	0.0696	0.2626	8.8000e-004	0.0870	7.4000e-004	0.0877	0.0233	6.9000e-004	0.0240		88.9938	88.9938	3.2600e-003		89.0753
Total	0.0236	0.0696	0.2627	8.8000e-004	0.0870	7.4000e-004	0.0877	0.0233	6.9000e-004	0.0240		88.9939	88.9939	3.2600e-003	0.0000	89.0755

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6500e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-004	1.6000e-004	0.0000		1.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0220	0.0696	0.2626	8.8000e-004	0.0870	7.4000e-004	0.0877	0.0233	6.9000e-004	0.0240		88.9938	88.9938	3.2600e-003		89.0753
Total	0.0236	0.0696	0.2627	8.8000e-004	0.0870	7.4000e-004	0.0877	0.0233	6.9000e-004	0.0240		88.9939	88.9939	3.2600e-003	0.0000	89.0755

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/4/2021	1/15/2021	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Trenchers	1	8.00	78	0.50
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	2	13.00	5.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

3.1 Mitigation Measures Construction

3.2 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5697	5.4079	4.8666	6.4800e-003		0.3668	0.3668		0.3374	0.3374		627.8226	627.8226	0.2031		632.8988
Total	0.5697	5.4079	4.8666	6.4800e-003		0.3668	0.3668		0.3374	0.3374		627.8226	627.8226	0.2031		632.8988

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

3.2 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0156	0.4959	0.2217	1.1900e-003	0.0305	1.1300e-003	0.0317	8.7800e-003	1.0800e-003	9.8600e-003		130.8744	130.8744	0.0116		131.1655
Worker	0.0372	0.0235	0.2403	9.0000e-004	0.1068	6.2000e-004	0.1074	0.0283	5.7000e-004	0.0289		90.2536	90.2536	1.6500e-003		90.2948
Total	0.0528	0.5194	0.4619	2.0900e-003	0.1373	1.7500e-003	0.1391	0.0371	1.6500e-003	0.0388		221.1280	221.1280	0.0133		221.4603

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5697	5.4079	4.8666	6.4800e-003		0.3668	0.3668		0.3374	0.3374	0.0000	627.8226	627.8226	0.2031		632.8988
Total	0.5697	5.4079	4.8666	6.4800e-003		0.3668	0.3668		0.3374	0.3374	0.0000	627.8226	627.8226	0.2031		632.8988

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

3.2 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0156	0.4959	0.2217	1.1900e-003	0.0305	1.1300e-003	0.0317	8.7800e-003	1.0800e-003	9.8600e-003		130.8744	130.8744	0.0116		131.1655
Worker	0.0372	0.0235	0.2403	9.0000e-004	0.1068	6.2000e-004	0.1074	0.0283	5.7000e-004	0.0289		90.2536	90.2536	1.6500e-003		90.2948
Total	0.0528	0.5194	0.4619	2.0900e-003	0.1373	1.7500e-003	0.1391	0.0371	1.6500e-003	0.0388		221.1280	221.1280	0.0133		221.4603

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0220	0.0696	0.2626	8.8000e-004	0.0870	7.4000e-004	0.0877	0.0233	6.9000e-004	0.0240		88.9938	88.9938	3.2600e-003		89.0753
Unmitigated	0.0220	0.0696	0.2626	8.8000e-004	0.0870	7.4000e-004	0.0877	0.0233	6.9000e-004	0.0240		88.9938	88.9938	3.2600e-003		89.0753

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.38	16.61	12.22	12,587	12,587
Total	1.38	16.61	12.22	12,587	12,587

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.476244	0.050164	0.262181	0.139658	0.017521	0.006864	0.023236	0.006525	0.004137	0.003158	0.009064	0.000471	0.000777

5.0 Energy Detail

Historical Energy Use: N

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6500e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-004	1.6000e-004	0.0000		1.7000e-004
Unmitigated	1.6500e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-004	1.6000e-004	0.0000		1.7000e-004

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-004	1.6000e-004	0.0000		1.7000e-004
Total	1.6500e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-004	1.6000e-004	0.0000		1.7000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-004	1.6000e-004	0.0000		1.7000e-004
Total	1.6500e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-004	1.6000e-004	0.0000		1.7000e-004

7.0 Water Detail

Toto Ranch RMP Fencing Repair - San Mateo County, Winter

7.1 Mitigation Measures Water**8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

**Toto Ranch RMP Fencing Repair
San Mateo County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.73	Acre	0.73	31,798.80	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - schedule from client

Off-road Equipment - Based on description from client - mostly hand tools, possibly drill

Off-road Equipment -

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	PhaseEndDate	6/9/2021	1/15/2021
tblConstructionPhase	PhaseStartDate	1/21/2021	1/4/2021
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-4-2021	4-3-2021	0.0281	0.0281
		Highest	0.0281	0.0281

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.2200e-003	3.7800e-003	0.0140	5.0000e-005	4.6700e-003	4.0000e-005	4.7100e-003	1.2500e-003	4.0000e-005	1.2900e-003	0.0000	4.5271	4.5271	1.6000e-004	0.0000	4.5311
Waste						0.0000	0.0000		0.0000	0.0000	0.0122	0.0000	0.0122	7.2000e-004	0.0000	0.0302
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.8856	0.8856	4.0000e-005	1.0000e-005	0.8891
Total	1.5200e-003	3.7800e-003	0.0141	5.0000e-005	4.6700e-003	4.0000e-005	4.7100e-003	1.2500e-003	4.0000e-005	1.2900e-003	0.0122	5.4127	5.4249	9.2000e-004	1.0000e-005	5.4504

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.2200e-003	3.7800e-003	0.0140	5.0000e-005	4.6700e-003	4.0000e-005	4.7100e-003	1.2500e-003	4.0000e-005	1.2900e-003	0.0000	4.5271	4.5271	1.6000e-004	0.0000	4.5311
Waste						0.0000	0.0000		0.0000	0.0000	0.0122	0.0000	0.0122	7.2000e-004	0.0000	0.0302
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.8856	0.8856	4.0000e-005	1.0000e-005	0.8891
Total	1.5200e-003	3.7800e-003	0.0141	5.0000e-005	4.6700e-003	4.0000e-005	4.7100e-003	1.2500e-003	4.0000e-005	1.2900e-003	0.0122	5.4127	5.4249	9.2000e-004	1.0000e-005	5.4504

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/4/2021	1/15/2021	5	10	

Acres of Grading (Site Preparation Phase): 0

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Trenchers	1	8.00	78	0.50
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	2	13.00	5.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

3.2 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8500e-003	0.0270	0.0243	3.0000e-005		1.8300e-003	1.8300e-003		1.6900e-003	1.6900e-003	0.0000	2.8478	2.8478	9.2000e-004	0.0000	2.8708
Total	2.8500e-003	0.0270	0.0243	3.0000e-005		1.8300e-003	1.8300e-003		1.6900e-003	1.6900e-003	0.0000	2.8478	2.8478	9.2000e-004	0.0000	2.8708

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	2.4800e-003	1.0600e-003	1.0000e-005	1.5000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6003	0.6003	5.0000e-005	0.0000	0.6016
Worker	1.7000e-004	1.1000e-004	1.1700e-003	0.0000	5.1000e-004	0.0000	5.1000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4109	0.4109	1.0000e-005	0.0000	0.4111
Total	2.5000e-004	2.5900e-003	2.2300e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	1.0112	1.0112	6.0000e-005	0.0000	1.0127

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

3.2 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8500e-003	0.0270	0.0243	3.0000e-005		1.8300e-003	1.8300e-003		1.6900e-003	1.6900e-003	0.0000	2.8478	2.8478	9.2000e-004	0.0000	2.8708
Total	2.8500e-003	0.0270	0.0243	3.0000e-005		1.8300e-003	1.8300e-003		1.6900e-003	1.6900e-003	0.0000	2.8478	2.8478	9.2000e-004	0.0000	2.8708

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	2.4800e-003	1.0600e-003	1.0000e-005	1.5000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6003	0.6003	5.0000e-005	0.0000	0.6016
Worker	1.7000e-004	1.1000e-004	1.1700e-003	0.0000	5.1000e-004	0.0000	5.1000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4109	0.4109	1.0000e-005	0.0000	0.4111
Total	2.5000e-004	2.5900e-003	2.2300e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	1.0112	1.0112	6.0000e-005	0.0000	1.0127

4.0 Operational Detail - Mobile

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2200e-003	3.7800e-003	0.0140	5.0000e-005	4.6700e-003	4.0000e-005	4.7100e-003	1.2500e-003	4.0000e-005	1.2900e-003	0.0000	4.5271	4.5271	1.6000e-004	0.0000	4.5311
Unmitigated	1.2200e-003	3.7800e-003	0.0140	5.0000e-005	4.6700e-003	4.0000e-005	4.7100e-003	1.2500e-003	4.0000e-005	1.2900e-003	0.0000	4.5271	4.5271	1.6000e-004	0.0000	4.5311

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.38	16.61	12.22	12,587	12,587
Total	1.38	16.61	12.22	12,587	12,587

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.476244	0.050164	0.262181	0.139658	0.017521	0.006864	0.023236	0.006525	0.004137	0.003158	0.009064	0.000471	0.000777

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	3.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	3.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	3.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.8856	4.0000e-005	1.0000e-005	0.8891
Unmitigated	0.8856	4.0000e-005	1.0000e-005	0.8891

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.869781	0.8856	4.0000e-005	1.0000e-005	0.8891
Total		0.8856	4.0000e-005	1.0000e-005	0.8891

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.869781	0.8856	4.0000e-005	1.0000e-005	0.8891
Total		0.8856	4.0000e-005	1.0000e-005	0.8891

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0122	7.2000e-004	0.0000	0.0302
Unmitigated	0.0122	7.2000e-004	0.0000	0.0302

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Total		0.0122	7.2000e-004	0.0000	0.0302

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Total		0.0122	7.2000e-004	0.0000	0.0302

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Toto Ranch RMP Fencing Repair - San Mateo County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Toto Ranch Field 3 System - San Mateo County, Summer

Toto Ranch Field 3 System
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	8.40	1000sqft	0.19	8,400.00	0
Other Non-Asphalt Surfaces	528.00	1000sqft	12.12	528,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - 1 month schedule from client

Off-road Equipment -

Off-road Equipment - mostly hand tools, reduced fleet

Off-road Equipment - would be mostly hand tools

Trips and VMT - Reduced to match grading

Grading - based on 0.5 miles of pipe

Toto Ranch Field 3 System - San Mateo County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	10.00
tblConstructionPhase	NumDays	30.00	10.00
tblGrading	AcresOfGrading	0.00	12.31
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	88.00	8.00
tblTripsAndVMT	WorkerTripNumber	225.00	8.00

2.0 Emissions Summary

Toto Ranch Field 3 System - San Mateo County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4562	5.0000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1174	0.1174	3.1000e-004		0.1251
Energy	3.4000e-004	3.1400e-003	2.6300e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		3.7634	3.7634	7.0000e-005	7.0000e-005	3.7858
Mobile	0.0235	0.0635	0.2991	1.1800e-003	0.1158	8.7000e-004	0.1167	0.0310	8.1000e-004	0.0318		119.4554	119.4554	3.9300e-003		119.5538
Total	0.4800	0.0671	0.3565	1.2000e-003	0.1158	1.3100e-003	0.1171	0.0310	1.2500e-003	0.0323		123.3362	123.3362	4.3100e-003	7.0000e-005	123.4646

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4562	5.0000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1174	0.1174	3.1000e-004		0.1251
Energy	3.4000e-004	3.1400e-003	2.6300e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		3.7634	3.7634	7.0000e-005	7.0000e-005	3.7858
Mobile	0.0235	0.0635	0.2991	1.1800e-003	0.1158	8.7000e-004	0.1167	0.0310	8.1000e-004	0.0318		119.4554	119.4554	3.9300e-003		119.5538
Total	0.4800	0.0671	0.3565	1.2000e-003	0.1158	1.3100e-003	0.1171	0.0310	1.2500e-003	0.0323		123.3362	123.3362	4.3100e-003	7.0000e-005	123.4646

Toto Ranch Field 3 System - San Mateo County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/3/2022	1/14/2022	5	10	
2	Building Construction	Building Construction	1/17/2022	1/28/2022	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12.31

Acres of Paving: 12.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Toto Ranch Field 3 System - San Mateo County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Trenchers	1	8.00	78	0.50
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	3	8.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	8.00	8.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Toto Ranch Field 3 System - San Mateo County, Summer

3.2 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3055	0.0000	1.3055	0.1410	0.0000	0.1410			0.0000			0.0000
Off-Road	0.7310	6.8323	8.0921	0.0117		0.4155	0.4155		0.3823	0.3823		1,128.2037	1,128.2037	0.3649		1,137.3258
Total	0.7310	6.8323	8.0921	0.0117	1.3055	0.4155	1.7210	0.1410	0.3823	0.5232		1,128.2037	1,128.2037	0.3649		1,137.3258

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0193	0.0106	0.1430	5.7000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		57.0120	57.0120	9.6000e-004		57.0361
Total	0.0193	0.0106	0.1430	5.7000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		57.0120	57.0120	9.6000e-004		57.0361

Toto Ranch Field 3 System - San Mateo County, Summer

3.2 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3055	0.0000	1.3055	0.1410	0.0000	0.1410			0.0000			0.0000
Off-Road	0.7310	6.8323	8.0921	0.0117		0.4155	0.4155		0.3823	0.3823	0.0000	1,128.2037	1,128.2037	0.3649		1,137.3258
Total	0.7310	6.8323	8.0921	0.0117	1.3055	0.4155	1.7210	0.1410	0.3823	0.5232	0.0000	1,128.2037	1,128.2037	0.3649		1,137.3258

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0193	0.0106	0.1430	5.7000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		57.0120	57.0120	9.6000e-004		57.0361
Total	0.0193	0.0106	0.1430	5.7000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		57.0120	57.0120	9.6000e-004		57.0361

Toto Ranch Field 3 System - San Mateo County, Summer

3.3 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1908	10.5735	10.1395	0.0184		0.5116	0.5116		0.4875	0.4875		1,731.1038	1,731.1038	0.3457		1,739.7462
Total	1.1908	10.5735	10.1395	0.0184		0.5116	0.5116		0.4875	0.4875		1,731.1038	1,731.1038	0.3457		1,739.7462

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0221	0.7388	0.3242	1.9100e-003	0.0488	1.5100e-003	0.0504	0.0141	1.4400e-003	0.0155		210.6741	210.6741	0.0181		211.1258
Worker	0.0193	0.0106	0.1430	5.7000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		57.0120	57.0120	9.6000e-004		57.0361
Total	0.0414	0.7494	0.4673	2.4800e-003	0.1146	1.8900e-003	0.1165	0.0315	1.7900e-003	0.0333		267.6861	267.6861	0.0190		268.1619

Toto Ranch Field 3 System - San Mateo County, Summer

3.3 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1908	10.5735	10.1395	0.0184		0.5116	0.5116		0.4875	0.4875	0.0000	1,731.1038	1,731.1038	0.3457		1,739.7462
Total	1.1908	10.5735	10.1395	0.0184		0.5116	0.5116		0.4875	0.4875	0.0000	1,731.1038	1,731.1038	0.3457		1,739.7462

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0221	0.7388	0.3242	1.9100e-003	0.0488	1.5100e-003	0.0504	0.0141	1.4400e-003	0.0155		210.6741	210.6741	0.0181		211.1258
Worker	0.0193	0.0106	0.1430	5.7000e-004	0.0657	3.8000e-004	0.0661	0.0174	3.5000e-004	0.0178		57.0120	57.0120	9.6000e-004		57.0361
Total	0.0414	0.7494	0.4673	2.4800e-003	0.1146	1.8900e-003	0.1165	0.0315	1.7900e-003	0.0333		267.6861	267.6861	0.0190		268.1619

4.0 Operational Detail - Mobile

Toto Ranch Field 3 System - San Mateo County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0235	0.0635	0.2991	1.1800e-003	0.1158	8.7000e-004	0.1167	0.0310	8.1000e-004	0.0318		119.4554	119.4554	3.9300e-003		119.5538
Unmitigated	0.0235	0.0635	0.2991	1.1800e-003	0.1158	8.7000e-004	0.1167	0.0310	8.1000e-004	0.0318		119.4554	119.4554	3.9300e-003		119.5538

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	14.11	14.11	14.11	54,521	54,521
Total	14.11	14.11	14.11	54,521	54,521

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Toto Ranch Field 3 System - San Mateo County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.470625	0.050338	0.265549	0.140745	0.017339	0.006996	0.024054	0.006595	0.004215	0.003104	0.009159	0.000488	0.000793
Unrefrigerated Warehouse-No Rail	0.470625	0.050338	0.265549	0.140745	0.017339	0.006996	0.024054	0.006595	0.004215	0.003104	0.009159	0.000488	0.000793

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.4000e-004	3.1400e-003	2.6300e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		3.7634	3.7634	7.0000e-005	7.0000e-005	3.7858
NaturalGas Unmitigated	3.4000e-004	3.1400e-003	2.6300e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		3.7634	3.7634	7.0000e-005	7.0000e-005	3.7858

Toto Ranch Field 3 System - San Mateo County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	31.989	3.4000e-004	3.1400e-003	2.6300e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		3.7634	3.7634	7.0000e-005	7.0000e-005	3.7858
Total		3.4000e-004	3.1400e-003	2.6300e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		3.7634	3.7634	7.0000e-005	7.0000e-005	3.7858

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.031989	3.4000e-004	3.1400e-003	2.6300e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		3.7634	3.7634	7.0000e-005	7.0000e-005	3.7858
Total		3.4000e-004	3.1400e-003	2.6300e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		3.7634	3.7634	7.0000e-005	7.0000e-005	3.7858

6.0 Area Detail

6.1 Mitigation Measures Area

Toto Ranch Field 3 System - San Mateo County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4562	5.0000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1174	0.1174	3.1000e-004		0.1251
Unmitigated	0.4562	5.0000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1174	0.1174	3.1000e-004		0.1251

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0843					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3668					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0700e-003	5.0000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1174	0.1174	3.1000e-004		0.1251
Total	0.4562	5.0000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1174	0.1174	3.1000e-004		0.1251

Toto Ranch Field 3 System - San Mateo County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0843					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3668					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0700e-003	5.0000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1174	0.1174	3.1000e-004		0.1251
Total	0.4562	5.0000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1174	0.1174	3.1000e-004		0.1251

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Toto Ranch Field 3 System - San Mateo County, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Toto Ranch Field 3 System - San Mateo County, Annual

Toto Ranch Field 3 System
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	8.40	1000sqft	0.19	8,400.00	0
Other Non-Asphalt Surfaces	528.00	1000sqft	12.12	528,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - 1 month schedule from client

Off-road Equipment -

Off-road Equipment - mostly hand tools, reduced fleet

Off-road Equipment - would be mostly hand tools

Trips and VMT - Reduced to match grading

Grading - based on 0.5 miles of pipe

Toto Ranch Field 3 System - San Mateo County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	10.00
tblConstructionPhase	NumDays	30.00	10.00
tblGrading	AcresOfGrading	0.00	12.31
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	88.00	8.00
tblTripsAndVMT	WorkerTripNumber	225.00	8.00

2.0 Emissions Summary

Toto Ranch Field 3 System - San Mateo County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-3-2022	4-2-2022	0.0864	0.0864
		Highest	0.0864	0.0864

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0828	4.0000e-005	4.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5800e-003	9.5800e-003	3.0000e-005	0.0000	0.0102
Energy	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	9.8845	9.8845	4.3000e-004	1.0000e-004	9.9245
Mobile	3.9500e-003	0.0122	0.0526	2.1000e-004	0.0202	1.6000e-004	0.0204	5.4300e-003	1.5000e-004	5.5800e-003	0.0000	18.7924	18.7924	6.4000e-004	0.0000	18.8085
Waste						0.0000	0.0000		0.0000	0.0000	1.6036	0.0000	1.6036	0.0948	0.0000	3.9729
Water						0.0000	0.0000		0.0000	0.0000	0.6163	3.0577	3.6740	0.0634	1.5200e-003	5.7138
Total	0.0868	0.0128	0.0580	2.1000e-004	0.0202	2.2000e-004	0.0204	5.4300e-003	2.1000e-004	5.6400e-003	2.2199	31.7442	33.9641	0.1593	1.6200e-003	38.4300

Toto Ranch Field 3 System - San Mateo County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0828	4.0000e-005	4.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5800e-003	9.5800e-003	3.0000e-005	0.0000	0.0102
Energy	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	9.8845	9.8845	4.3000e-004	1.0000e-004	9.9245
Mobile	3.9500e-003	0.0122	0.0526	2.1000e-004	0.0202	1.6000e-004	0.0204	5.4300e-003	1.5000e-004	5.5800e-003	0.0000	18.7924	18.7924	6.4000e-004	0.0000	18.8085
Waste						0.0000	0.0000		0.0000	0.0000	1.6036	0.0000	1.6036	0.0948	0.0000	3.9729
Water						0.0000	0.0000		0.0000	0.0000	0.6163	3.0577	3.6740	0.0634	1.5200e-003	5.7138
Total	0.0868	0.0128	0.0580	2.1000e-004	0.0202	2.2000e-004	0.0204	5.4300e-003	2.1000e-004	5.6400e-003	2.2199	31.7442	33.9641	0.1593	1.6200e-003	38.4300

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/3/2022	1/14/2022	5	10	
2	Building Construction	Building Construction	1/17/2022	1/28/2022	5	10	

Toto Ranch Field 3 System - San Mateo County, Annual

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12.31

Acres of Paving: 12.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Trenchers	1	8.00	78	0.50
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	3	8.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	8.00	8.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Toto Ranch Field 3 System - San Mateo County, Annual

3.2 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5300e-003	0.0000	6.5300e-003	7.0000e-004	0.0000	7.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6500e-003	0.0342	0.0405	6.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003	0.0000	5.1175	5.1175	1.6600e-003	0.0000	5.1588
Total	3.6500e-003	0.0342	0.0405	6.0000e-005	6.5300e-003	2.0800e-003	8.6100e-003	7.0000e-004	1.9100e-003	2.6100e-003	0.0000	5.1175	5.1175	1.6600e-003	0.0000	5.1588

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	6.0000e-005	6.7000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2436	0.2436	0.0000	0.0000	0.2437
Total	1.0000e-004	6.0000e-005	6.7000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2436	0.2436	0.0000	0.0000	0.2437

Toto Ranch Field 3 System - San Mateo County, Annual

3.2 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5300e-003	0.0000	6.5300e-003	7.0000e-004	0.0000	7.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6500e-003	0.0342	0.0405	6.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003	0.0000	5.1174	5.1174	1.6600e-003	0.0000	5.1588
Total	3.6500e-003	0.0342	0.0405	6.0000e-005	6.5300e-003	2.0800e-003	8.6100e-003	7.0000e-004	1.9100e-003	2.6100e-003	0.0000	5.1174	5.1174	1.6600e-003	0.0000	5.1588

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	6.0000e-005	6.7000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2436	0.2436	0.0000	0.0000	0.2437
Total	1.0000e-004	6.0000e-005	6.7000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2436	0.2436	0.0000	0.0000	0.2437

Toto Ranch Field 3 System - San Mateo County, Annual

3.3 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9500e-003	0.0529	0.0507	9.0000e-005		2.5600e-003	2.5600e-003		2.4400e-003	2.4400e-003	0.0000	7.8522	7.8522	1.5700e-003	0.0000	7.8914
Total	5.9500e-003	0.0529	0.0507	9.0000e-005		2.5600e-003	2.5600e-003		2.4400e-003	2.4400e-003	0.0000	7.8522	7.8522	1.5700e-003	0.0000	7.8914

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	3.7400e-003	1.6900e-003	1.0000e-005	2.4000e-004	1.0000e-005	2.4000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.9480	0.9480	8.0000e-005	0.0000	0.9501
Worker	1.0000e-004	6.0000e-005	6.7000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2436	0.2436	0.0000	0.0000	0.2437
Total	2.1000e-004	3.8000e-003	2.3600e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.6000e-004	1.5000e-004	1.0000e-005	1.7000e-004	0.0000	1.1917	1.1917	8.0000e-005	0.0000	1.1938

Toto Ranch Field 3 System - San Mateo County, Annual

3.3 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9500e-003	0.0529	0.0507	9.0000e-005		2.5600e-003	2.5600e-003		2.4400e-003	2.4400e-003	0.0000	7.8522	7.8522	1.5700e-003	0.0000	7.8914
Total	5.9500e-003	0.0529	0.0507	9.0000e-005		2.5600e-003	2.5600e-003		2.4400e-003	2.4400e-003	0.0000	7.8522	7.8522	1.5700e-003	0.0000	7.8914

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	3.7400e-003	1.6900e-003	1.0000e-005	2.4000e-004	1.0000e-005	2.4000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.9480	0.9480	8.0000e-005	0.0000	0.9501
Worker	1.0000e-004	6.0000e-005	6.7000e-004	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2436	0.2436	0.0000	0.0000	0.2437
Total	2.1000e-004	3.8000e-003	2.3600e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.6000e-004	1.5000e-004	1.0000e-005	1.7000e-004	0.0000	1.1917	1.1917	8.0000e-005	0.0000	1.1938

4.0 Operational Detail - Mobile

Toto Ranch Field 3 System - San Mateo County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.9500e-003	0.0122	0.0526	2.1000e-004	0.0202	1.6000e-004	0.0204	5.4300e-003	1.5000e-004	5.5800e-003	0.0000	18.7924	18.7924	6.4000e-004	0.0000	18.8085
Unmitigated	3.9500e-003	0.0122	0.0526	2.1000e-004	0.0202	1.6000e-004	0.0204	5.4300e-003	1.5000e-004	5.5800e-003	0.0000	18.7924	18.7924	6.4000e-004	0.0000	18.8085

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	14.11	14.11	14.11	54,521	54,521
Total	14.11	14.11	14.11	54,521	54,521

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Toto Ranch Field 3 System - San Mateo County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.470625	0.050338	0.265549	0.140745	0.017339	0.006996	0.024054	0.006595	0.004215	0.003104	0.009159	0.000488	0.000793
Unrefrigerated Warehouse-No Rail	0.470625	0.050338	0.265549	0.140745	0.017339	0.006996	0.024054	0.006595	0.004215	0.003104	0.009159	0.000488	0.000793

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000	9.2615	9.2615	4.2000e-004	9.0000e-005	9.2978
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000	9.2615	9.2615	4.2000e-004	9.0000e-005	9.2978
Natural Gas Mitigated	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6231	0.6231	1.0000e-005	1.0000e-005	0.6268
Natural Gas Unmitigated	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6231	0.6231	1.0000e-005	1.0000e-005	0.6268

Toto Ranch Field 3 System - San Mateo County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	11676	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6231	0.6231	1.0000e-005	1.0000e-005	0.6268
Total		6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6231	0.6231	1.0000e-005	1.0000e-005	0.6268

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	11676	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6231	0.6231	1.0000e-005	1.0000e-005	0.6268
Total		6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6231	0.6231	1.0000e-005	1.0000e-005	0.6268

Toto Ranch Field 3 System - San Mateo County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	31836	9.2615	4.2000e-004	9.0000e-005	9.2978
Total		9.2615	4.2000e-004	9.0000e-005	9.2978

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	31836	9.2615	4.2000e-004	9.0000e-005	9.2978
Total		9.2615	4.2000e-004	9.0000e-005	9.2978

6.0 Area Detail

6.1 Mitigation Measures Area

Toto Ranch Field 3 System - San Mateo County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0828	4.0000e-005	4.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5800e-003	9.5800e-003	3.0000e-005	0.0000	0.0102
Unmitigated	0.0828	4.0000e-005	4.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5800e-003	9.5800e-003	3.0000e-005	0.0000	0.0102

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0154					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0669					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6000e-004	4.0000e-005	4.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5800e-003	9.5800e-003	3.0000e-005	0.0000	0.0102
Total	0.0828	4.0000e-005	4.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5800e-003	9.5800e-003	3.0000e-005	0.0000	0.0102

Toto Ranch Field 3 System - San Mateo County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0154					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0669					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6000e-004	4.0000e-005	4.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5800e-003	9.5800e-003	3.0000e-005	0.0000	0.0102
Total	0.0828	4.0000e-005	4.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5800e-003	9.5800e-003	3.0000e-005	0.0000	0.0102

7.0 Water Detail

7.1 Mitigation Measures Water

Toto Ranch Field 3 System - San Mateo County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.6740	0.0634	1.5200e-003	5.7138
Unmitigated	3.6740	0.0634	1.5200e-003	5.7138

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.9425 / 0	3.6740	0.0634	1.5200e-003	5.7138
Total		3.6740	0.0634	1.5200e-003	5.7138

Toto Ranch Field 3 System - San Mateo County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.9425 / 0	3.6740	0.0634	1.5200e-003	5.7138
Total		3.6740	0.0634	1.5200e-003	5.7138

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.6036	0.0948	0.0000	3.9729
Unmitigated	1.6036	0.0948	0.0000	3.9729

Toto Ranch Field 3 System - San Mateo County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	7.9	1.6036	0.0948	0.0000	3.9729
Total		1.6036	0.0948	0.0000	3.9729

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	7.9	1.6036	0.0948	0.0000	3.9729
Total		1.6036	0.0948	0.0000	3.9729

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Toto Ranch Field 3 System - San Mateo County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Toto Ranch Roadway Repair - San Mateo County, Summer

Toto Ranch Roadway Repair
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	264.00		0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Schedule from client

Off-road Equipment - Revised to reflect culvert rather than building

Off-road Equipment -

Off-road Equipment - revised to reflect rock rather than pavement

Grading - Grading area is roadway width

Trips and VMT - Revised culvert trips to reflect other phases

Toto Ranch Roadway Repair - San Mateo County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	PhaseEndDate	7/7/2019	7/26/2019
tblGrading	AcresOfGrading	0.00	6.60
tblGrading	MaterialImported	0.00	4,889.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

Toto Ranch Roadway Repair - San Mateo County, Summer

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Culvert Repair	Building Construction	7/8/2019	7/26/2019	5	15	
2	Grading	Grading	7/29/2019	8/16/2019	5	15	
3	Rocking	Paving	8/19/2019	9/27/2019	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6.6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Toto Ranch Roadway Repair - San Mateo County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Rocking	Cement and Mortar Mixers	0	6.00	9	0.56
Rocking	Pavers	0	7.00	130	0.42
Rocking	Rollers	0	7.00	80	0.38
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Culvert Repair	Cranes	0	4.00	231	0.29
Culvert Repair	Forklifts	0	6.00	89	0.20
Rocking	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Culvert Repair	Excavators	1	8.00	158	0.38
Rocking	Off-Highway Trucks	1	7.00	402	0.38
Rocking	Dumpers/Tenders	1	7.00	16	0.38
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Culvert Repair	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Rocking	Graders	1	7.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Rocking	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	611.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Culvert Repair	3	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Toto Ranch Roadway Repair - San Mateo County, Summer

3.2 Culvert Repair - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7277	7.3700	7.8849	0.0114		0.4421	0.4421		0.4067	0.4067		1,128.7649	1,128.7649	0.3571		1,137.6932
Total	0.7277	7.3700	7.8849	0.0114		0.4421	0.4421		0.4067	0.4067		1,128.7649	1,128.7649	0.3571		1,137.6932

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737
Total	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737

Toto Ranch Roadway Repair - San Mateo County, Summer

3.2 Culvert Repair - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7277	7.3700	7.8849	0.0114		0.4421	0.4421		0.4067	0.4067	0.0000	1,128.7649	1,128.7649	0.3571		1,137.6932
Total	0.7277	7.3700	7.8849	0.0114		0.4421	0.4421		0.4067	0.4067	0.0000	1,128.7649	1,128.7649	0.3571		1,137.6932

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737
Total	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737

Toto Ranch Roadway Repair - San Mateo County, Summer

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2562	0.0000	1.2562	0.4697	0.0000	0.4697			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125		1,159.6570	1,159.6570	0.2211		1,165.1847
Total	0.9530	8.6039	7.6917	0.0120	1.2562	0.5371	1.7933	0.4697	0.5125	0.9822		1,159.6570	1,159.6570	0.2211		1,165.1847

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4040	13.8789	5.4128	0.0339	0.7072	0.0561	0.7633	0.1935	0.0537	0.2472		3,820.6602	3,820.6602	0.4624		3,832.2198
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737
Total	0.4339	13.8973	5.6402	0.0347	0.7893	0.0566	0.8459	0.2153	0.0541	0.2694		3,899.8920	3,899.8920	0.4641		3,911.4936

Toto Ranch Roadway Repair - San Mateo County, Summer

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2562	0.0000	1.2562	0.4697	0.0000	0.4697			0.0000			0.0000
Off-Road	0.9530	8.6039	7.6917	0.0120		0.5371	0.5371		0.5125	0.5125	0.0000	1,159.6570	1,159.6570	0.2211		1,165.1847
Total	0.9530	8.6039	7.6917	0.0120	1.2562	0.5371	1.7933	0.4697	0.5125	0.9822	0.0000	1,159.6570	1,159.6570	0.2211		1,165.1847

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4040	13.8789	5.4128	0.0339	0.7072	0.0561	0.7633	0.1935	0.0537	0.2472		3,820.6602	3,820.6602	0.4624		3,832.2198
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737
Total	0.4339	13.8973	5.6402	0.0347	0.7893	0.0566	0.8459	0.2153	0.0541	0.2694		3,899.8920	3,899.8920	0.4641		3,911.4936

Toto Ranch Roadway Repair - San Mateo County, Summer

3.4 Rocking - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3169	14.5137	7.3522	0.0208		0.5663	0.5663		0.5223	0.5223		2,046.0076	2,046.0076	0.6362		2,061.9123
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3169	14.5137	7.3522	0.0208		0.5663	0.5663		0.5223	0.5223		2,046.0076	2,046.0076	0.6362		2,061.9123

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737
Total	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737

Toto Ranch Roadway Repair - San Mateo County, Summer

3.4 Rocking - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3169	14.5137	7.3522	0.0208		0.5663	0.5663		0.5223	0.5223	0.0000	2,046.0076	2,046.0076	0.6362		2,061.9123
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3169	14.5137	7.3522	0.0208		0.5663	0.5663		0.5223	0.5223	0.0000	2,046.0076	2,046.0076	0.6362		2,061.9123

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737
Total	0.0298	0.0184	0.2274	7.9000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.7000e-004	0.0223		79.2318	79.2318	1.6800e-003		79.2737

4.0 Operational Detail - Mobile

Toto Ranch Roadway Repair - San Mateo County, Summer

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Toto Ranch Roadway Repair - San Mateo County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Toto Ranch Roadway Repair - San Mateo County, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.5500e-003	2.5000e-004	0.0271	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0578	0.0578	1.5000e-004		0.0617
Unmitigated	2.5500e-003	2.5000e-004	0.0271	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0578	0.0578	1.5000e-004		0.0617

Toto Ranch Roadway Repair - San Mateo County, Summer

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.5500e-003	2.5000e-004	0.0271	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0578	0.0578	1.5000e-004		0.0617
Total	2.5500e-003	2.5000e-004	0.0271	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0578	0.0578	1.5000e-004		0.0617

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.5500e-003	2.5000e-004	0.0271	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0578	0.0578	1.5000e-004		0.0617
Total	2.5500e-003	2.5000e-004	0.0271	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004		0.0578	0.0578	1.5000e-004		0.0617

7.0 Water Detail

Toto Ranch Roadway Repair - San Mateo County, Summer

7.1 Mitigation Measures Water**8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Toto Ranch Roadway Repair - San Mateo County, Annual

**Toto Ranch Roadway Repair
San Mateo County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	264.00		0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Schedule from client

Off-road Equipment - Revised to reflect culvert rather than building

Off-road Equipment -

Off-road Equipment - revised to reflect rock rather than pavement

Grading - Grading area is roadway width

Trips and VMT - Revised culvert trips to reflect other phases

Toto Ranch Roadway Repair - San Mateo County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	PhaseEndDate	7/7/2019	7/26/2019
tblGrading	AcresOfGrading	0.00	6.60
tblGrading	MaterialImported	0.00	4,889.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

Toto Ranch Roadway Repair - San Mateo County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-8-2019	9-30-2019	0.4442	0.4442
		Highest	0.4442	0.4442

Toto Ranch Roadway Repair - San Mateo County, Annual

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003

Toto Ranch Roadway Repair - San Mateo County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Culvert Repair	Building Construction	7/8/2019	7/26/2019	5	15	
2	Grading	Grading	7/29/2019	8/16/2019	5	15	
3	Rocking	Paving	8/19/2019	9/27/2019	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6.6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Toto Ranch Roadway Repair - San Mateo County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Rocking	Cement and Mortar Mixers	0	6.00	9	0.56
Rocking	Pavers	0	7.00	130	0.42
Rocking	Rollers	0	7.00	80	0.38
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Culvert Repair	Cranes	0	4.00	231	0.29
Culvert Repair	Forklifts	0	6.00	89	0.20
Rocking	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Culvert Repair	Excavators	1	8.00	158	0.38
Rocking	Off-Highway Trucks	1	7.00	402	0.38
Rocking	Dumpers/Tenders	1	7.00	16	0.38
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Culvert Repair	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Rocking	Graders	1	7.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Rocking	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	611.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Culvert Repair	3	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Toto Ranch Roadway Repair - San Mateo County, Annual

3.2 Culvert Repair - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.4600e-003	0.0553	0.0591	9.0000e-005		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	7.6800	7.6800	2.4300e-003	0.0000	7.7407
Total	5.4600e-003	0.0553	0.0591	9.0000e-005		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	7.6800	7.6800	2.4300e-003	0.0000	7.7407

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.6100e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5078	0.5078	1.0000e-005	0.0000	0.5081
Total	2.2000e-004	1.6000e-004	1.6100e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5078	0.5078	1.0000e-005	0.0000	0.5081

Toto Ranch Roadway Repair - San Mateo County, Annual

3.2 Culvert Repair - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.4600e-003	0.0553	0.0591	9.0000e-005		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	7.6800	7.6800	2.4300e-003	0.0000	7.7407
Total	5.4600e-003	0.0553	0.0591	9.0000e-005		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	7.6800	7.6800	2.4300e-003	0.0000	7.7407

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.6100e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5078	0.5078	1.0000e-005	0.0000	0.5081
Total	2.2000e-004	1.6000e-004	1.6100e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5078	0.5078	1.0000e-005	0.0000	0.5081

Toto Ranch Roadway Repair - San Mateo County, Annual

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.4200e-003	0.0000	9.4200e-003	3.5200e-003	0.0000	3.5200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1500e-003	0.0645	0.0577	9.0000e-005		4.0300e-003	4.0300e-003		3.8400e-003	3.8400e-003	0.0000	7.8902	7.8902	1.5000e-003	0.0000	7.9278
Total	7.1500e-003	0.0645	0.0577	9.0000e-005	9.4200e-003	4.0300e-003	0.0135	3.5200e-003	3.8400e-003	7.3600e-003	0.0000	7.8902	7.8902	1.5000e-003	0.0000	7.9278

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0600e-003	0.1067	0.0410	2.5000e-004	5.1100e-003	4.3000e-004	5.5400e-003	1.4000e-003	4.1000e-004	1.8100e-003	0.0000	25.8820	25.8820	3.1600e-003	0.0000	25.9609
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.6100e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5078	0.5078	1.0000e-005	0.0000	0.5081
Total	3.2800e-003	0.1069	0.0426	2.6000e-004	5.7000e-003	4.3000e-004	6.1300e-003	1.5600e-003	4.1000e-004	1.9700e-003	0.0000	26.3897	26.3897	3.1700e-003	0.0000	26.4690

Toto Ranch Roadway Repair - San Mateo County, Annual

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.4200e-003	0.0000	9.4200e-003	3.5200e-003	0.0000	3.5200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1500e-003	0.0645	0.0577	9.0000e-005		4.0300e-003	4.0300e-003		3.8400e-003	3.8400e-003	0.0000	7.8902	7.8902	1.5000e-003	0.0000	7.9278
Total	7.1500e-003	0.0645	0.0577	9.0000e-005	9.4200e-003	4.0300e-003	0.0135	3.5200e-003	3.8400e-003	7.3600e-003	0.0000	7.8902	7.8902	1.5000e-003	0.0000	7.9278

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0600e-003	0.1067	0.0410	2.5000e-004	5.1100e-003	4.3000e-004	5.5400e-003	1.4000e-003	4.1000e-004	1.8100e-003	0.0000	25.8820	25.8820	3.1600e-003	0.0000	25.9609
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.6100e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5078	0.5078	1.0000e-005	0.0000	0.5081
Total	3.2800e-003	0.1069	0.0426	2.6000e-004	5.7000e-003	4.3000e-004	6.1300e-003	1.5600e-003	4.1000e-004	1.9700e-003	0.0000	26.3897	26.3897	3.1700e-003	0.0000	26.4690

Toto Ranch Roadway Repair - San Mateo County, Annual

3.4 Rocking - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0198	0.2177	0.1103	3.1000e-004		8.4900e-003	8.4900e-003		7.8300e-003	7.8300e-003	0.0000	27.8416	27.8416	8.6600e-003	0.0000	28.0580
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0198	0.2177	0.1103	3.1000e-004		8.4900e-003	8.4900e-003		7.8300e-003	7.8300e-003	0.0000	27.8416	27.8416	8.6600e-003	0.0000	28.0580

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161
Total	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161

Toto Ranch Roadway Repair - San Mateo County, Annual

3.4 Rocking - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0198	0.2177	0.1103	3.1000e-004		8.4900e-003	8.4900e-003		7.8300e-003	7.8300e-003	0.0000	27.8416	27.8416	8.6600e-003	0.0000	28.0580
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0198	0.2177	0.1103	3.1000e-004		8.4900e-003	8.4900e-003		7.8300e-003	7.8300e-003	0.0000	27.8416	27.8416	8.6600e-003	0.0000	28.0580

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161
Total	4.4000e-004	3.1000e-004	3.2200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0156	1.0156	2.0000e-005	0.0000	1.0161

4.0 Operational Detail - Mobile

Toto Ranch Roadway Repair - San Mateo County, Annual

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Toto Ranch Roadway Repair - San Mateo County, Annual

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU/yr	tons/yr										MT/yr						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000								

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Toto Ranch Roadway Repair - San Mateo County, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003
Unmitigated	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003

Toto Ranch Roadway Repair - San Mateo County, Annual

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003
Total	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003
Total	2.3000e-004	2.0000e-005	2.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7200e-003	4.7200e-003	1.0000e-005	0.0000	5.0300e-003

7.0 Water Detail

Toto Ranch Roadway Repair - San Mateo County, Annual

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Toto Ranch Roadway Repair - San Mateo County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Toto Ranch Roadway Repair - San Mateo County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

Toto Ranch RMP - Water line and 2 troughs
Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	18.00	Acre	18.00	784,080.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	4			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - This is for a water line and 2 troughs. The acreage disturbed is 18 acres.

Construction Phase - 8 days of trenching activity, 2 days grading afterwards. site already prepared.

Off-road Equipment - Only trenching is planned.

Off-road Equipment - Only one needed.

Off-road Equipment - Only one needed.

Trips and VMT - Assume 3 worker trips/day.

On-road Fugitive Dust - Onroad fugitive dust will be generated from the trenching and grading operations. Vehicles are not expected to exceed 30 mph.

Demolition - Assume no demolition needed.

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

Grading - 0.75 miles * 5280 feet/mile = 3960 feet
3960 * 3 feet wide * 5 feet deep = 59400 ft³ soil
100 feet on each side of trench * 2 sides * 3960 ft = 792000 ft²
792000 ft² * 2.296E-5 acres/ft² = 18.1 acres
Architectural Coating - None will be used.

Vehicle Trips - No operational trips are expected.

Road Dust - The area being worked on is grassland. Assumed 30 mph max speed for the unpaved road around the project.

Woodstoves - NA

Consumer Products - NA

Area Coating - NA

Landscape Equipment - NA

Energy Use - NA

Water And Wastewater - A solar pump was identified as the power source for pumping Water.

Solid Waste - NA

Land Use Change - Assume the trench area land use will not change.

Sequestration - Project does not include planting trees as mitigation.

Construction Off-road Equipment Mitigation - No mitigation is planned.

Mobile Land Use Mitigation - No mitigation is planned.

Mobile Commute Mitigation - No mitigation is planned.

Area Mitigation - No mitigation is planned.

Energy Mitigation - The solar pump can be considered mitigation, but is not included here because the amount of electricity use is unknown. Mitigation is not needed, because emissions will be very low.

Water Mitigation - No mitigation planned.

Waste Mitigation - No mitigation planned.

Operational Off-Road Equipment - No offroad equipment will be used operationally.

Stationary Sources - Emergency Generators and Fire Pumps - No engines will be used operationally.

Stationary Sources - Process Boilers - No boilers will be used operationally.

Stationary Sources - User Defined - NA

Stationary Sources - Emergency Generators and Fire Pumps EF - No engines will be used operationally.

Stationary Sources - Process Boilers EF - No Boilers will be used operationally.

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	30.00	2.00
tblGrading	AcresOfGrading	5.00	18.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	MeanVehicleSpeed	40	30
tblRoadDust	RoadPercentPave	100	0

2.0 Emissions Summary

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3675	2.0000e-005	1.8400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005		4.2000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3675	2.0000e-005	1.8400e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005	0.0000	4.2000e-003

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3675	2.0000e-005	1.8400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005		4.2000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3675	2.0000e-005	1.8400e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005	0.0000	4.2000e-003

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2020	1/2/2020	5	2	
2	trenching	Trenching	1/3/2020	1/14/2020	5	8	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 18

Acres of Paving: 18

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
trenching	Trenchers	1	8.00	78	0.50
trenching	Excavators	1	8.00	158	0.38
trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
trenching	3	8.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.5666	0.0000	15.5666	4.3408	0.0000	4.3408			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	15.5666	2.1739	17.7405	4.3408	2.0000	6.3408		6,005.8653	6,005.8653	1.9424		6,054.4257

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

3.2 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.5666	0.0000	15.5666	4.3408	0.0000	4.3408			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	15.5666	2.1739	17.7405	4.3408	2.0000	6.3408	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

3.2 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055

3.3 trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8746	8.3179	8.1909	0.0117		0.5343	0.5343		0.4915	0.4915		1,128.9803	1,128.9803	0.3651		1,138.1087
Total	0.8746	8.3179	8.1909	0.0117		0.5343	0.5343		0.4915	0.4915		1,128.9803	1,128.9803	0.3651		1,138.1087

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

3.3 trenching - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8746	8.3179	8.1909	0.0117		0.5343	0.5343		0.4915	0.4915	0.0000	1,128.9803	1,128.9803	0.3651		1,138.1087
Total	0.8746	8.3179	8.1909	0.0117		0.5343	0.5343		0.4915	0.4915	0.0000	1,128.9803	1,128.9803	0.3651		1,138.1087

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

3.3 trenching - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.575198	0.040076	0.193827	0.113296	0.016988	0.005361	0.017552	0.025197	0.002581	0.002349	0.005904	0.000881	0.000789

5.0 Energy Detail

Historical Energy Use: N

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3675	2.0000e-005	1.8400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005		4.2000e-003
Unmitigated	0.3675	2.0000e-005	1.8400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005		4.2000e-003

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0896					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2777					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005		4.2000e-003
Total	0.3675	2.0000e-005	1.8400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005		4.2000e-003

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0896					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2777					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005		4.2000e-003
Total	0.3675	2.0000e-005	1.8400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9400e-003	3.9400e-003	1.0000e-005		4.2000e-003

7.0 Water Detail

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Winter

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

Toto Ranch RMP - Water line and 2 troughs
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	18.00	Acre	18.00	784,080.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	4			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - This is for a water line and 2 troughs. The acreage disturbed is 18 acres.

Construction Phase - 8 days of trenching activity, 2 days grading afterwards. site already prepared.

Off-road Equipment - Only trenching is planned.

Off-road Equipment - Only one needed.

Off-road Equipment - Only one needed.

Trips and VMT - Assume 3 worker trips/day.

On-road Fugitive Dust - Onroad fugitive dust will be generated from the trenching and grading operations. Vehicles are not expected to exceed 30 mph.

Demolition - Assume no demolition needed.

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

Grading - 0.75 miles * 5280 feet/mile = 3960 feet
3960 * 3 feet wide * 5 feet deep = 59400 ft³ soil
100 feet on each side of trench * 2 sides * 3960 ft = 792000 ft²
792000 ft² * 2.296E-5 acres/ft² = 18.1 acres
Architectural Coating - None will be used.

Vehicle Trips - No operational trips are expected.

Road Dust - The area being worked on is grassland. Assumed 30 mph max speed for the unpaved road around the project.

Woodstoves - NA

Consumer Products - NA

Area Coating - NA

Landscape Equipment - NA

Energy Use - NA

Water And Wastewater - A solar pump was identified as the power source for pumping Water.

Solid Waste - NA

Land Use Change - Assume the trench area land use will not change.

Sequestration - Project does not include planting trees as mitigation.

Construction Off-road Equipment Mitigation - No mitigation is planned.

Mobile Land Use Mitigation - No mitigation is planned.

Mobile Commute Mitigation - No mitigation is planned.

Area Mitigation - No mitigation is planned.

Energy Mitigation - The solar pump can be considered mitigation, but is not included here because the amount of electricity use is unknown. Mitigation is not needed, because emissions will be very low.

Water Mitigation - No mitigation planned.

Waste Mitigation - No mitigation planned.

Operational Off-Road Equipment - No offroad equipment will be used operationally.

Stationary Sources - Emergency Generators and Fire Pumps - No engines will be used operationally.

Stationary Sources - Process Boilers - No boilers will be used operationally.

Stationary Sources - User Defined - NA

Stationary Sources - Emergency Generators and Fire Pumps EF - No engines will be used operationally.

Stationary Sources - Process Boilers EF - No Boilers will be used operationally.

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	30.00	2.00
tblGrading	AcresOfGrading	5.00	18.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	MeanVehicleSpeed	40	30
tblRoadDust	RoadPercentPave	100	0

2.0 Emissions Summary

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	0.0787	0.0787
		Highest	0.0787	0.0787

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0671	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.2000e-004	3.2000e-004	0.0000	0.0000	3.4000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0671	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.2000e-004	3.2000e-004	0.0000	0.0000	3.4000e-004

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	0.0000
Vegetation Land Change	0.0000
Total	0.0000

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2020	1/2/2020	5	2	
2	trenching	Trenching	1/3/2020	1/14/2020	5	8	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 18

Acres of Paving: 18

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
trenching	Trenchers	1	8.00	78	0.50
trenching	Excavators	1	8.00	158	0.38
trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
trenching	3	8.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0156	0.0000	0.0156	4.3400e-003	0.0000	4.3400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4500e-003	0.0502	0.0320	6.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	5.4484	5.4484	1.7600e-003	0.0000	5.4925
Total	4.4500e-003	0.0502	0.0320	6.0000e-005	0.0156	2.1700e-003	0.0177	4.3400e-003	2.0000e-003	6.3400e-003	0.0000	5.4484	5.4484	1.7600e-003	0.0000	5.4925

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1385	0.1385	0.0000	0.0000	0.1385
Total	7.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1385	0.1385	0.0000	0.0000	0.1385

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

3.2 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0156	0.0000	0.0156	4.3400e-003	0.0000	4.3400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4500e-003	0.0502	0.0320	6.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	5.4484	5.4484	1.7600e-003	0.0000	5.4925
Total	4.4500e-003	0.0502	0.0320	6.0000e-005	0.0156	2.1700e-003	0.0177	4.3400e-003	2.0000e-003	6.3400e-003	0.0000	5.4484	5.4484	1.7600e-003	0.0000	5.4925

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1385	0.1385	0.0000	0.0000	0.1385
Total	7.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1385	0.1385	0.0000	0.0000	0.1385

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

3.3 trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5000e-003	0.0333	0.0328	5.0000e-005		2.1400e-003	2.1400e-003		1.9700e-003	1.9700e-003	0.0000	4.0968	4.0968	1.3200e-003	0.0000	4.1299
Total	3.5000e-003	0.0333	0.0328	5.0000e-005		2.1400e-003	2.1400e-003		1.9700e-003	1.9700e-003	0.0000	4.0968	4.0968	1.3200e-003	0.0000	4.1299

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	8.0000e-005	7.9000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2215	0.2215	1.0000e-005	0.0000	0.2217
Total	1.1000e-004	8.0000e-005	7.9000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2215	0.2215	1.0000e-005	0.0000	0.2217

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

3.3 trenching - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5000e-003	0.0333	0.0328	5.0000e-005		2.1400e-003	2.1400e-003		1.9700e-003	1.9700e-003	0.0000	4.0968	4.0968	1.3200e-003	0.0000	4.1299
Total	3.5000e-003	0.0333	0.0328	5.0000e-005		2.1400e-003	2.1400e-003		1.9700e-003	1.9700e-003	0.0000	4.0968	4.0968	1.3200e-003	0.0000	4.1299

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	8.0000e-005	7.9000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2215	0.2215	1.0000e-005	0.0000	0.2217
Total	1.1000e-004	8.0000e-005	7.9000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2215	0.2215	1.0000e-005	0.0000	0.2217

4.0 Operational Detail - Mobile

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.575198	0.040076	0.193827	0.113296	0.016988	0.005361	0.017552	0.025197	0.002581	0.002349	0.005904	0.000881	0.000789

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0671	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.2000e-004	3.2000e-004	0.0000	0.0000	3.4000e-004
Unmitigated	0.0671	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.2000e-004	3.2000e-004	0.0000	0.0000	3.4000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0164					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0507					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.2000e-004	3.2000e-004	0.0000	0.0000	3.4000e-004
Total	0.0671	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.2000e-004	3.2000e-004	0.0000	0.0000	3.4000e-004

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0164					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0507					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.2000e-004	3.2000e-004	0.0000	0.0000	3.4000e-004
Total	0.0671	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.2000e-004	3.2000e-004	0.0000	0.0000	3.4000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	0.0000	0.0000	0.0000	0.0000

Toto Ranch RMP - Water line and 2 troughs - Bay Area AQMD Air District, Annual

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Pine	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Small Pond Management - San Mateo County, Summer

Small Pond Management
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.76	Acre	0.76	33,105.60	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst case is 6 weeks/30 days

Off-road Equipment - CalEEMod assumes 15 equipment hours total for a site this size. Adjusted hours for client-provided fleet accordingly

Grading - Assumes total size of pond

Small Pond Management - San Mateo County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	PhaseEndDate	8/31/2023	10/10/2023
tblGrading	AcresOfGrading	0.00	0.76
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	2.50
tblOffRoadEquipment	UsageHours	6.00	2.50

2.0 Emissions Summary

Small Pond Management - San Mateo County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.7100e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.7000e-004	1.7000e-004	0.0000		1.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0216	0.0515	0.2145	7.9000e-004	0.0784	6.1000e-004	0.0790	0.0210	5.7000e-004	0.0216		80.0436	80.0436	2.7400e-003		80.1121
Total	0.0233	0.0515	0.2146	7.9000e-004	0.0784	6.1000e-004	0.0790	0.0210	5.7000e-004	0.0216		80.0438	80.0438	2.7400e-003	0.0000	80.1122

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.7100e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.7000e-004	1.7000e-004	0.0000		1.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0216	0.0515	0.2145	7.9000e-004	0.0784	6.1000e-004	0.0790	0.0210	5.7000e-004	0.0216		80.0436	80.0436	2.7400e-003		80.1121
Total	0.0233	0.0515	0.2146	7.9000e-004	0.0784	6.1000e-004	0.0790	0.0210	5.7000e-004	0.0216		80.0438	80.0438	2.7400e-003	0.0000	80.1122

Small Pond Management - San Mateo County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/30/2023	10/10/2023	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.76

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	2.50	158	0.38
Grading	Off-Highway Trucks	1	2.50	402	0.38
Grading	Rollers	1	2.50	80	0.38
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Rubber Tired Dozers	1	2.50	247	0.40
Grading	Tractors/Loaders/Backhoes	2	2.50	97	0.37

Trips and VMT

Small Pond Management - San Mateo County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9088	0.0000	1.9088	1.0374	0.0000	1.0374			0.0000			0.0000
Off-Road	0.5735	5.2908	4.9928	0.0112		0.2393	0.2393		0.2202	0.2202		1,084.3580	1,084.3580	0.3507		1,093.1256
Total	0.5735	5.2908	4.9928	0.0112	1.9088	0.2393	2.1481	1.0374	0.2202	1.2575		1,084.3580	1,084.3580	0.3507		1,093.1256

Small Pond Management - San Mateo County, Summer

3.2 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0343	0.0180	0.2503	1.0300e-003	0.1232	6.9000e-004	0.1239	0.0327	6.4000e-004	0.0333		102.8546	102.8546	1.6400e-003		102.8956
Total	0.0343	0.0180	0.2503	1.0300e-003	0.1232	6.9000e-004	0.1239	0.0327	6.4000e-004	0.0333		102.8546	102.8546	1.6400e-003		102.8956

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9088	0.0000	1.9088	1.0374	0.0000	1.0374			0.0000			0.0000
Off-Road	0.5735	5.2908	4.9928	0.0112		0.2393	0.2393		0.2202	0.2202	0.0000	1,084.3580	1,084.3580	0.3507		1,093.1256
Total	0.5735	5.2908	4.9928	0.0112	1.9088	0.2393	2.1481	1.0374	0.2202	1.2575	0.0000	1,084.3580	1,084.3580	0.3507		1,093.1256

Small Pond Management - San Mateo County, Summer

3.2 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0343	0.0180	0.2503	1.0300e-003	0.1232	6.9000e-004	0.1239	0.0327	6.4000e-004	0.0333		102.8546	102.8546	1.6400e-003		102.8956
Total	0.0343	0.0180	0.2503	1.0300e-003	0.1232	6.9000e-004	0.1239	0.0327	6.4000e-004	0.0333		102.8546	102.8546	1.6400e-003		102.8956

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Small Pond Management - San Mateo County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0216	0.0515	0.2145	7.9000e-004	0.0784	6.1000e-004	0.0790	0.0210	5.7000e-004	0.0216		80.0436	80.0436	2.7400e-003		80.1121
Unmitigated	0.0216	0.0515	0.2145	7.9000e-004	0.0784	6.1000e-004	0.0790	0.0210	5.7000e-004	0.0216		80.0436	80.0436	2.7400e-003		80.1121

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.44	17.29	12.72	11,344	11,344
Total	1.44	17.29	12.72	11,344	11,344

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.465886	0.050507	0.268464	0.141721	0.017188	0.007113	0.024629	0.006618	0.004259	0.003067	0.009235	0.000505	0.000808

5.0 Energy Detail

Historical Energy Use: N

Small Pond Management - San Mateo County, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Small Pond Management - San Mateo County, Summer

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.7100e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.7000e-004	1.7000e-004	0.0000		1.8000e-004
Unmitigated	1.7100e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.7000e-004	1.7000e-004	0.0000		1.8000e-004

Small Pond Management - San Mateo County, Summer

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.7000e-004	1.7000e-004	0.0000		1.8000e-004
Total	1.7200e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.7000e-004	1.7000e-004	0.0000		1.8000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.7000e-004	1.7000e-004	0.0000		1.8000e-004
Total	1.7200e-003	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.7000e-004	1.7000e-004	0.0000		1.8000e-004

7.0 Water Detail

Small Pond Management - San Mateo County, Summer

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Small Pond Management - San Mateo County, Annual

Small Pond Management
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.76	Acre	0.76	33,105.60	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst case is 6 weeks/30 days

Off-road Equipment - CalEEMod assumes 15 equipment hours total for a site this size. Adjusted hours for client-provided fleet accordingly

Grading - Assumes total size of pond

Small Pond Management - San Mateo County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	PhaseEndDate	8/31/2023	10/10/2023
tblGrading	AcresOfGrading	0.00	0.76
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	2.50
tblOffRoadEquipment	UsageHours	6.00	2.50

2.0 Emissions Summary

Small Pond Management - San Mateo County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	8-15-2023	9-30-2023	0.0676	0.0676
		Highest	0.0676	0.0676

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.0900e-003	3.0200e-003	0.0119	4.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	3.8740	3.8740	1.4000e-004	0.0000	3.8774
Waste						0.0000	0.0000		0.0000	0.0000	0.0142	0.0000	0.0142	8.4000e-004	0.0000	0.0352
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.9220	0.9220	4.0000e-005	1.0000e-005	0.9256
Total	1.4000e-003	3.0200e-003	0.0119	4.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0142	4.7960	4.8102	1.0200e-003	1.0000e-005	4.8383

Small Pond Management - San Mateo County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.0900e-003	3.0200e-003	0.0119	4.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	3.8740	3.8740	1.4000e-004	0.0000	3.8774
Waste						0.0000	0.0000		0.0000	0.0000	0.0142	0.0000	0.0142	8.4000e-004	0.0000	0.0352
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.9220	0.9220	4.0000e-005	1.0000e-005	0.9256
Total	1.4000e-003	3.0200e-003	0.0119	4.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0142	4.7960	4.8102	1.0200e-003	1.0000e-005	4.8383

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/30/2023	10/10/2023	5	30	

Acres of Grading (Site Preparation Phase): 0

Small Pond Management - San Mateo County, Annual

Acres of Grading (Grading Phase): 0.76

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	2.50	158	0.38
Grading	Off-Highway Trucks	1	2.50	402	0.38
Grading	Rollers	1	2.50	80	0.38
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Rubber Tired Dozers	1	2.50	247	0.40
Grading	Tractors/Loaders/Backhoes	2	2.50	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Small Pond Management - San Mateo County, Annual

3.2 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0286	0.0000	0.0286	0.0156	0.0000	0.0156	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-003	0.0794	0.0749	1.7000e-004		3.5900e-003	3.5900e-003		3.3000e-003	3.3000e-003	0.0000	14.7557	14.7557	4.7700e-003	0.0000	14.8750
Total	8.6000e-003	0.0794	0.0749	1.7000e-004	0.0286	3.5900e-003	0.0322	0.0156	3.3000e-003	0.0189	0.0000	14.7557	14.7557	4.7700e-003	0.0000	14.8750

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.1000e-004	3.5000e-003	1.0000e-005	1.7700e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3187	1.3187	2.0000e-005	0.0000	1.3192
Total	5.1000e-004	3.1000e-004	3.5000e-003	1.0000e-005	1.7700e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3187	1.3187	2.0000e-005	0.0000	1.3192

Small Pond Management - San Mateo County, Annual

3.2 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0286	0.0000	0.0286	0.0156	0.0000	0.0156	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-003	0.0794	0.0749	1.7000e-004		3.5900e-003	3.5900e-003		3.3000e-003	3.3000e-003	0.0000	14.7557	14.7557	4.7700e-003	0.0000	14.8750
Total	8.6000e-003	0.0794	0.0749	1.7000e-004	0.0286	3.5900e-003	0.0322	0.0156	3.3000e-003	0.0189	0.0000	14.7557	14.7557	4.7700e-003	0.0000	14.8750

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.1000e-004	3.5000e-003	1.0000e-005	1.7700e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3187	1.3187	2.0000e-005	0.0000	1.3192
Total	5.1000e-004	3.1000e-004	3.5000e-003	1.0000e-005	1.7700e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3187	1.3187	2.0000e-005	0.0000	1.3192

4.0 Operational Detail - Mobile

Small Pond Management - San Mateo County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0900e-003	3.0200e-003	0.0119	4.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	3.8740	3.8740	1.4000e-004	0.0000	3.8774
Unmitigated	1.0900e-003	3.0200e-003	0.0119	4.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	3.8740	3.8740	1.4000e-004	0.0000	3.8774

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.44	17.29	12.72	11,344	11,344
Total	1.44	17.29	12.72	11,344	11,344

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.465886	0.050507	0.268464	0.141721	0.017188	0.007113	0.024629	0.006618	0.004259	0.003067	0.009235	0.000505	0.000808

Small Pond Management - San Mateo County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Small Pond Management - San Mateo County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

Small Pond Management - San Mateo County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	3.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	3.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

Small Pond Management - San Mateo County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	3.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

Small Pond Management - San Mateo County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.9220	4.0000e-005	1.0000e-005	0.9256
Unmitigated	0.9220	4.0000e-005	1.0000e-005	0.9256

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.905526	0.9220	4.0000e-005	1.0000e-005	0.9256
Total		0.9220	4.0000e-005	1.0000e-005	0.9256

Small Pond Management - San Mateo County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.905526	0.9220	4.0000e-005	1.0000e-005	0.9256
Total		0.9220	4.0000e-005	1.0000e-005	0.9256

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0142	8.4000e-004	0.0000	0.0352
Unmitigated	0.0142	8.4000e-004	0.0000	0.0352

Small Pond Management - San Mateo County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.07	0.0142	8.4000e-004	0.0000	0.0352
Total		0.0142	8.4000e-004	0.0000	0.0352

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.07	0.0142	8.4000e-004	0.0000	0.0352
Total		0.0142	8.4000e-004	0.0000	0.0352

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Small Pond Management - San Mateo County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

XS Small Pond Management - San Mateo County, Summer

XS Small Pond Management
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.06	Acre	0.06	2,613.60	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst case is 6 weeks/30 days

Off-road Equipment - CalEEMod assumes 15 equipment hours total for a site this size. Adjusted hours for client-provided fleet accordingly

Grading - Assumes total size of pond

XS Small Pond Management - San Mateo County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	PhaseEndDate	8/16/2023	9/4/2023
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	2.50
tblOffRoadEquipment	UsageHours	6.00	2.50

2.0 Emissions Summary

XS Small Pond Management - San Mateo County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000		1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.7000e-003	4.0600e-003	0.0169	6.0000e-005	6.1900e-003	5.0000e-005	6.2400e-003	1.6600e-003	4.0000e-005	1.7000e-003		6.3192	6.3192	2.2000e-004		6.3246
Total	1.8400e-003	4.0600e-003	0.0169	6.0000e-005	6.1900e-003	5.0000e-005	6.2400e-003	1.6600e-003	4.0000e-005	1.7000e-003		6.3192	6.3192	2.2000e-004	0.0000	6.3247

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000		1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.7000e-003	4.0600e-003	0.0169	6.0000e-005	6.1900e-003	5.0000e-005	6.2400e-003	1.6600e-003	4.0000e-005	1.7000e-003		6.3192	6.3192	2.2000e-004		6.3246
Total	1.8400e-003	4.0600e-003	0.0169	6.0000e-005	6.1900e-003	5.0000e-005	6.2400e-003	1.6600e-003	4.0000e-005	1.7000e-003		6.3192	6.3192	2.2000e-004	0.0000	6.3247

XS Small Pond Management - San Mateo County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/15/2023	9/4/2023	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	2.50	158	0.38
Grading	Off-Highway Trucks	1	2.50	402	0.38
Grading	Rollers	1	2.50	80	0.38
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Rubber Tired Dozers	1	2.50	247	0.40
Grading	Tractors/Loaders/Backhoes	2	2.50	97	0.37

Trips and VMT

XS Small Pond Management - San Mateo County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.8819	0.0000	1.8819	1.0345	0.0000	1.0345			0.0000			0.0000
Off-Road	0.5735	5.2908	4.9928	0.0112		0.2393	0.2393		0.2202	0.2202		1,084.3580	1,084.3580	0.3507		1,093.1256
Total	0.5735	5.2908	4.9928	0.0112	1.8819	0.2393	2.1212	1.0345	0.2202	1.2546		1,084.3580	1,084.3580	0.3507		1,093.1256

XS Small Pond Management - San Mateo County, Summer

3.2 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0343	0.0180	0.2503	1.0300e-003	0.1232	6.9000e-004	0.1239	0.0327	6.4000e-004	0.0333		102.8546	102.8546	1.6400e-003		102.8956
Total	0.0343	0.0180	0.2503	1.0300e-003	0.1232	6.9000e-004	0.1239	0.0327	6.4000e-004	0.0333		102.8546	102.8546	1.6400e-003		102.8956

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.8819	0.0000	1.8819	1.0345	0.0000	1.0345			0.0000			0.0000
Off-Road	0.5735	5.2908	4.9928	0.0112		0.2393	0.2393		0.2202	0.2202	0.0000	1,084.3580	1,084.3580	0.3507		1,093.1256
Total	0.5735	5.2908	4.9928	0.0112	1.8819	0.2393	2.1212	1.0345	0.2202	1.2546	0.0000	1,084.3580	1,084.3580	0.3507		1,093.1256

XS Small Pond Management - San Mateo County, Summer

3.2 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0343	0.0180	0.2503	1.0300e-003	0.1232	6.9000e-004	0.1239	0.0327	6.4000e-004	0.0333		102.8546	102.8546	1.6400e-003		102.8956
Total	0.0343	0.0180	0.2503	1.0300e-003	0.1232	6.9000e-004	0.1239	0.0327	6.4000e-004	0.0333		102.8546	102.8546	1.6400e-003		102.8956

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

XS Small Pond Management - San Mateo County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.7000e-003	4.0600e-003	0.0169	6.0000e-005	6.1900e-003	5.0000e-005	6.2400e-003	1.6600e-003	4.0000e-005	1.7000e-003		6.3192	6.3192	2.2000e-004		6.3246
Unmitigated	1.7000e-003	4.0600e-003	0.0169	6.0000e-005	6.1900e-003	5.0000e-005	6.2400e-003	1.6600e-003	4.0000e-005	1.7000e-003		6.3192	6.3192	2.2000e-004		6.3246

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.11	1.37	1.00	896	896
Total	0.11	1.37	1.00	896	896

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.465886	0.050507	0.268464	0.141721	0.017188	0.007113	0.024629	0.006618	0.004259	0.003067	0.009235	0.000505	0.000808

5.0 Energy Detail

Historical Energy Use: N

XS Small Pond Management - San Mateo County, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

XS Small Pond Management - San Mateo County, Summer

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000		1.0000e-005
Unmitigated	1.4000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000		1.0000e-005

XS Small Pond Management - San Mateo County, Summer

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000		1.0000e-005
Total	1.3000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000		1.0000e-005

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000		1.0000e-005
Total	1.3000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000		1.0000e-005

7.0 Water Detail

XS Small Pond Management - San Mateo County, Summer

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

XS Small Pond Management - San Mateo County, Annual

XS Small Pond Management
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.06	Acre	0.06	2,613.60	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst case is 6 weeks/30 days

Off-road Equipment - CalEEMod assumes 15 equipment hours total for a site this size. Adjusted hours for client-provided fleet accordingly

Grading - Assumes total size of pond

XS Small Pond Management - San Mateo County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	PhaseEndDate	8/16/2023	9/4/2023
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	2.50
tblOffRoadEquipment	UsageHours	6.00	2.50

2.0 Emissions Summary

XS Small Pond Management - San Mateo County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	8-15-2023	9-30-2023	0.0444	0.0444
		Highest	0.0444	0.0444

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.0000e-005	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	9.0000e-005	2.4000e-004	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3058	0.3058	1.0000e-005	0.0000	0.3061
Waste						0.0000	0.0000		0.0000	0.0000	2.0300e-003	0.0000	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0728	0.0728	0.0000	0.0000	0.0731
Total	1.1000e-004	2.4000e-004	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	2.0300e-003	0.3786	0.3807	1.3000e-004	0.0000	0.3842

XS Small Pond Management - San Mateo County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.0000e-005	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	9.0000e-005	2.4000e-004	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3058	0.3058	1.0000e-005	0.0000	0.3061
Waste						0.0000	0.0000		0.0000	0.0000	2.0300e-003	0.0000	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0728	0.0728	0.0000	0.0000	0.0731
Total	1.1000e-004	2.4000e-004	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	2.0300e-003	0.3786	0.3807	1.3000e-004	0.0000	0.3842

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/15/2023	9/4/2023	5	15	

Acres of Grading (Site Preparation Phase): 0

XS Small Pond Management - San Mateo County, Annual

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	2.50	158	0.38
Grading	Off-Highway Trucks	1	2.50	402	0.38
Grading	Rollers	1	2.50	80	0.38
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Rubber Tired Dozers	1	2.50	247	0.40
Grading	Tractors/Loaders/Backhoes	2	2.50	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

XS Small Pond Management - San Mateo County, Annual

3.2 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0141	0.0000	0.0141	7.7600e-003	0.0000	7.7600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3000e-003	0.0397	0.0375	8.0000e-005		1.7900e-003	1.7900e-003		1.6500e-003	1.6500e-003	0.0000	7.3779	7.3779	2.3900e-003	0.0000	7.4375
Total	4.3000e-003	0.0397	0.0375	8.0000e-005	0.0141	1.7900e-003	0.0159	7.7600e-003	1.6500e-003	9.4100e-003	0.0000	7.3779	7.3779	2.3900e-003	0.0000	7.4375

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.5000e-004	1.7500e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	0.0000	2.4000e-004	0.0000	0.6594	0.6594	1.0000e-005	0.0000	0.6596
Total	2.6000e-004	1.5000e-004	1.7500e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	0.0000	2.4000e-004	0.0000	0.6594	0.6594	1.0000e-005	0.0000	0.6596

XS Small Pond Management - San Mateo County, Annual

3.2 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0141	0.0000	0.0141	7.7600e-003	0.0000	7.7600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3000e-003	0.0397	0.0375	8.0000e-005		1.7900e-003	1.7900e-003		1.6500e-003	1.6500e-003	0.0000	7.3778	7.3778	2.3900e-003	0.0000	7.4375
Total	4.3000e-003	0.0397	0.0375	8.0000e-005	0.0141	1.7900e-003	0.0159	7.7600e-003	1.6500e-003	9.4100e-003	0.0000	7.3778	7.3778	2.3900e-003	0.0000	7.4375

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.5000e-004	1.7500e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	0.0000	2.4000e-004	0.0000	0.6594	0.6594	1.0000e-005	0.0000	0.6596
Total	2.6000e-004	1.5000e-004	1.7500e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	0.0000	2.4000e-004	0.0000	0.6594	0.6594	1.0000e-005	0.0000	0.6596

4.0 Operational Detail - Mobile

XS Small Pond Management - San Mateo County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.0000e-005	2.4000e-004	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3058	0.3058	1.0000e-005	0.0000	0.3061
Unmitigated	9.0000e-005	2.4000e-004	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3058	0.3058	1.0000e-005	0.0000	0.3061

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.11	1.37	1.00	896	896
Total	0.11	1.37	1.00	896	896

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.465886	0.050507	0.268464	0.141721	0.017188	0.007113	0.024629	0.006618	0.004259	0.003067	0.009235	0.000505	0.000808

XS Small Pond Management - San Mateo County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

XS Small Pond Management - San Mateo County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

XS Small Pond Management - San Mateo County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.0000e-005	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000							

7.0 Water Detail

7.1 Mitigation Measures Water

XS Small Pond Management - San Mateo County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0728	0.0000	0.0000	0.0731
Unmitigated	0.0728	0.0000	0.0000	0.0731

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.0714889	0.0728	0.0000	0.0000	0.0731
Total		0.0728	0.0000	0.0000	0.0731

XS Small Pond Management - San Mateo County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.0714889	0.0728	0.0000	0.0000	0.0731
Total		0.0728	0.0000	0.0000	0.0731

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
Unmitigated	2.0300e-003	1.2000e-004	0.0000	5.0300e-003

XS Small Pond Management - San Mateo County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
Total		2.0300e-003	1.2000e-004	0.0000	5.0300e-003

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
Total		2.0300e-003	1.2000e-004	0.0000	5.0300e-003

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

XS Small Pond Management - San Mateo County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix D. Biological Resources

This page intentionally left blank.

Special-Status Species with Potential to Occur on Project Site

Scientific Name	Common Name	Status (Fed/State/Other)	Habitat	Microhabitat	Potential to Occur in the Project Area
Animals					
<i>Danaus plexippus</i> pop. 1	Monarch - California overwintering population	-/-	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	The stands of Monterey pine, Monterey cypress, and eucalyptus at Toto Ranch are not known to support monarchs as they are small in size and subject to strong winds.
<i>Dicamptodon ensatus</i>	California giant salamander	-/-SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County.	Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	There is no coastal forest habitat nor cold streams in the project area, and therefore no habitat is present for this species.
<i>Emys marmorata</i>	Western pond turtle	-/-SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	The intermittent streams at Toto Ranch are small and steep and do not have pools with woody debris or other basking sites. Also, there are no sandy soils on site. Therefore no habitat is present for this species in the project area.
<i>Eucyclogobius newberryi</i>	Tidewater goby	-/-SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	There are no lagoons within the project area, so no habitat is present for this species.
<i>Geothlypis trichas sinuosa</i>	Saltmarsh common yellowthroat	-/-SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes.	Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	There are a number of ponds with open water within the project area, although only one of these ponds contains cattails and tules. This species is known to occur in the project area.

Special-Status Species with Potential to Occur on Project Site

Scientific Name	Common Name	Status (Fed/State/Other)	Habitat	Microhabitat	Potential to Occur in the Project Area
<i>Oncorhynchus mykiss irideus</i> pop. 8	Steelhead - central California coast DPS	-/-	From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins.	Freshwater habitat requirements include cool (12-18°C), well-oxygenated water, gravelly substrate for spawning and rearing offspring, riparian vegetation to support invertebrate prey, and fallen woody debris for habitat structure.	Steelhead are known to occur in Tunitas Creek, which flows along the north boundary of Toto Ranch. The RMP excludes Tunitas Creek and the associated riparian corridor from grazing, so this species will not be impacted by its implementation.
<i>Rana draytonii</i>	California red-legged frog	T/-SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Occurs in ponds, grasslands, and creeks and streams throughout Toto Ranch.
<i>Riparia riparia</i>	Bank swallow		Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Vertical cliffs along the ocean provide habitat for this species; however, no habitat is available at Toto Ranch.
<i>Thamnophis sirtalis tetrataenia</i>	San Francisco gartersnake	E/E/FP	Vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County and extreme northern Santa Cruz County.	Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	Suitable habitat is present in ponds and grasslands throughout Toto Ranch. Although no surveys have detected SFGS on the property, it is likely that they occur or could move into the project area from nearby locations.
Plants					
<i>Arctostaphylos regismontana</i>	Kings Mountain manzanita	-/-1B.2	Broadleafed upland forest, chaparral, north coast coniferous forest.	Granitic or sandstone outcrops. 240-705 m.	Not known to occur at Toto Ranch; no granitic or sandstone outcrops are present within chaparral

Special-Status Species with Potential to Occur on Project Site

Scientific Name	Common Name	Status (Fed/State/Other)	Habitat	Microhabitat	Potential to Occur in the Project Area
					habitats, so no habitat is present on site.
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	Coastal marsh milk-vetch	-/1B.2	Coastal dunes, marshes and swamps, coastal scrub.	Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.	Not known to occur at Toto Ranch; no dune or salt marsh habitats occur on the property, so no habitat is present on site.
<i>Monolopia gracilens</i>	Woodland woollythreads	-/1B.2	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, North Coast coniferous forest.	Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns, but may have only weak affinity to serpentine. 120-975 m.	Not known to occur at Toto Ranch; no serpentine habitat occurs on the property, so no habitat is present on site.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	Choris' popcornflower	-/1B.2	Chaparral, coastal scrub, coastal prairie.	Mesic sites. 5-705 m.	Occurs at two locations at Toto Ranch along ranch roads that retain water during the winter and spring.

Notes:

E: Federally Endangered

T: Federally Threatened

S: USFS or BLM Sensitive Species

1B.1: Plants rare, threatened, or endangered in California and elsewhere; Seriously threatened in California

1B.2: Plants rare, threatened, or endangered in California and elsewhere; Moderately threatened in California

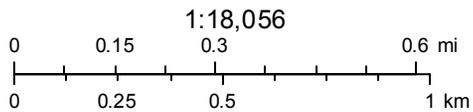
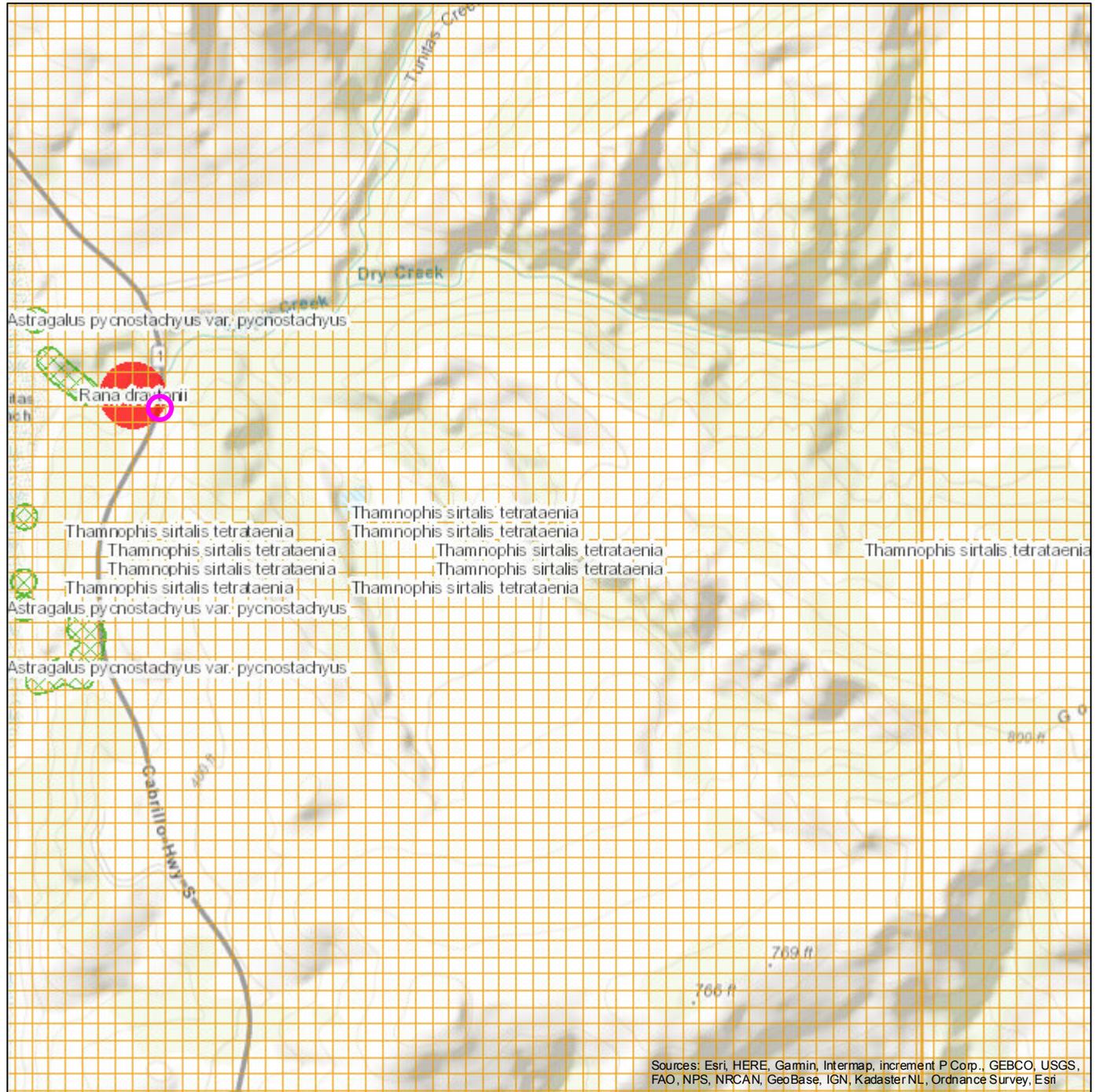
1B.3: Plants rare, threatened, or endangered in California and elsewhere; Not very threatened in California

This page intentionally left blank.

CNDDDB Map of Toto Ranch

California Natural Diversity Database (CNDDDB) Commercial [ds85]

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (80m)
- Terrestrial Comm. (specific)
- Terrestrial Comm. (non-specific)
- Terrestrial Comm. (circular)
- Aquatic Comm. (80m)
- Aquatic Comm. (specific)
- Aquatic Comm. (non-specific)
- Aquatic Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)



December 6, 2018

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

CNPS List

Scientific Name	Common Name	Status (Fed/State/CNPS)	Habitat
<i>Acanthomintha duttonii</i>	San Mateo thorn-mint	E/E/1B.1	Chaparral, Valley and foothill grassland, serpentine soils
<i>Agrostis blasdalei</i>	Blasdale's bent grass	-/-1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	-/-1B.2	Cismontane woodland, Valley and foothill grassland; clay, volcanic, often serpentinite
<i>Amsinckia lunaris</i>	Bent-flowered fiddleneck	-/-1B.2	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland
<i>Androsace elongata</i> ssp. <i>acuta</i>	California androsace	-/-4.2	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland
<i>Arabis blepharophylla</i>	Coast rockcress	-/-4.3	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub; rocky
<i>Arctostaphylos andersonii</i>	Anderson's manzanita	-/-1B.2	Broadleafed upland forest, Chaparral, North Coast coniferous forest
<i>Arctostaphylos imbricata</i>	San Bruno Mountain manzanita	-/-1B.1	Chaparral, Coastal scrub
<i>Arctostaphylos montaraensis</i>	Montara manzanita	-/-1B.2	Chaparral (maritime), Coastal scrub
<i>Arctostaphylos pacifica</i>	Pacific manzanita	-/E/1B.1	Chaparral, Coastal scrub
<i>Arctostaphylos regismontana</i>	Kings Mountain manzanita	-/-1B.2	Broadleafed upland forest, Chaparral, North Coast coniferous forest; granitic or sandstone
<i>Astragalus nuttallii</i> var. <i>nuttallii</i>	Ocean bluff milk-vetch	-/-4.2	Coastal bluff scrub, Coastal dunes
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	Coastal marsh milk-vetch	-/-1B.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)
<i>Calandrinia breweri</i>	Brewer's calandrinia	-/-4.2	Chaparral, Coastal scrub, sandy or loamy, disturbed sites and burns
<i>Calochortus umbellatus</i>	Oakland star-tulip	-/-4.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland, often serpentinite
<i>Calochortus uniflorus</i>	Pink star-tulip	-/-4.2	Coastal prairie, Coastal scrub, Meadows and seeps, North Coast coniferous forest
<i>Castilleja ambigua</i> var. <i>ambigua</i>	Johnny-nip	-/-4.2	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins
<i>Centromadia parryi</i> ssp. <i>congdonii</i>	Congdon's tarplant	-/-1B.1	Valley and foothill grassland (alkaline)
<i>Centromadia parryi</i> ssp. <i>parryi</i>	Pappose tarplant	-/-1B.2	Chaparral, Coastal prairie, Meadows and seeps, Marshes and swamps (coastal salt), Valley and foothill grassland (vernally mesic), often alkaline
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes bird's-beak	-/-1B.2	Marshes and swamps (coastal salt)

CNPS List

Scientific Name	Common Name	Status (Fed/State/CNPS)	Habitat
<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	San Francisco Bay spineflower	-/-1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, sandy
<i>Chorizanthe robusta</i> var. <i>robusta</i>	Robust spineflower	E/-1B.1	Chaparral (maritime), Cismontane woodland (openings), Coastal dunes, Coastal scrub, sandy or gravelly
<i>Cirsium andrewsii</i>	Franciscan thistle	-/-1B.2	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, mesic, sometimes serpentine
<i>Cirsium fontinale</i> var. <i>fontinale</i>	Crystal Springs fountain thistle	E/E/1B.1	Chaparral (openings), Cismontane woodland, Meadows and seeps, Valley and foothill grassland, serpentine seeps
<i>Collinsia multicolor</i>	San Francisco collinsia	-/-1B.2	Closed-cone coniferous forest, Coastal scrub, sometimes on serpentine soils
<i>Corethrogyne leucophylla</i>	Branching beach aster	-/-3.2	Closed-cone coniferous forest, Coastal dunes
<i>Cypripedium fasciculatum</i>	Clustered lady's-slipper	-/-4.2	Lower montane coniferous forest, North Coast coniferous forest, usually serpentinite seeps and streambanks
<i>Cypripedium montanum</i>	Mountain lady's-slipper	-/-4.2	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest
<i>Dirca occidentalis</i>	Western leatherwood	-/-1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland, mesic
<i>Elymus californicus</i>	California bottle-brush grass	-/-4.3	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest, Riparian woodland
<i>Equisetum palustre</i>	Marsh horsetail	-/-3	Marshes and swamps
<i>Eriophyllum latilobum</i>	San Mateo woolly sunflower	E/E/1B.1	Cismontane woodland (often serpentinite, on roadcuts), Coastal scrub, Lower montane coniferous forest
<i>Eryngium jepsonii</i>	Jepson's coyote thistle	-/-1B.2	Valley and foothill grassland, Vernal pools, clay
<i>Erysimum ammophilum</i>	Sand-loving wallflower	-/-1B.2	Chaparral (maritime), Coastal dunes, Coastal scrub, sandy, openings
<i>Erysimum franciscanum</i>	San Francisco wallflower	-/-4.2	Chaparral, Coastal dunes, Coastal scrub, Valley and foothill grassland, often serpentinite or granitic, sometimes roadsides
<i>Fissidens pauperculus</i>	Minute pocket moss	-/-1B.2	North Coast coniferous forest (damp coastal soil)
<i>Fritillaria agrestis</i>	Stinkbells	-/-4.2	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland, Clay, sometimes serpentinite
<i>Fritillaria biflora</i> var. <i>ineziana</i>	Hillsborough chocolate lily	-/-1B.1	Cismontane woodland, Valley and foothill grassland, serpentine

CNPS List

Scientific Name	Common Name	Status (Fed/State/CNPS)	Habitat
<i>Fritillaria lanceolata</i> var. <i>tristulis</i>	Marin checker lily	-/-1B.1	Coastal bluff scrub, Coastal prairie, Coastal scrub
<i>Fritillaria liliacea</i>	Fragrant fritillary	-/-1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland, often serpentine
<i>Gilia millefoliata</i>	Dark-eyed gilia	-/-1B.2	Coastal dunes
<i>Grimmia torenii</i>	Toren's grimmia	-/-1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Openings, rocky, boulder and rock walls, carbonate, volcanic
<i>Grindelia hirsutula</i> var. <i>maritima</i>	San Francisco gumplant	-/-3.2	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland, sandy or serpentine
<i>Helianthella castanea</i>	Diablo helianthella	-/-1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland, Usually rocky, axonal soils. Often in partial shade
<i>Hemizonia congesta</i> ssp. <i>congesta</i>	Congested-headed hayfield tarplant	-/-1B.2	Valley and foothill grassland, sometimes roadsides
<i>Hesperovax sparsiflora</i> var. <i>brevifolia</i>	Short-leaved evax	-/-1B.2	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie
<i>Hesperocyparis abramsiana</i> var. <i>butanoensis</i>	Butano Ridge cypress	T/E/1B.2	Closed-cone coniferous forest, Chaparral, Lower montane coniferous forest, sandstone
<i>Hesperolinon congestum</i>	Marin western flax	T/T/1B.1	Chaparral, Valley and foothill grassland, serpentine soils
<i>Heteranthera dubia</i>	Water star-grass	-/-2B.2	Marshes and swamps (alkaline, still or slow-moving water), Requires a pH of 7 or higher, usually in slightly eutrophic waters
<i>Hordeum intercedens</i>	Vernal barley	-/-3.2	Coastal dunes, Coastal scrub, Valley and foothill grassland (saline flats and depressions), Vernal pools
<i>Horkelia cuneata</i> var. <i>sericea</i>	Kellogg's horkelia	-/-1B.1	Closed-cone coniferous forest, Chaparral (maritime), Coastal dunes, Coastal scrub, sandy or gravelly, openings
<i>Horkelia marinensis</i>	Point Reyes horkelia	-/-1B.2	Coastal dunes, Coastal prairie, Coastal scrub, sandy
<i>Hosackia gracilis</i>	Harlequin lotus	-/-4.2	Broadleafed upland forest, Coastal bluff scrub, Closed-cone coniferous forest, Cismontane woodland, Coastal prairie, Coastal scrub, Meadows and seeps, Marshes and swamps, North Coast coniferous forest, Valley and foothill grassland, wetlands, roadsides
<i>Hypogymnia schizidiata</i>	Island rock lichen	-/-1B.3	Closed-cone coniferous forest, Chaparral, On bark and wood of hardwoods and conifers

CNPS List

Scientific Name	Common Name	Status (Fed/State/CNPS)	Habitat
<i>Iris longipetala</i>	Coast iris	-/-4.2	Coastal prairie, Lower montane coniferous forest, Meadows and seeps, mesic
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	Perennial goldfields	-/-1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub
<i>Legenere limosa</i>	Legenere	-/-1B.1	Vernal pools
<i>Leptosiphon acicularis</i>	Bristly leptosiphon	-/-4.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland
<i>Leptosiphon ambiguus</i>	Serpentine leptosiphon	-/-4.2	Cismontane woodland, Coastal scrub, Valley and foothill grassland, usually serpentine
<i>Leptosiphon croceus</i>	Coast yellow leptosiphon	-/-1B.1	Coastal bluff scrub, Coastal prairie
<i>Leptosiphon grandiflorus</i>	Large-flowered leptosiphon	-/-4.2	Coastal bluff scrub, Closed-cone coniferous forest, Cismontane woodland, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland, usually sandy
<i>Leptosiphon rosaceus</i>	Rose leptosiphon	-/-1B.1	Coastal bluff scrub
<i>Lessingia arachnoidea</i>	Crystal Springs lessingia	-/-1B.2	Cismontane woodland, Coastal scrub, Valley and foothill grassland, serpentinite, often roadsides
<i>Lessingia germanorum</i>	San Francisco lessingia	E/E/1B.1	Coastal scrub (remnant dunes)
<i>Lessingia hololeuca</i>	Woolly-headed lessingia	-/-3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland, clay, serpentine
<i>Lilium maritimum</i>	Coast lily	-/-1B.1	Broadleafed upland forest, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Marshes and swamps (freshwater), North Coast coniferous forest, sometimes roadside
<i>Limnanthes douglasii</i> ssp. <i>ornduffii</i>	Ornduff's meadowfoam	-/-1B.1	Meadows and seeps, Agricultural fields
<i>Limnanthes douglasii</i> ssp. <i>sulphurea</i>	Point Reyes meadowfoam	-/E/1B.2	Coastal prairie, Meadows and seeps (mesic), Marshes and swamps (freshwater), Vernal pools
<i>Lupinus arboreus</i> var. <i>eximius</i>	San Mateo tree lupine	-/-3.2	Chaparral, Coastal scrub
<i>Malacothamnus aboriginum</i>	Indian Valley bush-mallow	-/-1B.2	Chaparral, Cismontane woodland, Rocky, granitic, often in burned areas
<i>Malacothamnus arcuatus</i>	Arcuate bush-mallow	-/-1B.2	Chaparral, Cismontane woodland
<i>Malacothamnus davidsonii</i>	Davidson's bush-mallow	-/-1B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland
<i>Malacothamnus hallii</i>	Hall's bush-mallow	-/-1B.2	Chaparral, Coastal scrub

CNPS List

Scientific Name	Common Name	Status (Fed/State/CNPS)	Habitat
<i>Microseris paludosa</i>	Marsh microseris	-/-1B.2	Closed-cone coniferous forest, Cismontane woodland, Coastal scrub, Valley and foothill grassland
<i>Mielichhoferia elongata</i>	Elongate copper moss	-/-4.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Subalpine coniferous forest, Metamorphic rock, usually acidic, usually vernal mesic, often roadsides, sometimes carbonate
<i>Monolopia gracilens</i>	Woodland woollythreads	-/-1B.2	Broadleafed upland forest (openings), Chaparral (openings), Cismontane woodland, North Coast coniferous forest (openings), Valley and foothill grassland, serpentine
<i>Orthotrichum kellmanii</i>	Kellman's bristle moss	-/-1B.2	Chaparral, Cismontane woodland, sandstone, carbonate
<i>Pedicularis dudleyi</i>	Dudley's lousewort	-/-1B.2	Chaparral (maritime), Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland
<i>Pentachaeta bellidiflora</i>	White-rayed pentachaeta	E/E/1B.1	Cismontane woodland, Valley and foothill grassland (often serpentinite)
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>	Gairdner's yampah	-/-4.2	Broadleafed upland forest, Chaparral, Coastal prairie, Valley and foothill grassland, Vernal pools, vernal mesic
<i>Pinus radiata</i>	Monterey pine	-/-1B.1	Closed-cone coniferous forest, Cismontane woodland
<i>Piperia candida</i>	White-flowered rein orchid	-/-1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, sometimes serpentine
<i>Piperia michaelii</i>	Michael's rein orchid	-/-4.2	Coastal bluff scrub, Closed-cone coniferous forest, Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	Choris' popcornflower	-/-1B.2	Chaparral, Coastal prairie, Coastal scrub, mesic
<i>Plagiobothrys chorisianus</i> var. <i>hickmanii</i>	Hickman's popcornflower	-/-4.2	Closed-cone coniferous forest, Chaparral, Coastal scrub, Marshes and swamps, Vernal pools
<i>Plagiobothrys diffusus</i>	San Francisco popcornflower	-/E/1B.1	Coastal prairie, Valley and foothill grassland
<i>Polemonium carneum</i>	Oregon polemonium	-/-2B.2	Coastal prairie, Coastal scrub, Lower montane coniferous forest
<i>Potentilla hickmanii</i>	Hickman's cinquefoil	E/E/1B.1	Coastal bluff scrub, Closed-cone coniferous forest, Meadows and seeps (vernal mesic), Marshes and swamps (freshwater)
<i>Ranunculus lobbii</i>	Lobb's aquatic buttercup	-/-4.2	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools, mesic

CNPS List

Scientific Name	Common Name	Status (Fed/State/CNPS)	Habitat
<i>Sanicula hoffmannii</i>	Hoffmann's sanicle	-/-/4.3	Broadleafed upland forest, Coastal bluff scrub, Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, often serpentinite or clay
<i>Senecio aphanactis</i>	Chaparral ragwort	-/-/2B.2	Chaparral, Cismontane woodland, Coastal scrub, sometimes alkaline
<i>Silene scouleri</i> ssp. <i>scouleri</i>	Scouler's catchfly	-/-/2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland
<i>Silene verecunda</i> ssp. <i>verecunda</i>	San Francisco campion	-/-/1B.2	Coastal bluff scrub, Chaparral, Coastal prairie, Coastal scrub, Valley and foothill grassland, sandy
<i>Stebbinsoseris decipiens</i>	Santa Cruz microseris	-/-/1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Coastal prairie, Coastal scrub, Valley and foothill grassland, open areas, sometimes serpentinite
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	Slender-leaved pondweed	-/-/2B.2	Marshes and swamps (assorted shallow freshwater)
<i>Toxicoscordion fontanum</i>	Marsh zigadenus	-/-/4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, vernal mesic, often serpentinite
<i>Trifolium amoenum</i>	Two-fork clover	E/-/1B.1	Coastal bluff scrub, Valley and foothill grassland (sometimes serpentinite)
<i>Trifolium buckwestiorum</i>	Santa Cruz clover	-/-/1B.1	Broadleafed upland forest, Cismontane woodland, Coastal prairie, gravelly, margins
<i>Trifolium hydrophilum</i>	Saline clover	-/-/1B.2	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools
<i>Triphysaria floribunda</i>	San Francisco owl's-clover	-/-/1B.2	Coastal prairie, Coastal scrub, Valley and foothill grassland, usually serpentine
<i>Triquetrella californica</i>	Coastal triquetrella	-/-/1B.2	Coastal bluff scrub, Coastal scrub
<i>Usnea longissima</i>	Methuselah's beard lichen	-/-/4.2	Broadleafed upland forest, North Coast coniferous forest, On tree branches; usually on old growth hardwoods and conifers

Notes:

- 1B.1: Plants rare, threatened, or endangered in California and elsewhere; Seriously threatened in California
- 1B.2: Plants rare, threatened, or endangered in California and elsewhere; Moderately threatened in California
- 1B.3: Plants rare, threatened, or endangered in California and elsewhere; Not very threatened in California
- 2A: Plants presumed extirpated in California but common elsewhere
- 2B: Plants rare, threatened, or endangered in California but more common elsewhere
- 3: Review List: Plants about which more information is needed
- 4: Watch List: Plants of limited distribution

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

San Mateo County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME

STATUS

Southern Sea Otter *Enhydra lutris nereis*

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8560>

Threatened

Marine mammal

Birds

NAME

STATUS

California Clapper Rail *Rallus longirostris obsoletus*

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4240>

Endangered

California Least Tern *Sterna antillarum browni*

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8104>

Endangered

Marbled Murrelet *Brachyramphus marmoratus*

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/4467>

Threatened

Short-tailed Albatross *Phoebastria (=Diomedea) albatrus*

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/433>

Endangered

Western Snowy Plover *Charadrius nivosus nivosus*

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/8035>

Threatened

Reptiles

NAME

STATUS

Green Sea Turtle *Chelonia mydas*

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6199>

Threatened

San Francisco Garter Snake *Thamnophis sirtalis tetrataenia*

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/5956>

Endangered

Amphibians

NAME

STATUS

California Red-legged Frog *Rana draytonii* Threatened
 There is **final** critical habitat for this species. Your location overlaps the critical habitat.
<https://ecos.fws.gov/ecp/species/2891>

California Tiger Salamander *Ambystoma californiense* Threatened
 There is **final** critical habitat for this species. Your location is outside the critical habitat.
<https://ecos.fws.gov/ecp/species/2076>

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened
Tidewater Goby <i>Eucyclogobius newberryi</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Bay Checkerspot Butterfly <i>Euphydryas editha bayensis</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2320	Threatened
San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3394	Endangered

Flowering Plants

NAME	STATUS
Fountain Thistle <i>Cirsium fontinale</i> var. <i>fontinale</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7939	Endangered
Marin Dwarf-flax <i>Hesperolinon congestum</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5363	Threatened

San Mateo Thornmint <i>Acanthomintha obovata</i> ssp. <i>duttonii</i>	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2038	
San Mateo Woolly Sunflower <i>Eriophyllum latilobum</i>	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7791	
White-rayed Pentachaeta <i>Pentachaeta bellidiflora</i>	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7782	

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
California Red-legged Frog <i>Rana draytonii</i>	Final
https://ecos.fws.gov/ecp/species/2891#crithab	

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the [FAQ below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
<p>Allen's Hummingbird <i>Selasphorus sasin</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637</p>	Breeds Feb 1 to Jul 15
<p>Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626</p>	Breeds Jan 1 to Aug 31
<p>Black Oystercatcher <i>Haematopus bachmani</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591</p>	Breeds Apr 15 to Oct 31

Black Scoter <i>Melanitta nigra</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Turnstone <i>Arenaria melanocephala</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Black-legged Kittiwake <i>Rissa tridactyla</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere
Black-vented Shearwater <i>Puffinus opisthomelas</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bonaparte's Gull <i>Chroicocephalus philadelphia</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere
Brown Pelican <i>Pelecanus occidentalis</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034	Breeds Jan 15 to Sep 30
Burrowing Owl <i>Athene cunicularia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31

- Common Loon** *gavia immer* Breeds Apr 15 to Oct 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
<https://ecos.fws.gov/ecp/species/4464>
- Common Murre** *Uria aalge* Breeds Apr 15 to Aug 15
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
- Common Yellowthroat** *Geothlypis trichas sinuosa* Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
<https://ecos.fws.gov/ecp/species/2084>
- Double-crested Cormorant** *phalacrocorax auritus* Breeds Apr 20 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
<https://ecos.fws.gov/ecp/species/3478>
- Golden Eagle** *Aquila chrysaetos* Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
<https://ecos.fws.gov/ecp/species/1680>
- Herring Gull** *Larus argentatus* Breeds Apr 20 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
- Lawrence's Goldfinch** *Carduelis lawrencei* Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/9464>
- Long-billed Curlew** *Numenius americanus* Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/5511>

<p>Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481</p>	Breeds elsewhere
<p>Nuttall's Woodpecker <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410</p>	Breeds Apr 1 to Jul 20
<p>Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656</p>	Breeds Mar 15 to Jul 15
<p>Parasitic Jaeger <i>Stercorarius parasiticus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p>Pink-footed Shearwater <i>Puffinus creatopus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p>Red Phalarope <i>Phalaropus fulicarius</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p>Red-breasted Merganser <i>Mergus serrator</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p>Red-necked Phalarope <i>Phalaropus lobatus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p>Red-throated Loon <i>Gavia stellata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere

Ring-billed Gull <i>Larus delawarensis</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Song Sparrow <i>Melospiza melodia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee <i>Pipilo maculatus clementae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Surf Scoter <i>Melanitta perspicillata</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere
Tricolored Blackbird <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Whimbrel <i>Numenius phaeopus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9483	Breeds elsewhere
White-winged Scoter <i>Melanitta fusca</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere

Willet *Tringa semipalmata*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

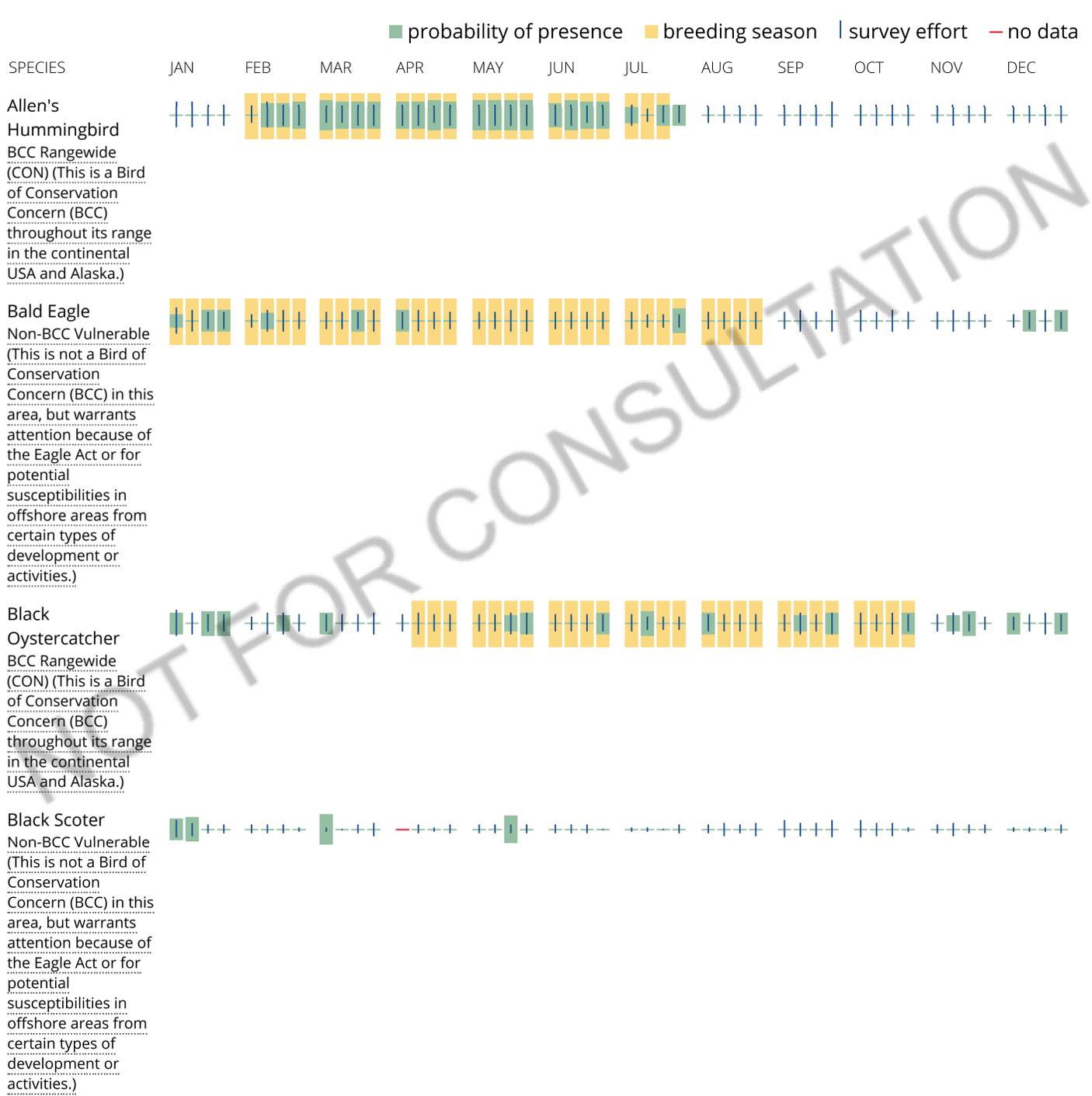
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

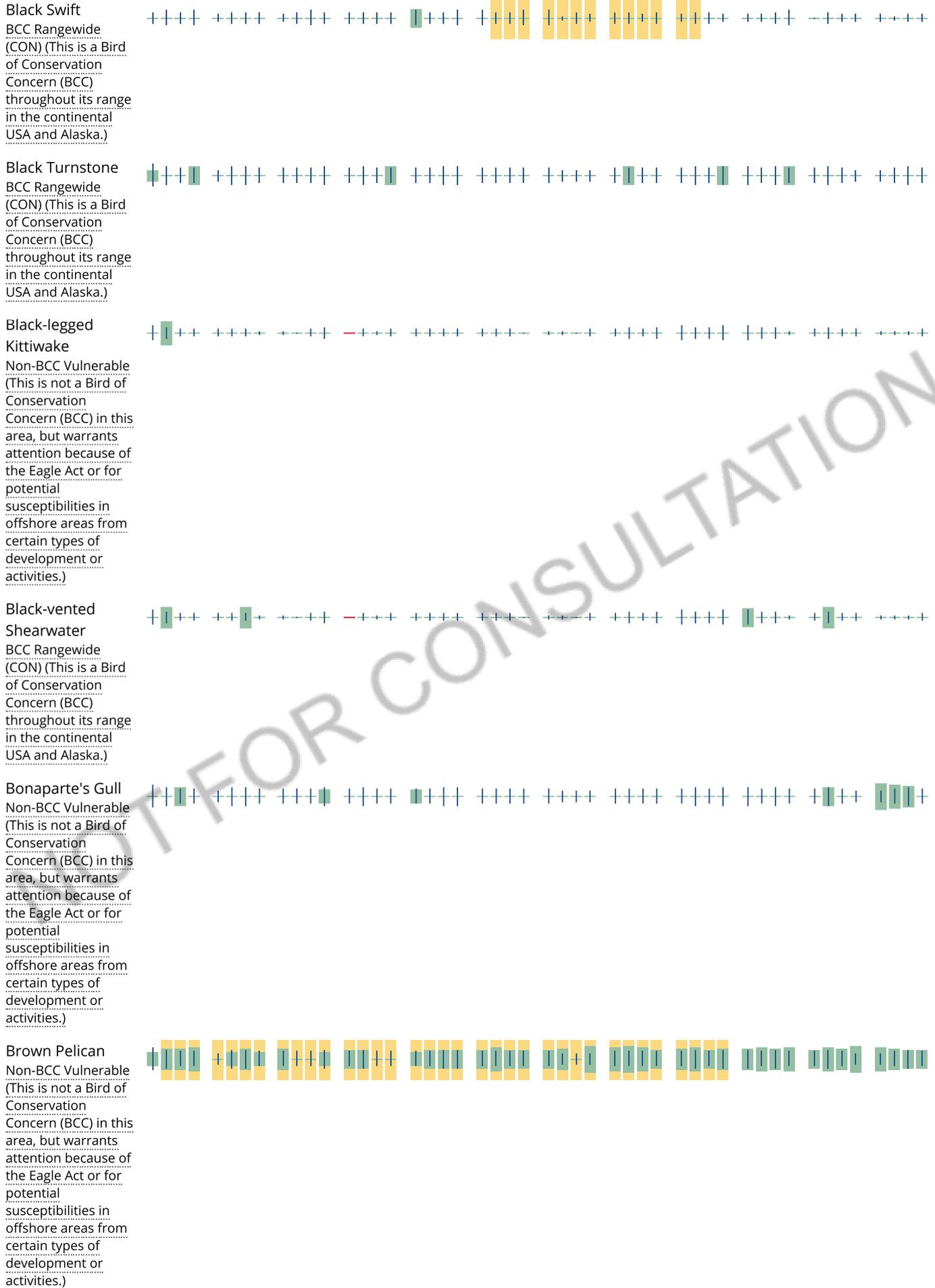
No Data (-)

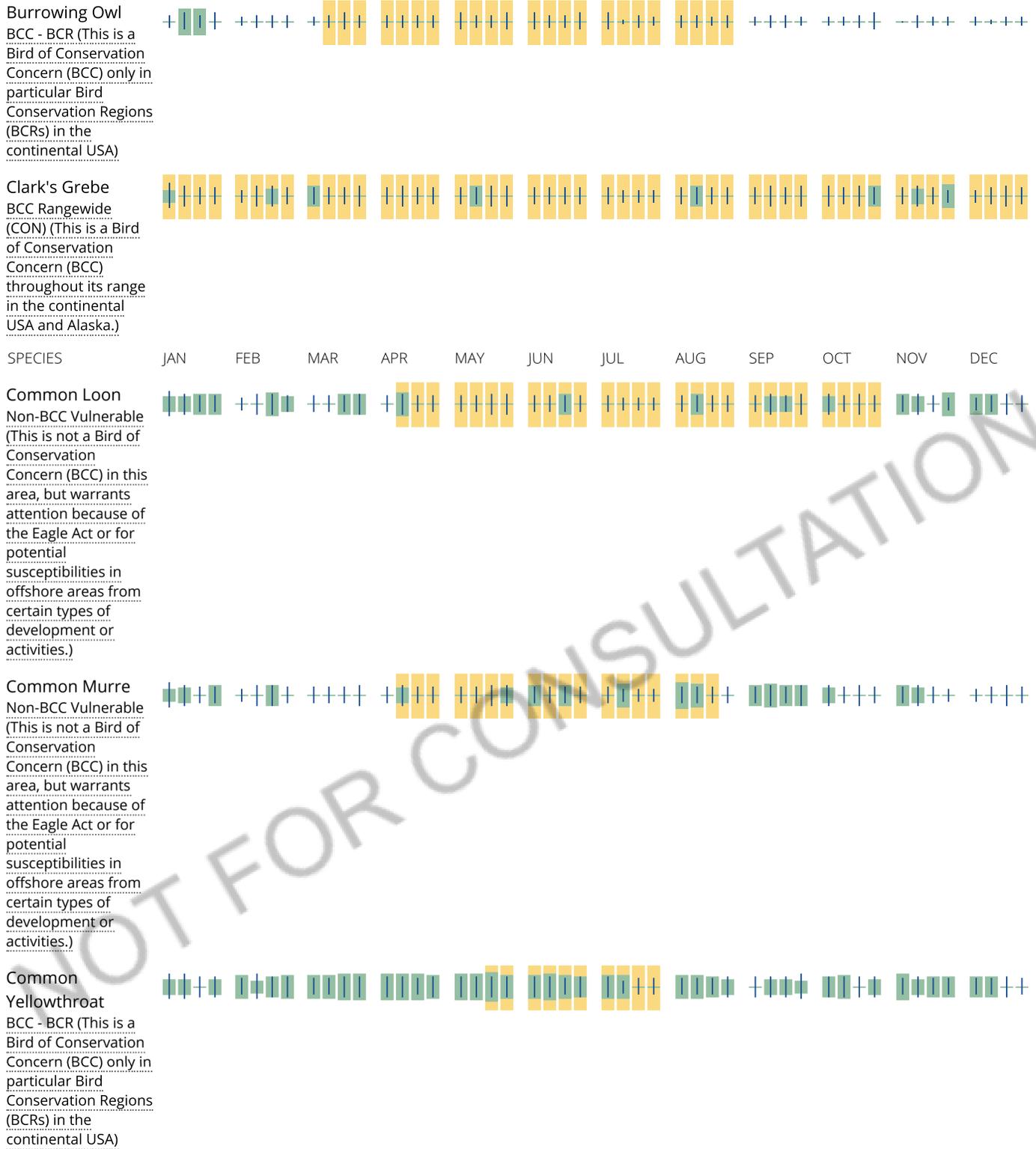
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

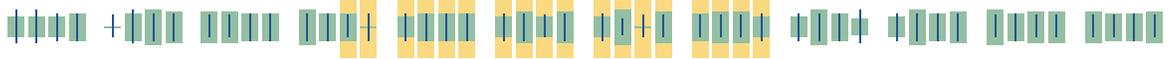




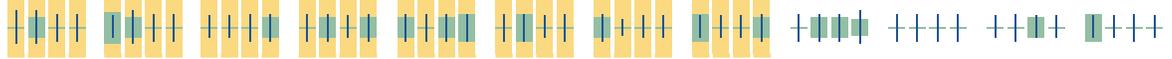


NOT FOR CONSULTATION

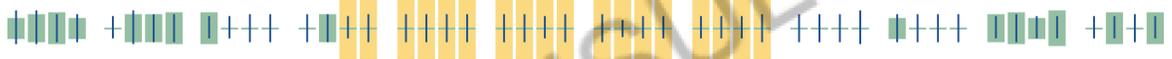
Double-crested
Cormorant
Non-BCC Vulnerable
(This is not a Bird of
Conservation
Concern (BCC) in this
area, but warrants
attention because of
the Eagle Act or for
potential
susceptibilities in
offshore areas from
certain types of
development or
activities.)



Golden Eagle
Non-BCC Vulnerable
(This is not a Bird of
Conservation
Concern (BCC) in this
area, but warrants
attention because of
the Eagle Act or for
potential
susceptibilities in
offshore areas from
certain types of
development or
activities.)



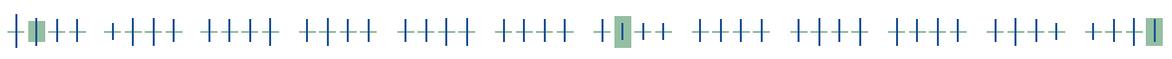
Herring Gull
Non-BCC Vulnerable
(This is not a Bird of
Conservation
Concern (BCC) in this
area, but warrants
attention because of
the Eagle Act or for
potential
susceptibilities in
offshore areas from
certain types of
development or
activities.)



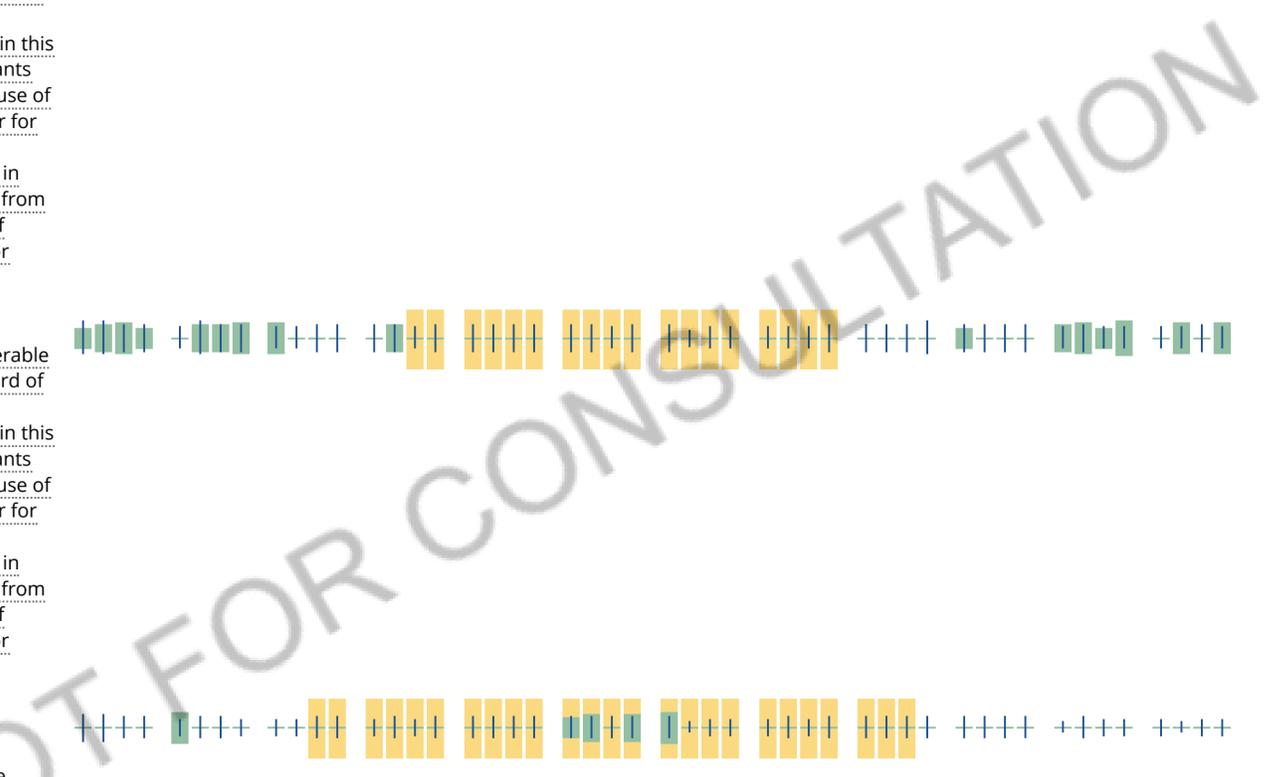
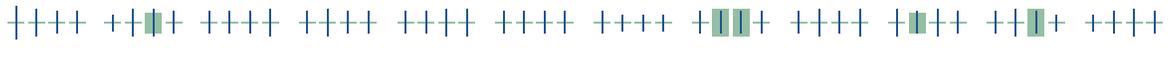
Lawrence's
Goldfinch
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)

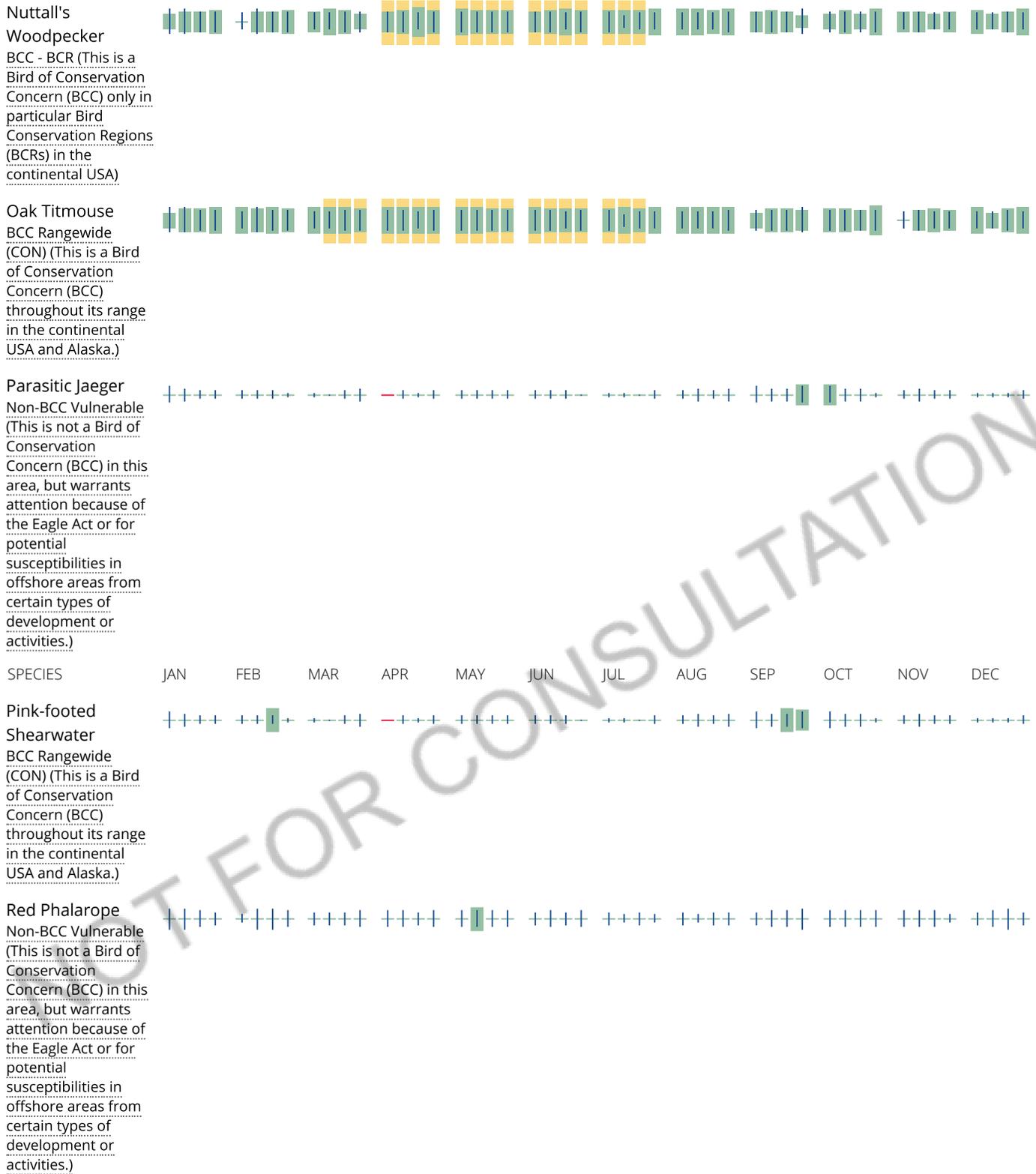


Long-billed Curlew
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)

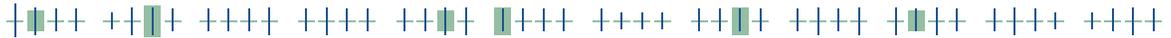


Marbled Godwit
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)





Red-breasted Merganser
 Non-BCC Vulnerable
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Red-necked Phalarope
 Non-BCC Vulnerable
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Red-throated Loon
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



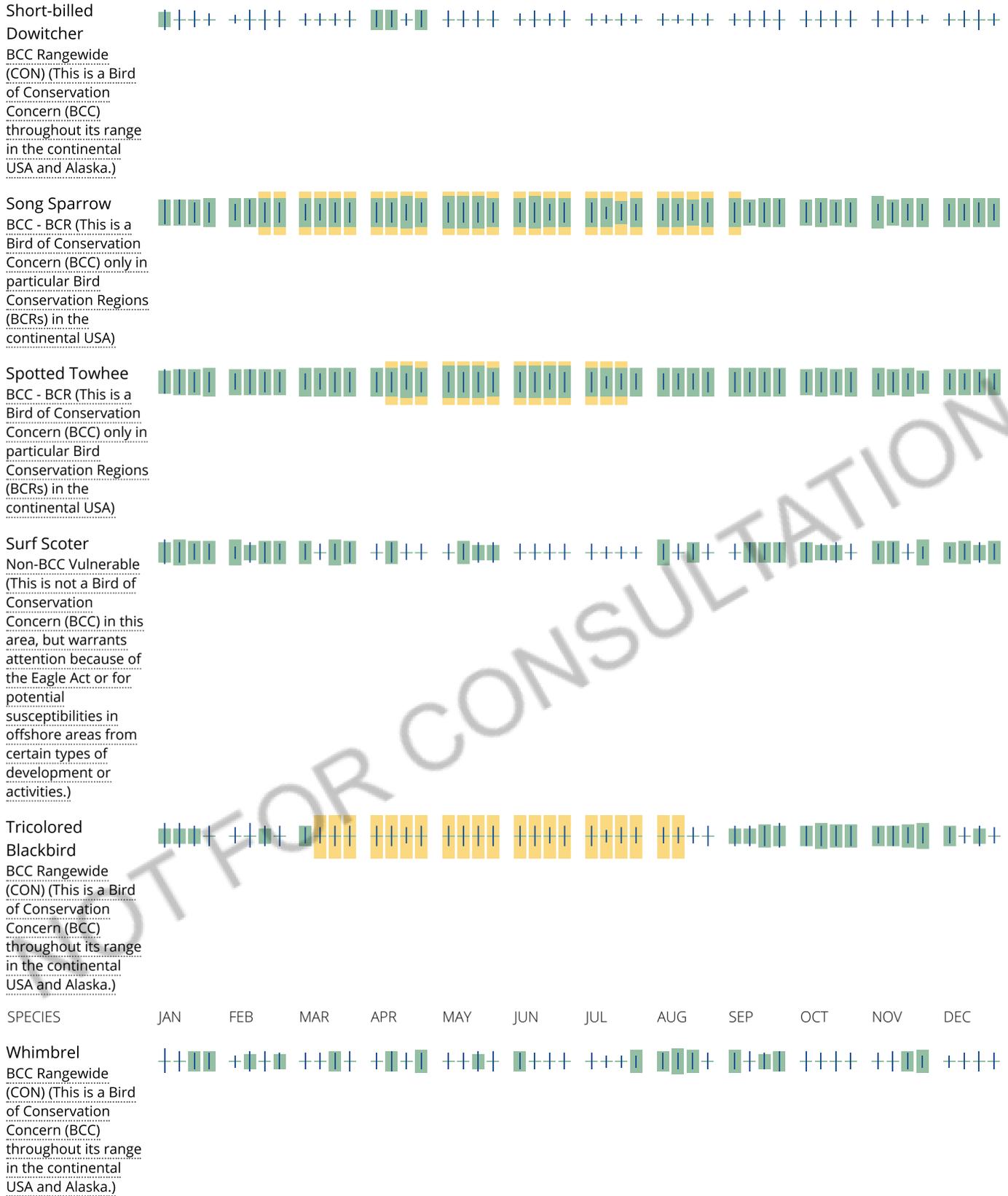
Ring-billed Gull
 Non-BCC Vulnerable
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Rufous Hummingbird
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



NOT FOR CONSULTATION





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Marine mammals

Marine mammals are protected under the [Marine Mammal Protection Act](#). Some are also protected under the Endangered Species Act¹ and the Convention on International Trade in Endangered Species of Wild Fauna and Flora².

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries³ [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the [Marine Mammals](#) page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take (to harass, hunt, capture, kill, or attempt to harass, hunt, capture or kill) of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

1. The [Endangered Species Act](#) (ESA) of 1973.
2. The [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#) (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following marine mammals under the responsibility of the U.S. Fish and Wildlife Service are potentially affected by activities in this location:

NAME

Southern Sea Otter *Enhydra lutris nereis*
<https://ecos.fws.gov/ecp/species/8560>

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER

[E1UBL](#)

ESTUARINE AND MARINE WETLAND

[M2USN](#)

[E2USN](#)

FRESHWATER EMERGENT WETLAND

[PEM1A](#)

[PEM1B](#)

[PEM1C](#)

[PEM1Ch](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSSC](#)

[PFOC](#)

[PFOA](#)

[PSSA](#)

[PSSCh](#)

FRESHWATER POND

[PUBHh](#)

[PABHh](#)

[PUBFh](#)

[PUBHx](#)

OTHER

[PUSCx](#)

RIVERINE

[R3UBH](#)

[R4SBC](#)[R4SBA](#)[R5UBF](#)[R4SBCx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix E. Biological Resources Regulatory Setting

This page intentionally left blank.

Biological Resources Regulatory Setting

This appendix includes a brief description of the following applicable regulations for protecting biological resources present on Toto Ranch.

- Federal Regulations
 - Federal Endangered Species Act
 - Section 7, Consultation and Authorization of Take
 - Clean Water Act
 - Magnuson-Stevens Fishery Conservation Management Act
 - Migratory Bird Treaty Act
 - Bald and Golden Eagle Protection Act
- State Regulations
 - California Endangered Species Act
 - California Fish and Game Code
 - Lake or Streambed Alteration Agreement (Section 1600 et seq.)
 - California Native Plant Protection Act
 - Porter-Cologne Water Quality Control Act
 - Coastal Act
 - California Environmental Quality Act
- Local Laws and Ordinances
 - San Mateo County General Plan
 - Heritage Tree Ordinance for San Mateo County

Federal

Federal Endangered Species Act

The Federal Endangered Species Act (ESA) of 1973 protects fish and wildlife species that have been identified by the USFWS and/or the National Oceanic and Atmospheric Administration (NOAA) as threatened or endangered. The term “endangered” refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range; threatened refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

The ESA is administered by the USFWS and NOAA. In general, NOAA is responsible for protection of ESA-listed marine species and anadromous fish while other listed species are under the jurisdiction of the USFWS. The following specific provisions of the ESA apply to a proposed action (proposed action is defined by Section 7 as consisting of all proposed activities or programs of any kind that are authorized, funded, or carried out by the Federal agency) Section

9, Prohibition of Take. Section 9 of the ESA prohibits the “take” of any fish or wildlife species listed under the ESA as endangered. “Take” of threatened species is also prohibited under Section 9 unless otherwise authorized by federal regulations. “Take,” as defined by the ESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Harm is defined as “any act that kills or injures the species, including significant habitat modification.” In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants that may occur at sites under federal jurisdiction.

Section 7, Consultation and Authorization of Take

Section 7 of the ESA provides a means for authorizing take of threatened and endangered species by federal agencies. It applies to actions that are conducted, permitted, or funded by a federal agency. Under Section 7, the federal agency conducting, funding, or permitting an action (the lead agency) must consult with USFWS or NOAA, as appropriate, to ensure that the proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed project “may affect” a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment (BA) evaluating the nature and severity of the expected effect. In response, USFWS or NOAA issues a biological opinion (BO) with a determination of one of the following findings.

The proposed action may either:

- jeopardize the continued existence of one or more listed species (jeopardy finding);
- result in the destruction or adverse modification of critical habitat (adverse modification finding);
- not jeopardize the continued existence of any listed species (no jeopardy finding); or
- not result in adverse modification of critical habitat (no adverse modification finding).

The BO issued by USFWS or NOAA may stipulate discretionary “reasonable and prudent” conservation measures. If a proposed action under review would not jeopardize a listed species, USFWS or NOAA would issue an incidental take statement to authorize the proposed activity.

The USFWS and NOAA Fisheries would complete an internal project review process pursuant to Section 7 of the Endangered Species Act. The outcome of the Section 7 process will be a Biological Opinion, as discussed above.

Clean Water Act

The Federal Clean Water Act (CWA) is the primary federal law protecting the quality of the nation’s surface waters, including lakes, rivers, and coastal wetlands. As such, it empowers the United States Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations and establishes permit review mechanisms to enforce them, operating on

the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit.

Most of the CWA's provisions are at least indirectly relevant to the management and protection of biological resources because of the link between water quality and ecosystem health. The portions of the CWA that are most directly relevant to biological resources management are contained in CWA Section 404, which regulates the discharge of dredged and fill materials into "waters of the United States," including all areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and seasonal and perennial wetlands, such as those present at the Sears Point project site. Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3, 40 CFR 230.3).

CWA Section 404 requires project proponents to obtain a permit from the U.S. Army Corps of Engineers (USACE) for all discharges of dredged or fill material into waters of the United States, including oceans, bays, rivers, streams, lakes, ponds, and wetlands, before proceeding with a proposed activity. The USACE may issue either an individual permit evaluated on a case-by-case basis, or a general permit evaluated at a program level for a series of related activities. General permits are preauthorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects.

Nationwide Permits (NWP) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met in order for the NWP to apply to a particular project. Waters of the United States both at the project site and within its vicinity are under the jurisdiction of the USACE.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations, including NEPA, the ESA, the federal Coastal Zone Management Act, and the National Historic Preservation Act. In addition, the USACE cannot issue or verify any permit until a water quality certification, or waiver of certification, has been issued (by the State Regional Water Quality Control Board) pursuant to CWA Section 401. Section 404 permits may be issued only for the least environmentally damaging practicable alternative. That is, authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less adverse impacts and lacks other significant adverse consequences.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Act establishes a management system for national marine and estuary fishery resources. This legislation requires all federal agencies to consult with the National

Marine Fisheries Service (NMFS) regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). Essential fish habitat is defined as waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity. The legislation states that migratory routes to and from anadromous fish spawning grounds also should be considered EFH. Within the context of the Magnuson-Stevens Act, the phrase “adversely affect” refers to the creation of any impact that reduces the quality or quantity of EFH. Federal activities that occur outside an EFH but that may nonetheless have an impact on EFH waters and substrate also must be considered in the consultation process.

Under the Magnuson-Stevens Act, effects on habitat managed under the Pacific Salmon Fishery Management Plan must be considered as well. The Magnuson-Stevens Act states that consultation regarding EFH should be consolidated, where appropriate, with the interagency consultation, coordination, and environmental review procedures required by other federal statutes, such as NEPA, CWA, and ESA. Essential fish habitat consultation requirements can be satisfied through concurrent environmental compliance requirements if the lead agency provides NOAA Fisheries with timely notification of actions that may adversely affect EFH and if the notification meets the requirements for EFH assessments.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 CFR 21, 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA.

Examples of permitted actions that do not violate the MBTA include: the possession of a hunting license to pursue specific game birds; legitimate research activities; display in zoological gardens; bird-banding; and other similar activities (Faanes et al. 1992). USFWS is responsible for overseeing compliance with the MBTA.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles including their parts, nests or eggs. The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb”. For purposes of the “Bald Eagle Management Guidelines and

Conservation Measures” the term “disturb” means to “agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding,

feeding, or sheltering behavior, or 3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior”. In addition to immediate impacts, this definition also covers impact that result from human-induced alteration initiated around a previously used nest site during a time when eagles are not present, if, upon the eagles return such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering behavior and causes injury, death or nest abandonment (USFWS 2011c).

State Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Section 2050 et seq.), which is administered by CDFG, protects wildlife and plants listed as threatened and endangered by the California Fish and Game Commission. CESA prohibits all persons from taking species that are state-listed as threatened or endangered except under certain circumstances. CESA defines “take” as any action or attempt to “hunt, pursue, catch, capture, or kill” a listed species. Section 2081 of CESA provides a means by which agencies or individuals may obtain authorization for incidental take of state-listed species, except for certain species designated as “fully protected” under the California Fish and Game Code (see below). Under Section 2081, a take must be incidental to, and not the purpose of, an otherwise lawful activity. In general, the requirements include identification of impacts on listed species; development of mitigation measures that minimize and fully mitigate impacts; development of a monitoring plan; and assurance of funding to implement mitigation and monitoring.

California Fish and Game Code

The California Fish and Game Code (Code) provides a variety of species protection from unauthorized take. The Code defines “take” as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Certain species are considered fully protected, meaning that the Code explicitly prohibits all take of individuals of these species, except for take required for scientific research, which may be authorized by CDFG. Section 5050 of the Code lists fully protected amphibians and reptiles, Section 5515 lists fully protected fishes, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals.

The Code provides less stringent protection for other species, prohibiting most take, but permitting CDFG to issue regulations authorizing take under certain circumstances. Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) are protected under Sections 3513 and 3503.5, birds of prey are protected under Section 3503.5, migratory non-game birds are protected under Section 3800, and other specified birds are protected under Section 3505.

Lake or Streambed Alteration Agreements (Section 1600 et seq.)

Section 1600 of the Fish and Game Code regulates activities that interfere with the natural flow of, or substantially alter the channel, bed, or bank of a lake, river, or stream. Lake and streambed alteration activities are covered under Section 1600. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements administered under Section 1600 et seq.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 prohibits importation of rare and endangered plants into California; unauthorized take of rare and endangered plants; and sale of rare and endangered plants (the “threatened “ category replaced “rare” when the CESA was enacted in 1984). CESA defers to the CNPPA, which ensures that state-listed plant species are protected when state agencies are involved in projects subject to CEQA. Removal of plants for performance of a public service by a public agency or a publicly- or privately-owned public utility is exempt from CNPPA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act established the State Water Resources Control Board (SWRCB) and divided the state into nine regional basins, each of is under the jurisdiction of Regional Water Quality Control Boards (RWQCBs). The Act also requires the SWRCB or the RWQCB to adopt water quality control plans, or Basin Plans, for the protection of water quality. A Basin Plan must identify the beneficial uses of water to be protected, establish water quality objectives for the reasonable protection of the beneficial uses, and establish a program of implementation for achieving the water quality objectives. Furthermore, the Basin Plans also provide a technical basis for determining waste discharge requirements, justification for enforcement actions, and evaluating clean water grant proposals. The most recent Basin Plan for the San Francisco Bay region was adopted by the RWQCB in 2004. The SWRCB and the RWQCB have taken the position that the Porter-Cologne Act and basin plans developed pursuant to the Act provide independent authority to regulate discharge of fill material to wetlands outside the jurisdiction of the USACE. This applies specifically to isolated wetlands considered non-jurisdictional based on the Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers (9121 S.Ct. 675, 2001) decision, which limited the USACE’s jurisdiction over isolated wetlands.

Coastal Act

Under the Coastal Zone Management Act of 1972 and California Coastal Act of 1976, the California Coastal Commission is entrusted to review proposed development in the Coastal Zone with the goal of protecting and enhancing the coastal environment while allowing utilization and

public access for coastal zone-dependent uses. The Coastal Act is administered either state-wide, when a project falls within the Coastal Zone, or locally through Local Coastal Programs, which provide guidance via local agencies. Toto Ranch falls within the Coastal Zone, but not within the San Mateo Local Coastal Program.

Under the Coastal Act, Environmental Sensitive Habitat Areas (ESHA) and wetlands are given special protection. Under the Coastal Act, ESHA is defined as “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.”

ESHA “shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.” “Development in areas adjacent to [ESHA] ... shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat ... areas.”

California Environmental Quality Act

Based on provisions of Section 15380 of the CEQA Guidelines, plants and animals with the following protected status may be addressed in CEQA documents on proposed development projects: federally-listed Endangered or Threatened species under the FESA, federal Proposed and Candidate species, and species listed by the state of California as Endangered, Threatened, or Rare under the CESA or California Native Plant Protection Act (NPPA). In addition, under Section 15380(d) of the CEQA Guidelines, a species not included on any list recognized by the state “shall nevertheless be considered rare or endangered if the species can be shown to meet the criteria” for listing. The CDFW, USFWS, and U.S. Forest Service all maintain independent lists of species with designated conservation status that meet the CEQA Guidelines criterion for consideration. Based on provisions of Section 15380(d) of the CEQA Guidelines, lead agencies, in making a determination of impact significance, typically treat non-listed plant and animal species as equivalent to listed species if the non-listed species satisfy the minimum biological criteria for listing. In assigning “impact significance” to populations of non-listed species, analysts generally consider factors such as population-level effects, proportion of the taxon’s range affected by a project, regional effects, and impacts to habitat features.

Local Laws and Ordinances

San Mateo County General Plan

The San Mateo County General Plan provides information on existing natural and man-made conditions of the physical environment that must be analyzed in light of resource management and community development. The plan identifies key plans, regulations and agencies that affect planning decisions. The San Mateo County General Plan provides definitions and policies for the

protection of natural resources, including species and habitats in the Vegetative, Water, Fish, and Wildlife Resources Policies.

Heritage Tree Ordinance for San Mateo County

San Mateo County has designated trees of 12” in diameter or larger (measured at breast height) in any area of the unincorporated County as Significant Trees to prevent their indiscriminate removal. The County requires a permit for the removal of these trees and may require an arborist report to substantiate tree health or safety concerns. For most cases of tree removal, tree replacement will be required.

Also, according to their size as stipulated in the Heritage Tree regulations, some trees have been designated Heritage Trees, including some oaks, redwoods, and other trees. The County requires a permit for the trimming or removal of these trees and may require an arborist report with the permit application for trees that may need to be trimmed or removed for tree health and safety reasons. In most cases of tree removal, tree replacement will be required.