Initial Study/Proposed Mitigated Negative Declaration

Merced County Regional Waste Management Authority

Landfill-Gas-to-Energy Project

June 2019

PREPARED FOR:

Merced Regional Waste Management Authority

Merced County Regional Waste Management Authority

7040 North Highway 59
Merced, California 95348
(209) 723-4481

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for the

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Prepared for:

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LIST OF ABBREVIATIONS

AB	Assembly Bill
APE	Area of Potential Effects
ATC	authority-to-construct
BACT	Best Available Control Technology
BAU	Business-as-Usual
BMP	Best Management Practices
BPS	Best Performance Standards
BTU	British thermal units
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	climate action plan
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	Code of California Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2	carbon dioxide
Corps	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CVRWQCB	California Regional Water Quality Control Board

dB	decibels
DBCP	dibromochloropropane
DOC	California Department of Conservation
DOF	California Department of Finance
DPM	diesel particulate matter
DTSC	California Department of Toxic Substances Control
EDB	ethylene dibromide
EIR	Environmental Impact Report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	environmentally sensitive area
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
FTE	full-time equivalent
GCCS	gas collection and control system
GHG	greenhouse gases
gpm	gallons per minute
GPS	Global Positioning System
GSP	groundwater sustainability plan
H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HFC	hydrofluorocarbons
HMBP	Hazardous Material Business Plan
IPaC	Information for Planning and Conservation
IS/Proposed MND	Initial Study/Proposed Mitigated Negative Declaration
JTD	Joint Technical Document
kW	kilowatts

LFG	landfill gas
LMCM	Landfill Methane Control Measure
LOS	level of Service
LRDP	Long Range Development Plan
MBTA	Migratory Bird Treaty Act
MCAG	Merced County Association of Governments
MCRWMA	Merced County Regional Waste Management Authority
MID	Merced Irrigation District
MT CO_2e	metric tons of carbon dioxide equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Council
NMOC	non-methane organic compounds
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSR	new source review
OEHHA	Office of Environmental Health Hazard Assessment
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM_{10}	respirable and fine particulate matter that is 10 microns or less in diameter
$PM_{2.5}$	particulate matter and 2.5 microns or less in diameter
project	Landfill-Gas-to-Energy Project
PTO	permit-to-operate
RO	reverse osmosis
ROG	reactive organic gases
RWQCB	regional water quality control board

SCFM	standard cubic feet per minute
SDR	standard dimension ratio
sf	square feet
SF_6	sulfur hexafluoride
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SR	State Route
SSURGO	Soil Survey Geographic database
SWPPP	stormwater pollution prevention plan
TAC	toxic air contaminants
TBACT	BACT for toxics
TCE	trichloroethylene
TES	thermal energy storage
tpy	tons per year
UC Merced	University of California, Merced
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFD	variable frequency drive
VMT	vehicle miles traveled
VOC	volatile organic compound
WWTP	Wastewater Treatment Plant

1 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This Initial Study/Proposed Mitigated Negative Declaration (IS/Proposed MND) has been prepared by the Merced County Regional Waste Management Authority (MCRWMA) to evaluate potential environmental effects resulting from the Landfill-Gas-to-Energy Project (project). Chapter 2 "Project Description" presents the detailed project information.

This document has been prepared 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 et seq.). An initial study is prepared by a lead agency to determine if a project may have a significant effect on the environment (State CEQA Guidelines Section 15063[a]), and thus to determine the appropriate environmental document. In accordance with State CEQA Guidelines Section 15070, a "public agency shall prepare…a proposed negative declaration or mitigated negative declaration…when: (a) The Initial Study shows that there is no substantial evidence…that the project may have a significant impact on the environment, or (b) The Initial Study identifies potentially significant effects but revisions to the project plans or proposal are agreed to by the applicant and such revisions would reduce potentially significant effects to a less-than-significant level." In this circumstance, the lead agency prepares a written statement describing its reasons for concluding that the project would not have a significant effect on the environment and, therefore, does not require the preparation of an Environmental Impact Report (EIR). By contrast, an EIR is required when the project may have a significant environmental impact that cannot clearly be reduced to a less-than-significant effect by adoption of mitigation or by revisions in the project design.

1.2 WHY THIS DOCUMENT?

As described in the environmental checklist (Chapter 3), the project would not result in any unmitigated significant environmental impacts. Therefore, an IS/Proposed MND is the appropriate document for compliance with the requirements of CEQA. This IS/Proposed MND conforms to these requirements and to the content requirements of State CEQA Guidelines Section 15071.

Under CEQA, the lead agency is the public agency with primary responsibility over approval of the project. MCRWMA is the CEQA lead agency because they are responsible for approving the capture of landfill gas on the landfill property. The purpose of this document is to present to decision-makers and the public information about the environmental consequences of implementing the project. This disclosure document is being made available to the public for review and comment. This IS/Proposed MND will be available for a 30-day public review period from June 14, 2019 to July 16, 2019.

Supporting documentation referenced in this document is available for review at:

Merced County Regional Waste Management Authority
7040 N. Highway 59
Merced, California 95348

Comments should be addressed to:

Jerry Lawrie, Environmental Services Manager
Merced County Regional Waste Management Authority
7040 N. Highway 59
Merced, California 95348

E-mail comments may be addressed to: jlawrie@mcrwma.org

If you have questions regarding the IS/Proposed MND, please email Jerry Lawrie at jlawrie@mcrwma.org. If you wish to send written comments (including via e-mail), they must be postmarked by July 16, 2019.

After comments are received from the public and reviewing agencies, the MCRWMA may (1) adopt the MND and approve the project; (2) undertake additional environmental studies; or (3) abandon the project. If the project is approved and funded, the project proponent may proceed with the project.

1.3 SUMMARY OF FINDINGS

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the project.

Based on the issues evaluated in that chapter, it was determined that the project would have either no impact or a less-than-significant impact related to most of the issue areas identified in the Environmental Checklist, included as Appendix G of the State CEQA Guidelines. These include the following issue areas:

Aesthetics
Agriculture and Forestry Resources
Air Quality
Energy
Greenhouse Gas Emissions
Hazards and Hazardous Materials
Hydrology and Water Quality
Land Use and Planning
Mineral Resources
Population and Housing
Public Services
Recreation
Tribal Cultural Resources
Utilities and Service Systems
Wildfire

Potentially significant impacts were identified for biological resources, cultural resources, geology and soils, noise, and transportation; however, mitigation measures included in the IS/Proposed MND would reduce all impacts to a less-than-significant level.

1.4 ENVIRONMENTAL PERMITS

The following agencies may have responsibility for or jurisdiction over implementation of elements of the project. The following list also identifies potential permits and other approval actions that may be required before implementation of certain project elements.

FEDERAL

- U.S. Army Corps of Engineers (Responsible Agency) – To comply with the Clean Water Act (if necessary) for impacts to wetlands.
- U.S. Fish and Wildlife Service (Responsible Agency) – To comply with the Federal Endangered Species Act (ESA) for potential take of listed species.

STATE

- California Department of Fish and Wildlife (Responsible Agency) – To comply with the California ESA for potential take of state listed species.
- California Department of Transportation (Responsible Agency) – Encroachment permit.
- Central Valley Regional Water Quality Control Board (Responsible Agency) – To comply with the Clean Water Act (if necessary) for impacts to wetlands.
- University of California, Merced (Responsible Agency) – Authorization to proceed with construction.

REGIONAL AND LOCAL

- City of Merced (Responsible Agency) – Encroachment permit
- Merced County (Responsible Agency) – Encroachment permit
- San Joaquin Valley Air Pollution Control District (Responsible Agency) – To issue a revised or new authority to construct/permit for the proposed facility.

1.5 DOCUMENT ORGANIZATION

This IS/Proposed MND is organized as follows:

Chapter 1: Introduction. This chapter provides an introduction to the environmental review process. It describes the purpose and organization of this document as well as presents a summary of findings.

Chapter 2: Project Description and Background. This chapter describes the purpose of and need for the proposed project, identifies project objectives, and provides a detailed description of the project.

Chapter 3: Environmental Checklist. This chapter presents an analysis of a range of environmental issues identified in the CEQA Environmental Checklist and determines if project actions would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact. If any impacts were determined to be potentially significant, an EIR would be required. For this project, however, none of the impacts were determined to be significant after implementation of mitigation measures.

Chapter 4: References. This chapter lists the references used in preparation of this IS/Proposed MND.

Chapter 5: List of Preparers. This chapter identifies report preparers.

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2 PROJECT DESCRIPTION

This chapter presents a detailed description of the proposed Landfill-Gas-to-Energy Project (project) that would extend between the existing Highway 59 Landfill, which is operated by the Merced County Regional Waste Management Authority (MCRWMA), and the University of California, Merced (UC Merced) Central Plant. The project would include the installation of a 10-inch diameter pipeline between the existing landfill and UC Merced Central Plant, as well as supporting facilities at both termini. The project would provide for the beneficial reuse of landfill gas (LFG) collected by MCRWMA at the existing landfill to reduce the off-site energy requirements for the UC Merced campus. This chapter describes MCRWMA's objectives related to the project, facility elements, and the anticipated schedule for project construction and operation.

2.1 PROJECT LOCATION

The project area includes both the Highway 59 Landfill and the UC Merced Central Plant, as well as the pipeline route between the two. The Highway 59 Landfill is located immediately east of State Route (SR) 59 in unincorporated Merced County, approximately 6 miles north of the City of Merced (see Figure 2-1). The street address is 7040 North Highway 59. The existing landfill is bounded on the west by SR 59 and vacant grazing land, on the east by vacant grazing land and an abandoned railroad grade, and on the north and south by orchards. Residential uses are located farther to the south.

The UC Merced Central Plant is located in the northeastern portion of the existing campus and is predominantly surrounded by existing campus operations and maintenance uses, including campus police, telecom, facilities services, and a surface parking lot. Two Science and Engineering Buildings are located southwest of the eastern terminus of the project area. Student residences are located southwest of the eastern terminus, across Fairfield Canal. The proposed area for supporting facilities at the eastern terminus of the project is currently undeveloped (with the exception of paving) and located immediately adjacent to the existing Central Plant.

The pipeline route extends south from the landfill and heads east along Bellevue Road, between the two termini (see Figure 2-2).

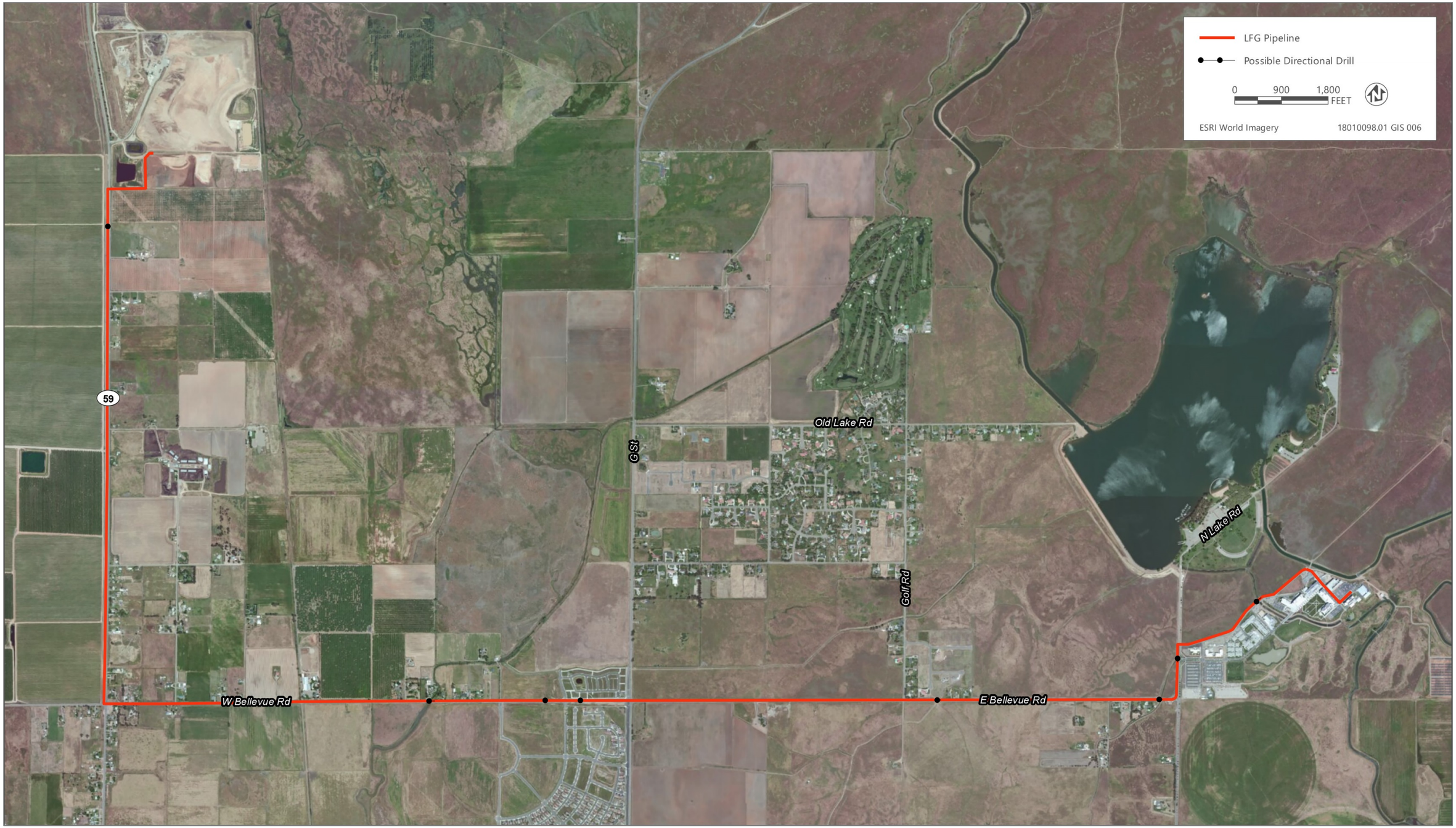
2.2 PROJECT BACKGROUND

2.2.1 Highway 59 Landfill

The Highway 59 Landfill is owned and operated by MCRWMA and was created in 1972 as part of an effort to establish two regional landfills that would address solid waste management and recycling requirements throughout the County. MCRWMA includes members from the County of Merced, and each incorporated city in the County, including Atwater, Dos Palos, Gustine, Livingston, Los Banos, and Merced. The MCRWMA system includes facilities for solid waste diversion, composting, recycling, and disposal. The system's two landfills, Highway 59 Landfill and Billy Wright Landfill, were constructed to provide disposal of solid waste generated in the east and west County areas. The eleven-member MCRWMA Governing Board consists of the five elected County Supervisors and one elected official from each of the city members. The Executive Director of the Merced County Association of Governments (MCAG) acts as the Executive Director of the MCRWMA and is responsible for its day-to-day administration.

Source: Adapted by Ascent in 2018

Figure 2-1 Project Location



Source: Adapted by Ascent in 2019

Figure 2-2 Pipeline Route

The Highway 59 Landfill has been operating since 1973, and consists of approximately 610 acres, 255 acres of which have been or are currently used for waste disposal activities. Current and historical waste disposal areas are located in the northern and southern portions of the property, respectively. The northern portion is approximately 219 acres, of which 140 acres (also known as Phase 6, following nomenclature developed as part of the EIR prepared for the landfill in 1996) are currently permitted for waste disposal. In between the northern portion and the southern portion is a 168-acre wetland (vernal pool) preserve, which was established in 2000 to mitigate significant environmental impacts of expanding the landfill to the north. In addition, approximately 80 acres of administrative offices and composting operations are located in the central portion of the landfill property. The composting operation is authorized under a separate solid waste facility permit from the remainder of the landfill and has a permitted annual throughput of up to 25,000 tons/year.

Currently, as part of disposal operations, a landfill gas collection and control system (GCCS) collects and disposes of LFG to prevent the release of odor-causing and explosive gases and hazardous air pollutants (HAPs) produced by buried waste. The GCCS currently consists of 1) the collection system, including over 70 active vertical extraction wells, several horizontal collector wells, collection and transport piping, and; 2) the control system, including an enclosed flare station to combust the LFG and associated HAPs pursuant to applicable regulatory requirements. The landfill is permitted to expand the collection system as needed to effectively capture LFG generated by continued waste placement. The flare is permitted for a flow of 2,100 standard cubic feet per minute (SCFM) of LFG. The current flow of LFG is approximately 900 to 1,100 SCFM leaving adequate additional capacity for future landfilling and associated increases in LFG flow.

2.2.2 UC Merced

The UC Merced was originally conceived in the 1990s with construction commencing in 2003. The campus is one of ten campuses of the UC. Classes began on the current UC Merced campus in 2006. The campus is intended to be developed in four major phases with the first phase started in 2003. The second phase, now known as the 2020 Plan, is intended to be fully occupied in 2020. The first phase of the development was intended for a 5,000 full-time equivalent (FTE) student body and 1.25 million square feet (sf) of academic space. Phase two will grow the student body to approximately 10,000 FTE and 2.5 million sf of academic space. The ultimate development of the campus will see the campus grow to occupy nearly the entire 815 acre parcel with a 25,000 FTE student and 6.25 million sf of academic space.

Consistent with UC Sustainable Practices Policy, which was initially established in 2004, UC Merced established Triple Net Zero Goals, a furtherance of the UC's systemwide effort to increase sustainability across all campuses (UC Merced 2018a). One of the triple goals is a Net Zero Energy goal, which is intended to reduce campus energy usage through conservation and renewable energy generation such that the full demand of campus is satisfied by renewable energy sources. UC Merced also prepared a campus climate action plan in 2018 that provided additional detail regarding sustainability goals and actions, including the potential reuse of biogas generated at Highway 59 Landfill to supplement the electrical and hot water needs for the upper campus (i.e. everything east of the Fairfield Canal, which bisects campus) (UC Merced 2018b).

Electrical power to the campus is supplied by a mix of renewable and non-renewable energy sources located both on-campus and off-campus. A large solar array network is located in the southern portion of the current campus with additional solar facilities located throughout campus, primarily on building rooftops. Additional power is provided via the existing electrical transmission and distribution network, including two high-voltage Pacific Gas and Electric Company (PG&E) lines that are located to the west of campus, near the intersection of Bellevue Road and G Street. Incoming electricity from the regional network and on-campus solar is managed and distributed to the campus from the Central Plant (UC Merced 2018c).

With respect to climate control within the campus, existing buildings receive hot water via a series of boilers located at the UC Merced Central Plant, which was built in 2005. The existing boilers use natural gas to heat water, which is then routed to and through campus buildings for the purposes of space conditioning via a network of distribution lines within campus roadway rights-of-way.

2.3 PROJECT OBJECTIVES

The objectives of the project are to:

- allow for the beneficial reuse of existing and future LFG collected by the MCRWMA at the Highway 59 Landfill at the UC Merced campus in a manner that furthers the long-term sustainability goals of the area;
- provide the most feasible and cost-effective method of transporting LFG from MCRWMA to UC Merced;
- assist UC Merced in meeting its goals to reduce its dependence on fossil fuels and become more sustainable and energy independent;
- reduce long-term operational costs associated with MCRWMA's current LFG collection and disposal system generated at the Highway 59 Landfill;
- reduce the dependence on less efficient boilers at the UC Merced campus with a more efficient cogeneration facility to produce both electricity and heat onsite; and,
- provide short- and long-term employment for local Merced County residences.

2.4 EXISTING OPERATIONS AND FACILITIES

2.4.1 Highway 59 Landfill

The existing landfill property is approximately 610 acres, 255 acres of which are permitted for or have been historically used for waste disposal activities (Phases 1-6). As described in greater detail below, on-site landfill facilities consist of waste disposal cells (Phases 1-6), stormwater retention basins, leachate control systems for Phases 5 and 6, materials recycling, a scale house, scales, administrative office space, composting, transfer of recyclables, and a network of monitoring and extraction wells throughout the property. Additionally, 168 acres along the eastern and central portions of the landfill property are designated as a wetland preserve.

To prevent the release of odor-causing and explosive gases and to control HAPs and as noted above, the landfill currently operates a GCCS on-site. The LFG collection system will be expanded to other areas of the property as the landfill is expanded into additional permitted sub-phases (e.g., phase 6B1 east of phase 6A). As noted above, the GCCS includes extraction wells, collection and transport piping, and an enclosed flare station to combust the LFG and associated HAPs pursuant to applicable regulatory requirements.

2.4.2 UC Merced

As noted above, the Central Plant serves as the hub for utilities service distribution and management. Built in 2005, the Central Plant generates and distributes chilled water, heating hot water and steam. Incoming electrical services from PG&E and the campus photovoltaic array are managed and distributed from the Central Plant. Chilled water is distributed to campus buildings for the purpose of equipment cooling and space conditioning. Heated hot water is distributed for the purposes of space conditioning. Steam is produced and then distributed to the Science and Engineering 1 building, located west of the Central Plant, for research purposes (primarily sterilization and testing). Chilled water is generated by high-efficiency centrifugal chillers, and associated cooling towers, variable frequency drives (VFDs), and pumps. The chiller system, which includes a thermal energy storage (TES) tank that can store up to 2 million gallons, is operated during the evening hours to reduce electrical utility costs and maximize system efficiency. During the day, energy efficient pumps distribute the chilled water from the TES tank to various campus facilities via existing utility lines.

Additionally, steam is produced by natural gas powered steam boilers at the Central Plant. Water used for the steam boilers is supplied through a reverse osmosis (RO) system. The RO system saves both water and chemical treatment by maximizing the cycles of concentration. As noted above, hot water is produced by natural gas powered boilers and distributed to a large portion of the Campus for heating purposes (UC Merced 2018b).

2.5 PROJECT DESCRIPTION

The following describes the project in detail and has been separated into three parts: 1) a description of the proposed facilities; 2) anticipated operations and maintenance activities; and 3) construction.

2.5.1 Proposed Facilities

HIGHWAY 59 LANDFILL COMPONENTS

At the Highway 59 Landfill, equipment would be installed adjacent to the existing landfill flare related to the transfer and treatment of LFG before transmission to UC Merced. More specifically and as shown in Figure 2-3, LFG scrubbing equipment and a compressor station would be installed. As noted above, existing LFG is collected and flared in the southern portion of the landfill property. To minimize the disturbance to existing landfill operations, the new equipment would be located adjacent to the existing flare and associated blower equipment and would connect directly to an outlet for the existing blowers. The footprint of the proposed equipment would be approximately 80 feet by 80 feet. The existing on-site flare would be retained in the event the pipeline or LFG-related facilities at UC Merced are temporarily removed from service due to necessary maintenance, or to handle gas flows above that utilized for the landfill-gas-to-energy facility.

Before entering the pipeline to UC Merced, collected LFG would be directed to one of two 8 to 12- foot diameter vessels filled with media specifically designed for the removal of hydrogen sulfide (H_2S). The media is an iron hydroxide base with alkalizing compounds and is highly effective for H_2S adsorption. These vessels would be plumbed in parallel and would connect to one of two identical compression and moisture removal skids. The skids would include a moisture and particulate filter, heat exchanger and accompanying glycol loop (supplied by a glycol chiller, located off-skid), and a gas compressor. All condensate from the moisture filter and heat exchanger would be collected at a central location and drained to the existing condensate/leachate management system at the landfill. The aforementioned compressor station would then compress the LFG to approximately 100 pounds per square inch.

Compressed LFG would then enter one of two vessels with carbon media designed specifically for the removal of siloxanes and volatile organic compounds (VOCs). Siloxanes are silicon-based molecules that can damage the microturbines located downstream at the UC Merced campus, and subsequently must be removed. The process used to remove the siloxanes would also remove VOCs. Operation of the vessels would alternate to allow for the cleaning of media within one vessel using a stream of heated ambient air, supplied by a blower and heater. Because the heated ambient air stream would be saturated with siloxanes and VOCs, it cannot be released to the atmosphere and must be incinerated using a thermal oxidizer. The thermal oxidizer would not operate continuously but would require a minor amount of LFG for incineration purposes during cleaning. In the event future gas testing data shows reduced levels of siloxanes and VOCs, a less intensive process may be employed at a later date that would eliminate the need for this regenerative system and thermal oxidizer. Vessels would instead be filled with non-regenerative media that would be disposed of in the landfill when saturated. MCRWMA is considering an option that would involve installation of a small microturbine adjacent to the thermal oxidizer to power the aforementioned compressor, oxidizer, and scrubbing equipment. Where appropriate, this option has been reflected in the analysis of the project.

The conditioned (scrubbed and compressed) LFG would then enter the proposed pipeline, described below, for transmission to the UC Merced campus.

UC MERCED TERMINUS COMPONENTS

Within the UC Merced campus, up to four microturbines (800 kilowatts per microturbine) and associated heat utilization equipment would be installed within an approximately 80 feet by 80 feet enclosure that would be constructed adjacent and attached to the existing Central Plant (see Figure 2-4). More specifically, the microturbines would be located adjacent to the existing boiler room of the Central Plant. The power generated by the microturbines (480 volts) would be compatible with the main campus electrical voltage distribution (12.47 kilovolts) via a step-up transformer that would also be adjacent to the proposed enclosure. Initial phasing would include the installation of either two or three microturbines with the potential for a fourth microturbine to be added as part of a future phase.

During operation, conditioned LFG would enter the UC Merced campus via the pipeline described below and routed directly to one of the four microturbines. Three of the microturbine would be fitted with a heat recovery system within the enclosure that would be capable of heating water for use in the campus's existing Central Plant hot water loop. The anticipated annual energy yield of the facility at full build out would be 26,600 megawatt hours per year. The electrical power generated would be utilized within the existing upper campus of UC Merced to supplement the energy demands of the campus. Periodically, surplus electrical power would be exported to the main PG&E electrical utility grid (e.g., transmission facilities near the intersection of Bellevue Road and G Street) that connects to the campus. This would primarily occur when campus occupancy is low and/or when activities on campus are less intense.

A precast concrete wall (approximately 30 feet in height) would be constructed around the proposed equipment area with a façade that would match the exterior walls of the Central Plant.

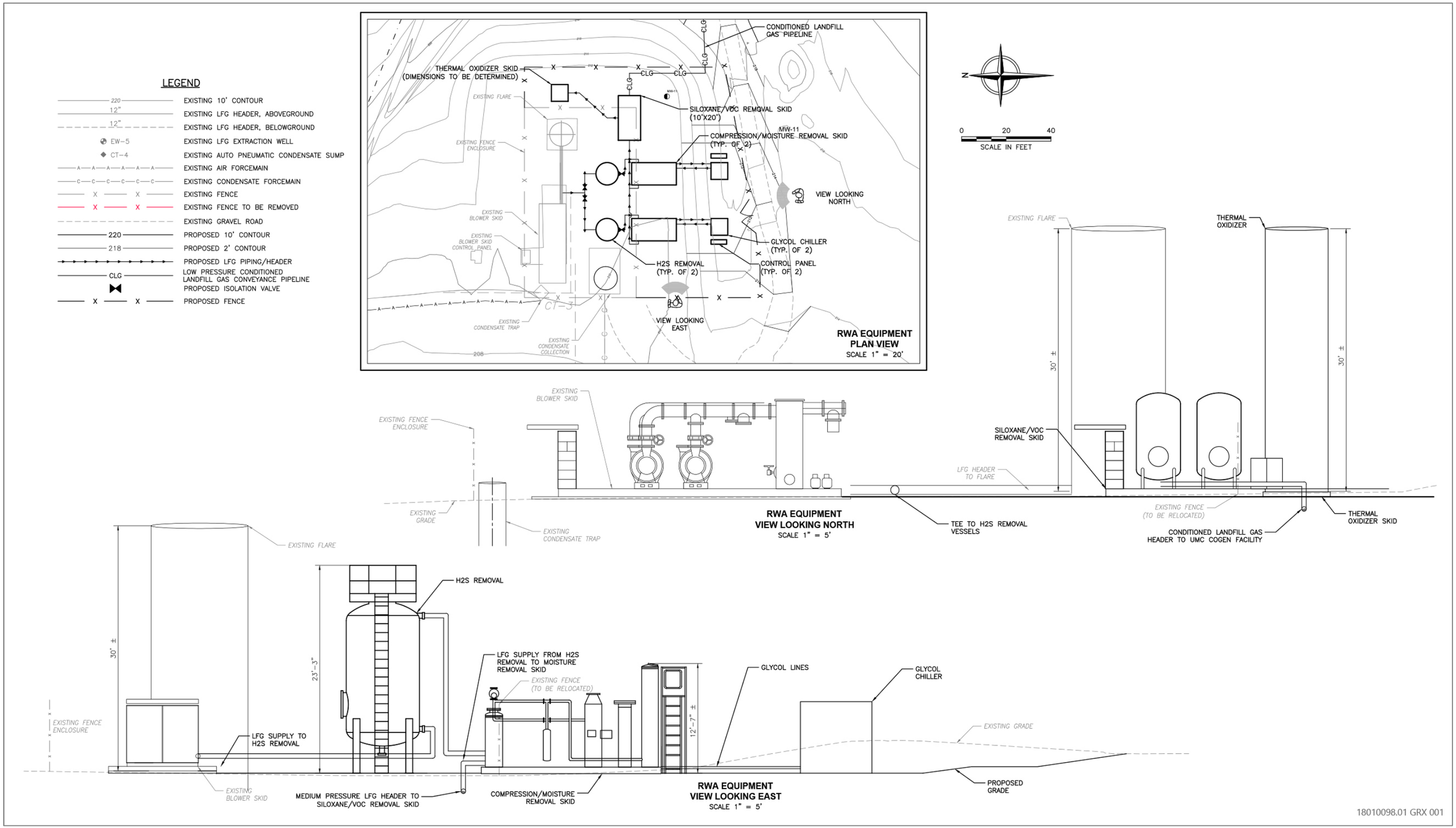
LFG PIPELINE

An interconnecting pipeline would be installed generally within existing roadway rights-of-way or other areas of prior disturbance. The pipeline alignment is approximately 7.1 miles in total length. The pipeline would be 10-inches in diameter to allow LFG to be conveyed between the landfill and Central Plant facilities and would be installed approximately 3 feet below ground surface, consistent with 49 Code of Federal Regulations (CFR) Part 192. A minimum 12-inch clearance would be maintained from any underground structure not associated with the conveyance pipeline, including electrical supply systems and other utility conveyance pipelines (water, oil, communication, etc.).

The pipeline would be designed and installed in accordance with 49 CFR Part 192 for plastic pipe and California General Order No. 112-F governing the design and construction of gas distribution piping. Further, the pipeline would be comprised of high-density polyethylene with a standard dimension ratio (SDR) no less than SDR-17. The pipeline would be tested in accordance with ASME B31.XX. Inspections of the pipeline would also be conducted in accordance with requirements established in 49 CFR 192.241, 192.243, 195.505 and 192.507. Before the introduction of methane, the pipeline would be purged with nitrogen.

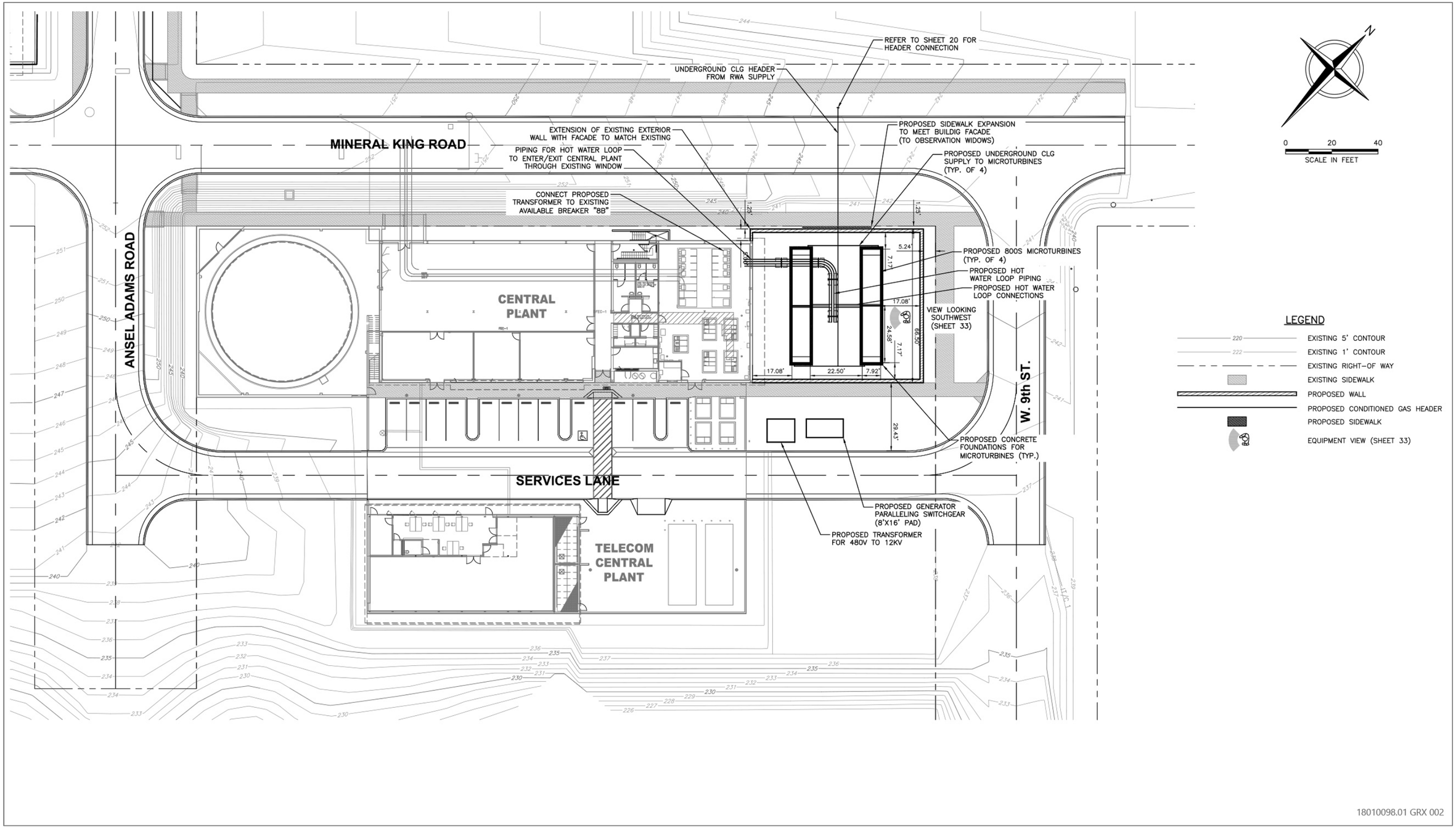
Block or isolation valves would be located at each end of the pipeline (one at the Highway 59 Landfill and the other at the UC Merced Central Plant). An additional isolation valve would be located at the midway point of the pipeline, approximately 3.5 miles from Highway 59 Landfill and the Central Plant. The center isolation valve would be installed within a vault in accordance with 49 CFR 192. Each section of the pipeline on either side of the isolation valve would be equipped with a blowdown valve to allow for the discharge of gas, as rapidly as practicable, in the event of an emergency. A pressure relief valve would also be provided at the UC Merced Central Plant in the event that the pipeline becomes over pressurized and the proposed microturbines cannot relieve the pipeline pressure. LFG conveyed via the pipeline would require odorization to identify any potential leaks along the pipeline or at equipment and to meet regulatory requirements for natural gas distribution.

Upon completion, up to 1,200 SCFM of biogas comprised of approximately 50 percent methane would be conveyed from the landfill to UC Merced, and is equivalent to approximately 3.154 million therms per year (assuming 500 British thermal units (BTU)/SCF, 99,976 BTU/therm). The remaining biogas would be used for operation of the thermal oxidizer or continue to be flared at the landfill. If the option (identified above) is selected, the on-site microturbine would use approximately 150 SCFM of the biogas that would otherwise be flared for on-site electrical demands.



Source: Image provided by TetraTech in 2018

Figure 2-3 Proposed Facilities at Highway 59 Landfill



Source: Image provided by TetraTech in 2018

Figure 2-4 Proposed Facilities at UC Merced Central Plant

2.5.2 Operation and Maintenance

Upon completion of construction, the pipeline and facilities at UC Merced and the Highway 59 Landfill would be tested using compressed air to confirm whether the constructed gas conditioning skid, conveyance piping, and microturbines meet design specifications. Before commissioning the pipeline for conveyance of conditioned LFG, the pipeline would also be purged with nitrogen to displace ambient air which cannot be processed through the microturbines. Further, and upon initiation of operation, trained personnel would perform regular checks and maintenance of the proposed equipment, as described below. In general, if a portion of the system requires to be taken out of service for any reason, the proposed control measures (e.g., blowdown valves) within the system would ensure that pressure levels are maintained so as to not present a hazard at either terminus or within the pipeline.

During operation, one full-time employee may be located at UC Merced or the landfill to regularly inspect and monitor the proposed facilities.

HIGHWAY 59 LANDFILL COMPONENTS

At the Highway 59 Landfill, the gas conditioning skid would be designed to operate unattended, however, a daily and weekly inspection would be completed by trained personnel. In addition, quarterly operations and maintenance procedures would be conducted to keep the system operating properly.

With respect to the cleansing of media within the two vessels described above, H_2S testing would be conducted regularly and system runtime hours would be documented to ensure that the chambers alternate appropriately. Generally, H_2S levels above 50 parts per million by volume indicate a need of media change. Although manufacturer specifications would determine the specific requirements for testing, the testing for H_2S would occur at least twice a year to confirm the change interval required.

Similarly, siloxane/VOC testing would be conducted regularly, and system runtime hours would also be noted to determine an appropriate media change interval. Generally, VOC or siloxane levels above 100 parts per billion by volume indicate a need of media change. While the system is designed to automatically regenerate the siloxane/VOC media, the outlet gas stream would be periodically sampled to ensure that the media is functioning effectively. Similar to H_2S maintenance requirements, the exact testing and maintenance regimen would depend on the manufacturer's specifications for the equipment.

UC MERCED COMPONENTS

In accordance with manufacturer specifications and the schedules identified therein for maintenance and replacement, qualified personnel would regularly inspect the microturbine system. Because the microturbine system would have no lubricants or media that need to be changed out, the majority of operations and maintenance activities would be related to adjusting the operation of the microturbines to maximize efficiency on-site, both in terms of electrical and heat generation.

LFG PIPELINE

Once operational, the pipeline is not anticipated to require to be taken out of service, however, periodic pressure checks would be performed to verify its continued integrity. In the event that a repair is needed, electrofusion collars may be used to repair targeted areas. Inspection of the pipeline would be conducted in accordance with requirements established in 49 CFR 192.241, 192.243, 192.505 and 192.507 and would include visual inspection of the pipeline and welds, as well as a pressure test.

2.5.3 Construction Activities and Schedule

Construction is anticipated to begin in 2019 and would occur in phases over a period of approximately 8-12 months, beginning with the Highway 59 Landfill facilities. Construction would be phased as follows:

- **Phase 1** would take place on approximately 0.75 acres at the existing landfill over 6 months beginning in 2019, and would involve the following components:
  - Removal and grading of the southern portion of the old entrance road. The concrete and base rock would be recycled and used for future road construction; and
  - Installation of LFG transfer and treatment facilities. The work would consist of site development including the installation of a concrete foundation, setting of the mechanical equipment, connecting the mechanical systems, and installation of electrical and control systems. The existing perimeter fence around the landfill flare would be replaced.
- **Phase 2** would take place on approximately 0.2-acres on the UC Merced campus, immediately adjacent to the existing Central Plant, over six months beginning in 2020, and would involve the following components:
  - Relocation of existing equipment/material adjacent to the Central Plant northern wall;
  - Regrading of the open area to the north of the Central Plant to allow for equipment placement and proper drainage;
  - Extension of existing western and eastern walls of the Central Plant with installation of a northern wall to create an enclosure for the cogeneration facility;
  - Installation of microturbines on concrete foundations with associated equipment and connection to the incoming conditioned gas pipeline; and
  - Installation of switchgear and transformer and connection of electrical and hot water loop pipeline to existing infrastructure in and around the Central Plant.
- **Phase 3** would take place over four months beginning in 2020 and would occur in segments along the pipeline route. Construction would occur within approximately 0.2 acres (i.e., segments of 500 feet by 20 feet) at any given time. Construction (e.g., trenching) would generally occur within previously disturbed areas (e.g., active agricultural fields, roads, graded areas, etc). Within each segment, construction would involve the following components:
  - Removal of existing pavement and soil material to a depth of approximately four feet;
  - Temporary disturbance and use of staging areas;
  - Installation of pipeline (approximately 400 linear feet per day) with either open trenching or directional drilling as required,
  - Repaving/restoration of pipeline corridor disturbance and staging areas upon completion of each section of pipeline.

During construction, approximately 10 to 15 construction workers would be engaged at any given time and an average of one to two deliveries of materials would be made per day.

CONSTRUCTION STAGING AREAS

During construction, MCRWMA would require temporary construction staging areas for equipment storage, personnel vehicles, and laydown of materials. It is anticipated that daily working areas and temporary pipe storage would occur within the Bellevue Road right-of-way while overnight storage/staging of materials and equipment would occur on available vacant land. For the pipeline, temporary staging areas would occur along the alignment with an estimated 10 temporary staging areas. Road closures are not anticipated for staging areas and pipeline

construction. In the event that temporary lane closures are necessary, access would be maintained for local traffic and emergency response vehicles at all times, with appropriate traffic control measures (e.g., implementation of a traffic control plan, flaggers, etc.) being provided in the vicinity of construction activity.

No structures would be constructed at these sites; rather, the staging areas would be utilized temporarily during construction and then restored to pre-project conditions. MCRWMA would install temporary exclusionary fencing around construction equipment and materials. No grading or permanent ground disturbance would be associated with the staging areas; the areas would be returned to pre-project conditions after construction activities are completed.

CONSTRUCTION PERSONNEL AND EQUIPMENT

On average, up to 15 crew members would be present onsite each day during construction; however, the specific number of crew members would vary depending on the work activities.

The following construction equipment is anticipated to be required during construction at either terminus:

- one dump truck (to haul materials and soils),
- one crane,
- two pickup trucks,
- two backhoes, and
- one flatbed truck.

The following construction equipment is anticipated to be required during installation of the pipeline:

- one dump truck (to haul materials and soils between the staging area and construction),
- one concrete grout truck (to apply grout in the space outside the new pipe),
- one concrete mixer,
- one roller,
- two pickup trucks,
- two backhoes, and
- one flatbed truck.

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3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION

1.	Project Title:	Landfill-Gas-to-Energy Project
2.	Lead Agency Name and Address:	Merced County Regional Waste Management Authority 7040 N. Highway 59 Merced, California 95348
3.	Contact Person and Phone Number:	Jerry Lawrie 209.723.4481
4.	Project Location:	Merced County
5.	Project Sponsor's Name and Address:	Merced County Regional Waste Management Authority 7040 N. Highway 59 Merced, California 95348
6.	General Plan Designation:	Various
7.	Zoning:	Various

8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   At the Highway 59 Landfill, equipment would be installed adjacent to the existing landfill flare related to the transfer and treatment of LFG prior to transmission to UC Merced. Within the UC Merced campus, up to four microturbines (800 kilowatts per microturbine) and associated heat utilization equipment would be installed within an approximately 80 feet by 80 feet enclosure that would be constructed adjacent and attached to the existing Central Plant. Between the facilities at the landfill and UC Merced, a 10-inch pipeline would be installed connecting the two. The pipeline route would leave the landfill property, head south on SR 59, travel east on Bellevue Road, travel north on Lake Road, travel east on Ranchers Drive, then south on Ansel Adams Road and east on Mineral King Road. The pipeline would be installed within existing rights-of-way of these roadways.

9.	Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)	The landfill is located in a sparsely-developed area of unincorporated Merced County. The pipeline travels from the landfill along areas of rural residences, then areas of increasing development as the alignment passes through areas of residential and commercial development in the City of Merced. Near the UC Merced campus, the pipeline passes near academic and residential buildings.
10.	Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)	See Chapter 1, "Introduction," Section 1.4 of this IS/MND

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.?

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

Tribes were contacted during preparation of the cultural resources inventory by Natural Investigations Company in February 2019. Letters regarding the project were sent via certified mail to the four tribes listed on the consultation list provided by the Native American Heritage Council (NAHC), pursuant to AB 52. Tribes either did not respond or responded that the project presents no concerns to them.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages. Where checked below, the topic with a potentially significant impact will be addressed in an environmental impact report.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology / Soils	☐ Greenhouse Gas Emissions	☐ Hazards / Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance
	☐ None	☒ None with Mitigation Incorporated

DETERMINATION (To be completed by the Lead Agency)

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.

Brooks Stayer — 12 June 19

Signature — Date

Brooks Stayer — Director

Printed Name — Title

MCRWMA

Agency

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:
   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics.				
Except as provided in Public Resources Code section 21099 (where aesthetic impacts shall not be considered significant for qualifying residential, mixed-use residential, and employment centers), would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
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 points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.1 Environmental Setting

The project site is located in the northeastern portion of Merced County, and extends from the Highway 59 Landfill (located in unincorporated Merced County), crossing through the northern portions of the City of Merced, and ending at the UC Merced campus. The *2030 Merced County General Plan* identifies rural and agricultural lands as the county's scenic resources (Merced County 2013:NR-8). The City's *Merced Vision 2030 General Plan* has designated several scenic corridors including Lake Road, from Yosemite Avenue to Lake Yosemite, and Bellevue Road, from Lake Road to G Street (City of Merced 2012:7-23, 7-24). In addition, the City's General Plan Policy OS-1.3 directs the City to "promote the protection and enhancement of designated scenic routes" and implementing action 1.3.b directs the City to "preserve the designated scenic corridors" (City of Merced 2012:7-23).

3.1.2 Discussion

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

Less than significant. The project would include construction at the Highway 59 Landfill, along SR 59, along Bellevue Road and Lake Road, and at the UC Merced campus. The project would include construction through rural and agricultural lands and along Bellevue Road and Lake Road, from which long-distance views are available. Construction activities may result in minor temporary disruptions to views along Bellevue Road, Lake Road, and SR 59. Viewers such as occupants of residences located along Bellevue Road and travelers to and from UC Merced and Lake Yosemite would notice alterations in scenic resources during construction activities. However, the pipeline would be installed below grade and within the roadway right-of-way through trenching and directional drilling. Construction effects along the pipeline route would be temporary, and all areas would be returned to pre-project conditions upon completion of construction. The localized and temporary disruption of long-distance views associated with construction activities would not be considered a substantial, adverse effect on long-distance views in the area. The

pipeline would be installed underground and no permanent effects to scenic resources would occur as a result of the project. At either terminus, proposed facilities would be installed adjacent to existing facilities and would be aesthetically similar (in size, mass, color, material, etc.) to the respective facilities on either end. The project would not introduce new structures that would be dissimilar to nor located adjacent to nearby receptors such that development at either end would preclude long-distance views to, from, or through either terminus. This impact would be less than significant. No mitigation measures are required.

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

No impact. There are no officially designated state scenic highways within the project alignment or in the vicinity; the closest officially designated state scenic highway is I-5, located more than 30 miles west of the project site (Caltrans 2011). Therefore, there would be no impact. No mitigation measures are required.

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 points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than significant. The project site is located within unincorporated Merced County and along the northern edge of the City of Merced. Both non-urbanized and urbanized areas are present along the pipeline route. Further, Bellevue Road and Lake Road are considered to be scenic corridors by the City of Merced. As discussed above, the project may temporarily degrade the existing visual character or quality of the site during construction. The pipeline would be installed within the roadway right-of-way and below grade near suburban, rural, and agricultural lands. As a result, project construction may temporarily hinder views of and from such areas during construction activities. However, upon completion of construction, all disturbed areas along the pipeline route, including those within the City-designated scenic corridor, would be returned to pre-project conditions. As a result, the pipeline component would not substantially degrade the existing visual character or quality of the area and would not be considered to conflict with City policy related to the protection of views along City-designated scenic corridors.

As noted above, proposed facilities at the Highway 59 Landfill and UC Merced Campus would be constructed adjacent to existing uses (landfill flare at Highway 59 Landfill and the central plant at UC Merced.) Proposed facilities at either terminus would be visually consistent with existing uses at either terminus (i.e., landfill flare facilities and the central plant), and would not substantially degrade the existing visual character or quality of the site and its surroundings. The project would not conflict with applicable zoning or regulations regarding scenic quality and would be subject to UC design review requirements at its eastern terminus. This impact would be less than significant. No mitigation measures are required.

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

Less than significant. The project would not include substantial additional sources of light or glare. The project would include landfill gas transfer and treatment facilities at the existing landfill, as well as microturbines and associated equipment at the UC Merced campus. Some security lighting would be required at either terminus but, similar to existing development at either terminus, lighting would be angle down and towards the proposed facilities such that substantial spillover of artificial light or nightlighting is not anticipated. Further, no windows or highly reflective materials would be used at either terminus. Along the pipeline route, project components would be located below grade and would not result in additional lighting or glare along the entirety of the route. As a result, this impact would be less than significant. No mitigation measures are required.

3.2 AGRICULTURE AND FOREST RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forest Resources.				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
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?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

3.2.1 Environmental Setting

The project site is located in the northern portion of the incorporated city of Merced and surrounding unincorporated Merced County. Agricultural lands, residences with supporting commercial uses, the landfill, and the UC Merced campus surround the project site. The Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) maps and classifies farmland. Classifications are based on a combination of physical and chemical characteristics of the soil and climate that determine the degree of suitability of the land for crop production. The classifications under the FMMP are as follows:

- Prime Farmland—land that has the best combination of features for the production of agricultural crops;

- Farmland of Statewide Importance—land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops, but that has more limitations than Prime Farmland, such as greater slopes or less ability to store soil moisture;
- Unique Farmland—land of lesser quality soils used for the production of the state's leading agricultural cash crops;
- Farmland of Local Importance—land of importance to the local agricultural economy;
- Grazing Land—existing vegetation that is suitable for grazing;
- Urban and Built-Up Land—land occupied by structures in density of at least one dwelling unit per 1.5 acres;
- Land Committed to Nonagricultural Use—vacant areas; existing land that has a permanent commitment to development but has an existing land use of agricultural or grazing lands; and
- Other Land— land not included in any other mapping category, common examples of which include low-density rural developments, brush, timber, wetland, and vacant and nonagricultural land surrounded on all sides by urban development.

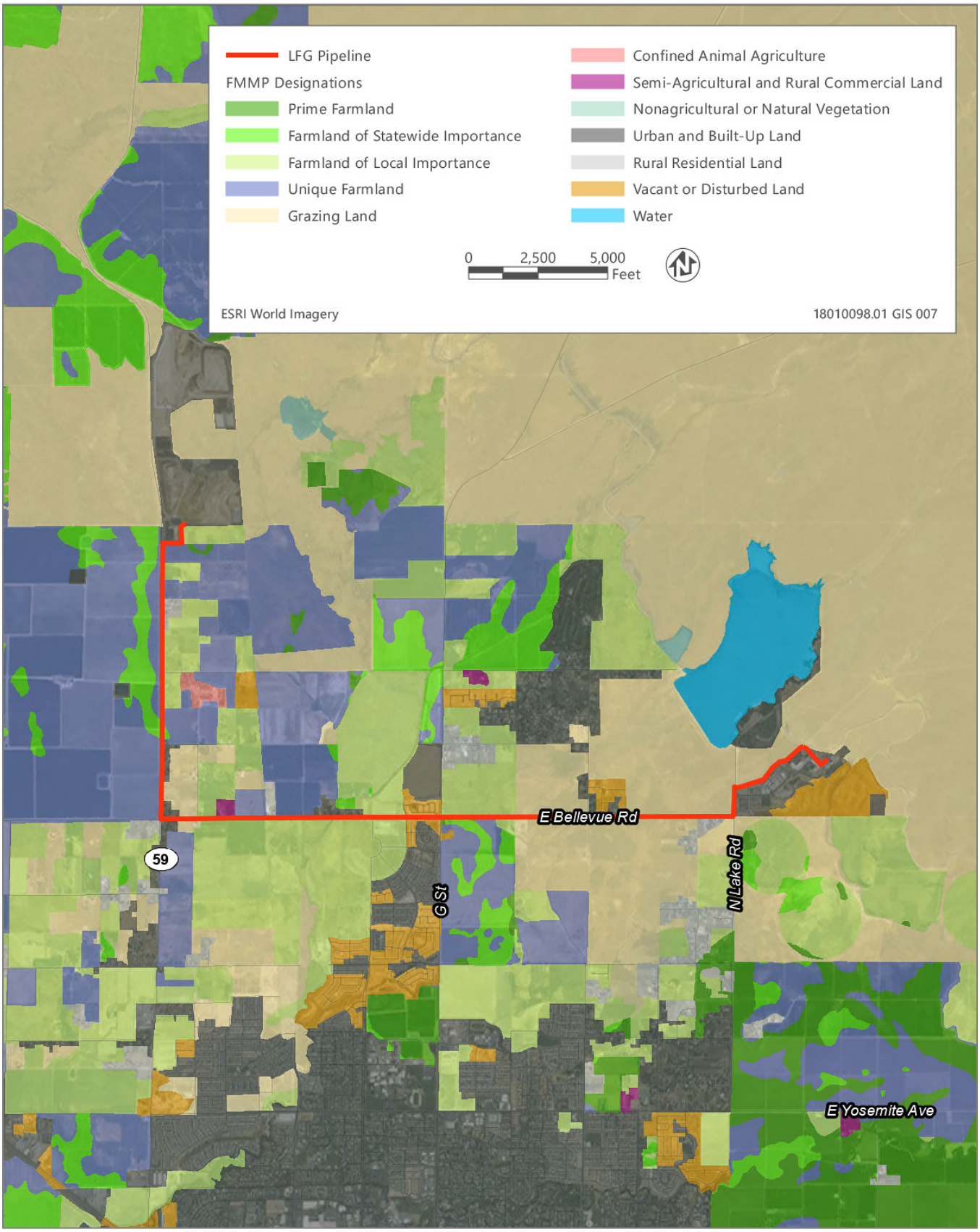
CEQA Section 21095 and CEQA Guidelines Appendix G, together, define Prime, Unique, and Farmland of Statewide Importance as "Important Farmland," whose conversion may be considered significant. Lands located within the Highway 59 Landfill and the UC Merced campus are classified as urban and built-up land. Some lands located along SR 59 and Bellevue Road, where the pipeline is proposed, are classified as Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance under the FMMP. Slivers of Prime Farmland are located directly south of Bellevue Road, east of the G Street intersection, see Figure 3.2-1 (DOC 2018).

The California Land Conservation Act of 1965, commonly known as the Williamson Act, allows local governments to form contracts with private landowners to restrict specific parcels of land to agricultural or open space use. Several parcels within Merced County are under Williamson Act contract. However, within the project vicinity, one parcel was identified as previously having a Williamson Act contract. Assessor's Parcel Number 170070004000, located within unincorporated Merced County, directly north of the City of Merced sphere of influence, was identified as a Williamson Act non-renewal contract in the Merced County Williamson Act FY 2013/2014 Assessment (DOC 2013). However, this contract was not renewed and is no longer current as indicated by the Merced County 2017 Williamson Act data (Merced County 2017). There are no parcels under active Williamson Act contract within the project vicinity.

3.2.2 Discussion

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?

Less than significant. Equipment and facilities installed and constructed at the Highway 59 Landfill and the UC Merced campus would be located within urban and built up land and would not result in the permanent conversion of Farmland. As noted above and in Chapter 2, "Project Description," the pipeline would be constructed within existing roadway right-of-way and previously disturbed areas. Installation of the pipeline and required temporary construction staging areas could result in some temporary disturbance to Farmlands along SR 59 and Bellevue Road. However, no staging areas would be located in areas under active agricultural use, and all disturbed areas would be returned to pre-project conditions upon completion, including along the pipeline route, which would be installed below grade. As a result, no permanent conversion of Farmland would occur. Therefore, the project would not result in the permanent conversion of Farmland, and this impact would be less than significant. No mitigation measures are required.



Source: Data downloaded from California Department of Conservation in 2016

Figure 3.2-1 Farmlands within Project Vicinity

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

Less than significant. Land uses along SR 59 and Bellevue Road are designated as agricultural under the County's general plan. However, areas south of the Highway 59 Landfill are primarily within the City of Merced sphere of influence and are designated as residential, commercial, and open space under the City's general plan (City of Merced 2017).

Project equipment and facilities would be placed at the existing Highway 59 Landfill and UC Merced campus, directly adjacent to existing facilities. The proposed pipeline would be placed underground and construction would occur within existing roadway right-of-way. The project would not be constructed in or adjacent to any parcels under active Williamson Act contract. Once operational, facilities located at the landfill and UC Merced would require regular maintenance; however, such activities would not occur within agricultural lands. The pipeline would only require limited inspection and maintenance within the existing roadway right-of-way. Therefore, the project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and this impact would be less than significant. No mitigation measures are required.

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))?

No impact. The project site, including the pipeline alignment, is not zoned as either forest land or timberland. The project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. There would be no impact. No mitigation measures are required.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No impact. The project is not located within existing forest land. The project would not result in the loss of forest land or conversion of forest land to non-forest use, and there would be no impact. No mitigation measures are required.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Less than significant. Construction of the proposed pipeline would occur within existing roadway right-of-way and areas of prior disturbance. Temporary staging areas would be required along SR 59 and Bellevue Road during pipeline installation and may be placed on vacant lands designated as Farmland or zoned for agricultural use. However, as discussed above, staging areas would not be placed on lands under active agricultural production. In addition, potential roadway closures during pipeline installation may temporarily limit access to Farmlands located along SR 59 and Bellevue Road. Any potential impacts to Farmlands would be temporary, and all areas would be returned to pre-project conditions upon completion of construction. Equipment and facility improvements at the Highway 59 Landfill and UC Merced would not be located near Farmlands and would not present any potential impacts. The project is not located on or within the vicinity of forest land or timberland. Therefore, this impact would be less than significant. No mitigation measures are required.

3.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations.				
Are significance criteria established by the applicable air district available to rely on for significance determinations?		☒ Yes		☐ No
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

The project is located in Merced County, which is within the San Joaquin Valley Air Basin (SJVAB). The existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

CLIMATE AND TOPOGRAPHY

The SJVAB is approximately 250 miles long and averages 35 miles wide. It is bordered by the Sierra Nevada Mountains in the east, the Coast Ranges in the west, the Tehachapi Mountains in the south, and is open to the Sacramento Valley in the north. Generally, marine air flow into the basin from the San Joaquin River Delta. However, the bowl-shaped topography of the region inhibits the movement of pollutants out of the valley. The SJVAB is in a Mediterranean Climate Zone, which is characterized by hot, dry summers and sparse rainfall, occurring mainly in the winter (SJVAPCD 2015).

AMBIENT AIR QUALITY

Criteria Air Pollutants

As required by the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) has identified National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable and fine particulate matter (PM_{10} and $PM_{2.5}$, which are particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively), and lead. The State of California has also established California Ambient Air Quality Standards (CAAQS) for these six pollutants as well as sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility reducing particles. NAAQS and CAAQS were

established to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. A brief description of the source and health effects of criteria air pollutants is provided below in Table 3.3-1.

Table 3.3-1 Criteria Air Pollutants

Pollutant	Sources	Effects
Ozone	Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG), also sometimes referred to as volatile organic compounds (VOCs) by some regulating agencies) and nitrogen oxides (NO_X). The main sources of ROG and NO_X, often referred to as ozone precursors, are products of combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels.	Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.
Carbon monoxide (CO)	CO is usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicle engines; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration.	Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.
Particulate matter	Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect.	Scientific studies have suggested links between fine particulate matter and numerous health problems, including asthma, bronchitis, and acute and chronic respiratory symptoms, such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air.
Nitrogen dioxide (NO_2)	NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2.	Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility.
Sulfur dioxide (SO_2)	SO_2 is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel.	SO_2 is also a precursor to the formation of particulate matter, atmospheric sulfate, and atmospheric sulfuric acid formation that could precipitate downwind as acid rain.
Lead	Leaded gasoline, lead-based paint, smelters (metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere, with lead levels in the air decreasing substantially since leaded gasoline was eliminated in the United States.	Lead has a range of adverse neurotoxic health effects.

Source: EPA 2019a.

Attainment Area Designations

The CAA and the California Clean Air Act (CCAA) require all areas of California to be classified as attainment, non-attainment, or unclassified as to their status with regard to the NAAQS and CAAQS. Under the CAA and the CCAA, the California Air Resources Board (CARB) is to designate portions of the State based on air quality monitoring data. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are "nonattainment," "attainment," and "unclassified." "Unclassified" is used in an area that cannot be classified based on available information as meeting or not meeting the standards. As shown in Table 3.3-2, the SJVAB is designated as nonattainment for ozone and $PM_{2.5}$ with respect to the NAAQS and for ozone, PM_{10}, and $PM_{2.5}$ with respect to the CAAQS.

Table 3.3-2 Attainment Status in the SJVAB

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Nonattainment	Nonattainment
Respirable particulate matter (PM_{10})	Attainment	Nonattainment
Fine particulate matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Carbon monoxide (CO)	Attainment/Unclassified	Attainment/Unclassified
Nitrogen dioxide (NO_2)	Attainment/Unclassified	Attainment
Sulfur dioxide (SO_2)	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates		Attainment
Visibly Reducing Particles		Unclassified

Sources: SJVAPCD 2015, CARB 2017

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects (i.e., injury or illness). At the federal level, these airborne substances are referred to as Hazardous Air Pollutants. Diesel particulate matter (DPM) is a TAC, based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and heavy mechanical equipment are among the primary sources of diesel emissions.

Another notable TAC is asbestos, a fibrous mineral that is naturally occurring in ultramafic rock and used as a processed component of building materials. When rock containing asbestos is broken or crushed, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs). The project is not in a region where naturally occurring asbestos has been found (Van Gosen and Clinkenbeard 2011).

ODOROUS EMISSIONS

Landfills are considered a source of odors. As bacterial decomposition proceeds, odors can escape from the landfill surface through cracks in the surface cover. Other possible sources of odors are the actual wastes. Some household and consumer products contain substances with distinctive odors.

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or federal air quality regulations, the SJVAPCD does not currently have any rules or regulations that place quantifiable limitations on emissions of odorous substances, other than its nuisance Rule 4102. Any actions related to odors are based on citizen complaints to local governments and SJVAPCD.

LANDFILL GAS EMISSIONS

Landfill gas (LFG), consisting primarily of CH_4 and CO_2, is produced by the actions of microorganisms in the landfill under anaerobic conditions. Initially, decomposition is aerobic until the oxygen supply is exhausted. Anaerobic decomposition produces relatively high concentrations of CO_2 and CH_4. This two-stage process consists of altering

complex organic material into simple organic materials by a group of facilitative and anaerobic bacteria, commonly called "acid formers," and then the consumption of these simple organic compounds, normally organic fatty acids, by methanogenic bacteria to form CH_4 and CO_2. LFG consists of approximately 50 percent CO_2 by volume, 50 percent CH_4, and trace amounts of non-methane organic compounds (NMOCs). Other constituents of LFG can include ammonia, hydrogen sulfide, nitrogen, oxygen, and CO, along with a variety of NMOCs, some of which are VOCs. Organic air emissions from landfills may include some toxic compounds and hazardous compounds with carcinogenic and non-carcinogenic health effects.

The five major effects of LFG emissions are: (1) human health and vegetation effects from ozone produced by VOC emissions, (2) carcinogenicity and non-cancer health effects from TAC emissions, (3) global warming effects from CH_4 emissions, (4) combustion hazards, and (5) odors and nuisance.

SENSITIVE RECEPTORS

Receptors who are particularly sensitive to the health effects of air pollutants include the elderly and the young, those with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and those with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. Locations that would be considered sensitive receptors include schools, daycare facilities, elderly care establishments, medical facilities, and other areas that are populated with people considered more vulnerable to the effects of poor air quality. Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of their employees.

The western terminus of the project is located at the Highway 59 Landfill, which is surrounded by agricultural land uses. The nearest receptor is a rural residence over 0.3 mile to the south. The majority of the pipeline alignment is also located in a rural agricultural area. There are a few rural residential receptors adjacent to the pipeline alignment on Highway 59 and Bellevue Road. The eastern terminus of the project is located within the UC Merced campus. Student residential housing is located adjacent to the pipeline alignment on Scholars Lane and is roughly 0.3 mile away from the UC Merced Central Plant, which is the eastern terminus of the project.

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is responsible for air quality planning within the SJVAB. The clean air strategies of SJVAPCD include preparing plans and programs for the attainment of ambient air quality standards, adopting and enforcing rules and regulations, and issuing permits for stationary sources. SJVAPCD has prepared the *2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards*, the *2016 Ozone Plan for 2008 8-Hour Ozone Standard*, the *2013 Plan for the Revoked 1-Hour Ozone Standard*, and the *2007 PM10 Maintenance Plan and Request for Redesignation* to ensure attainment of national and State air quality standards (SJVAPCD 2007, 2013, 2016, 2018).

SJVAPCD has also prepared the *Guidance for Assessing and Mitigating Air Quality Impacts,* which provides lead agencies with uniform procedures for addressing air quality impacts and establishes recommended thresholds of significance for air quality (SJVAPCD 2015). The thresholds, presented in Table 3.3-3, apply to both construction and operational impacts, and an exceedance would indicate a potentially significant air quality impact.

Table 3.3-3 SJVAPCD Criteria Pollutant Emissions Thresholds of Significance

Pollutant/Precursor	Construction Emissions (tpy)	Operational Emissions (tpy)
Carbon monoxide (CO)	100	100
Nitrogen oxides (NO_x)	10	10
Reactive organic gases (ROG)	10	10

Table 3.3-3 SJVAPCD Criteria Pollutant Emissions Thresholds of Significance

Pollutant/Precursor	Construction Emissions (tpy)	Operational Emissions (tpy)
Sulfur oxides (SO_x)	27	27
Respirable particulate matter (PM_{10})	15	15
Fine particulate matter ($PM_{2.5}$)	15	15

Note: tpy = tons per year

Sources: SJVAPCD 2015.

As mentioned above, the SJVAPCD adopts rules and regulations. All projects are subject to SJVAPCD rules and regulations in effect at the time of construction. Specific rules applicable to the construction and operation of the proposed project may include, but are not limited to:

- SJVAPCD Rule 2010 specifies authority-to-construct (ATC), permit-to-operate (PTO), and other permitting requirements for new or modified sources. An ATC/PTO is required to be obtained from the SJVAPCD for the project.
- SJVAPCD Rule 2201 describes new source review (NSR) requirements. This rule applies to all new and modified emission sources subject to applicable Rule 2010 permitting requirements. The purpose of this rule is to provide for the review of new and modified sources and provide mechanisms, including the use of Best Available Control Technology (BACT), BACT for toxics (TBACT), and emissions offsets, by which ATCs for such new and modified sources may be granted. This rule implements the no net increase requirements of Section 40919 (a)(2) of the California Health and Safety Code.
- SJVAPCD Rule 4702 limits the emissions of criteria air pollutants from internal combustion engines in excess of 25 horsepower.

3.3.2 Discussion

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less-than-significant. The emission inventories used to develop a region's air quality attainment plans are based primarily on projected population growth and vehicle miles traveled (VMT) for the region, which are based, in part, on the planned growth identified in regional and community plans. Therefore, projects that would result in increases in population or employment growth beyond that projected in regional or community plans could result in increases in VMT above that planned in the attainment plan, further resulting in mobile source emissions that could conflict with a region's air quality planning efforts. Increases in VMT beyond that projected in area plans generally would have a significant adverse incremental effect on the region's ability to attain or maintain state and federal ambient air quality standards.

Temporary construction activities would result in slight increases in vehicle trips associated with worker commute and materials delivery. However, these additional trips would only occur during the 16-month construction period. During operation, one full-time employee may be located at UC Merced to regularly inspect and monitor the proposed facilities, which would result in an additional vehicle roundtrip over those occurring during existing maintenance and operations. This would be a minimal increase in VMT. Therefore, the project would not change the amount of development projected for Merced County and would be consistent with the population growth and VMT projections contained in regional air quality attainment plans. Impacts would be less than significant. No mitigation measures are required.

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

Less-than-significant. By its very nature, air pollution is largely a cumulative impact, and past, present, and future development projects contribute to the region's adverse air quality impacts. No single project results in substantial enough emissions to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions can contribute to cumulatively significant adverse air quality impacts. In developing thresholds of significance for air pollutants, SJVAPCD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Project-generated construction and operational emissions are discussed below.

Construction

As discussed in Section 2.5.3, "Construction Activities and Schedule," construction would involve demolition of existing pavement, grading, installation of LFG transfer and treatment facilities, installation of microturbines on concrete foundations, trenching, installation of pipeline, and repaving. These activities would involve the use of heavy-duty construction equipment that would generate short-term emissions of ROG, NO_x, PM_{10}, $PM_{2.5}$, and fugitive dust. Air pollutant emissions would also be generated by worker commute, haul truck trips, and materials delivery.

Project air pollutant emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 computer program. Modeling was based on project-specific information (e.g., number and type of equipment, and construction phase schedule) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on location. Construction air pollutant emissions are presented in Table 3.3-4 below. For detailed modeling outputs and assumptions, see Appendix A.

Table 3.3-4 Short-term Emissions of Criteria Air Pollutants

Pollutant/Precursor	Maximum Annual Project Construction Emissions (tpy)	SJVAPCD Construction Emissions Threshold (tpy)
Carbon monoxide (CO)	1.2	100
Nitrogen oxides (NO_x)	1.5	10
Reactive organic gases (ROG)	<1	10
Sulfur oxides (SO_x)	<1	27
Respirable particulate matter (PM_{10})	<1	15
Fine particulate matter ($PM_{2.5}$)	<1	15

Note: tpy = tons per year

Source: Modeling conducted by Ascent Environmental in 2019. Modeling results provided in Appendix A.

Given that project maximum annual construction emissions are below SJVAPCD thresholds of significance, project construction impacts would be less than significant.

Of note, the SJVAB is currently in non-attainment for the national and State ozone standards; therefore, any project-related emissions of ozone precursors (NO_x and ROG) in excess of SJVAPCD thresholds could exacerbate this existing adverse condition. However, given the high number of factors (e.g., typography, meteorology, emissions sources) that contribute to the formation and dispersion of ozone, it is not scientifically possible to predict the number of days in which ozone concentrations exceed the NAAQS or CAAQS with a high level of accuracy. Current models cannot determine the locations of or the specific concentrations of ozone from NOX or ROG precursors because of the complex physical factors (e.g., sun, temperature, wind) that contribute to the chemical reactions necessary to convert precursors to ground-level ozone. Nonetheless, because precursor emission levels would not exceed SJVAPCD's

significance thresholds, it is reasonably foreseeable that construction emissions would not contribute to an increase in non-attainment days.

Operation

During operation of the project, approximately 57 percent (between 2 and 4 tons) of the landfill's annual LFG would be conveyed via the pipeline to UC Merced's Central Plant, where it would be consumed via microturbines to produce electricity and heat. As a result, the need for on-site boiler usage at the UC Merced campus would be reduced, as well as the need for off-site electricity supplies. In addition, the flare at the landfill would be used less frequently. As shown in Table 3.3-5, project-related criteria pollutant emissions during operation would not exceed applicable SJVAPCD thresholds and, in many cases, would decrease compared to existing conditions with implementation of the project. The lack/decrease of emissions is attributable to the reduced usage of the landfill flare and UC Merced boiler. With selection of the option (see Table 3.3-6), criteria pollutant emissions are also anticipated to not exceed SJVAPCD thresholds, further realizing project-related reductions in NO_x, ROG, and SO_x, compared to existing conditions. Impacts would be less than significant.

Table 3.3-5 Operational Emissions of Criteria Air Pollutants

Pollutant/Precursor	Maximum Annual Project Construction Emissions (tpy)	SJVAPCD Construction Emissions Threshold (tpy)
Carbon monoxide (CO)	19.28	100
Nitrogen oxides (NO_x)	(5.85)	10
Reactive organic gases (ROG)	(30.61)	10
Sulfur oxides (SO_x)	(9.31)	27
Respirable particulate matter (PM_{10})	0.61	15
Fine particulate matter ($PM_{2.5}$)	0.61	15

Note: tpy = tons per year

Source: Modeling conducted by Cornerstone in 2019. Modeling results provided in Appendix A.

Table 3.3-6 Operational Emissions of Criteria Air Pollutants (with Option)

Pollutant/Precursor	Maximum Annual Project Construction Emissions (tpy)	SJVAPCD Construction Emissions Threshold (tpy)
Carbon monoxide (CO)	21.79	100
Nitrogen oxides (NO_x)	(6.51)	10
Reactive organic gases (ROG)	(34.32)	10
Sulfur oxides (SO_x)	(10.42)	27
Respirable particulate matter (PM_{10})	0.85	15
Fine particulate matter ($PM_{2.5}$)	0.85	15

Note: tpy = tons per year

Source: Modeling conducted by Cornerstone in 2019. Modeling results provided in Appendix A.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-significant. Construction of the project would result in the short-term generation of CO and TACs, which are discussed below.

Carbon Monoxide

The single largest source of CO is motor vehicle engines. CO concentration near roadways is a direct function of vehicle idling time and, thus, traffic flow conditions. SJVAPCD has developed a preliminary screening approach to estimate whether a project's traffic impact would cause a potential CO hotspot at any given intersection. If neither of the following criteria are met at all intersections affected by the developmental project, the project will result in no potential to create a violation of the CO standard:

- A traffic study for the project indicates that the peak-hour Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to an unacceptable LOS (typically LOS E or F); or
- A traffic study indicates that the project will substantially worsen an already existing peak-hour LOS F on one or more streets or at one or more intersections in the project vicinity.

Although there would be a temporary and periodic increase in vehicle trips related to worker commute and materials delivery, project-generated traffic is minimal and would not require a quantitative traffic study to evaluate LOS at affected intersections. The project would generate up to 38 one-way daily trips on area roadways spread out throughout the workday during the construction period and is expected to generate one additional vehicle roundtrip during the operational phase. Based on the limited number of daily construction vehicle trips proposed, the project would not result in localized CO concentrations exceeding the CAAQS or NAAQS. Therefore, CO impacts would be less than significant.

Toxic Air Contaminants

The project would result in short-term diesel exhaust emissions from mechanical equipment and haul truck trips. The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards), which is a function of the concentration of a substance and duration of exposure. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70- or 30-year exposure period. However, such assessments should be limited to the period/duration of activities that generate TAC emissions (OEHHA 2015). Construction at the terminuses would last up to 6 months, which is a short exposure period relative to the 30- or 70-year exposure timeframe recommended for health risk assessments. The nearest receptor to either terminus is 0.3 miles away. Construction of the pipeline segments would last for up to 4 months. Although some receptors are adjacent to the pipeline alignment, construction activities would progress along the alignment such that construction activities would not take place in the same location for an extended period of time. Construction activities are anticipated to progress such that construction would not be located in front of an existing residence for more than two weeks at a time. In addition, studies show that DPM is highly dispersive and that concentrations of DPM decline with distance from the source (e.g., 500 feet from a freeway, the concentration of DPM decreases by 70 percent) (Roorda-Knape et al. 1999 and Zhu et al. 2002, as cited in CARB 2005:9). Therefore, considering the lack of receptors near the terminuses, highly dispersive properties of DPM, and relatively short duration of construction activities, the construction-related TACs would not expose sensitive receptors to a substantial concentration of TACs.

Similar to the discussion of operational criteria pollutant emissions, the project would be considered beneficial with respect to potential TAC emission levels at both the UC Merced and Highway 59 Landfill termini of the project. TAC emissions would decrease at both locations (Cornerstone 2019), and as a result, operational emissions associated with the project would not expose sensitive receptors to substantial concentrations of TACs. The difference in TAC emissions with implementation of the option would be minimal. Refer to Appendix A for further clarification. Impacts would be less than significant.

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

Less-than-significant. The project would not introduce new, permanent odor-generating facilities, nor would it place receptors substantially closer to existing sources of odors. The on-site equipment, including the scrubbing/compression equipment and thermal oxidizer would reduce/eliminate odors (EPA 2019b). Minor odors from the use of onsite equipment during construction activities would be intermittent, temporary, and would dissipate rapidly from the source with an increase in distance. As a result, this impact would be less than significant.

3.4 BIOLOGICAL RESOURCES

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

3.4.1 Environmental Setting

The project area is set within a rural environment and is dominated by agricultural land. Single-family residential properties are sparsely located throughout the project area and the University of California, Merced (UC Merced) is located at the far east portion of the project area. The northwest portion of the project area is located within the Merced County Landfill, approximately four miles north from the City of Merced city limits at Yosemite Avenue. From the Merced County Landfill, the project area follows SR 59 south to Bellevue Road, and connecting to UC Merced via Lake Road and Ranchers Road. SR 59, Bellevue Road, Lake Road, and Ranchers Road are all paved, moderately trafficked roads, with typical existing roadside shoulder disturbance such as litter, imported gravel, and areas of noxious weeds within the project area. The project area is largely located along the shoulders of these paved roads; with one section proposed to be sited within the Merced County Landfill along a relatively unused gravel road (±1,960 linear feet), and a

small section (±990 linear feet) proposed to be sited along a dirt canal road bordering the northeast section of the UC Merced Campus and Le Grand Canal. These areas also show signs of mild disturbance including imported gravel and common weedy vegetation. The dominant habitat type mapped within the project area is ruderal (disturbed)/developed habitat, with nonnative annual grassland, agricultural, and a small portion of riparian habitat also occurring within the project area. Although included within the total project area, nonnative annual grassland, agricultural, and riparian habitat are largely located within private properties and are not located within the road shoulders where the pipeline alignment would be expected to be located. Since the pipeline alignment is set to be located within the existing road right-of-way, the project footprint is located in areas that are subject to regular roadside vegetation maintenance in areas that receive runoff from existing roadways. Some aquatic features, such as canals, vernal pools, and wetlands also occur within the project area. Vegetation communities within the project area are shown in Appendix C. A map of Critical Habitat designated for the vicinity of the project is shown in Figure 3.4-1.

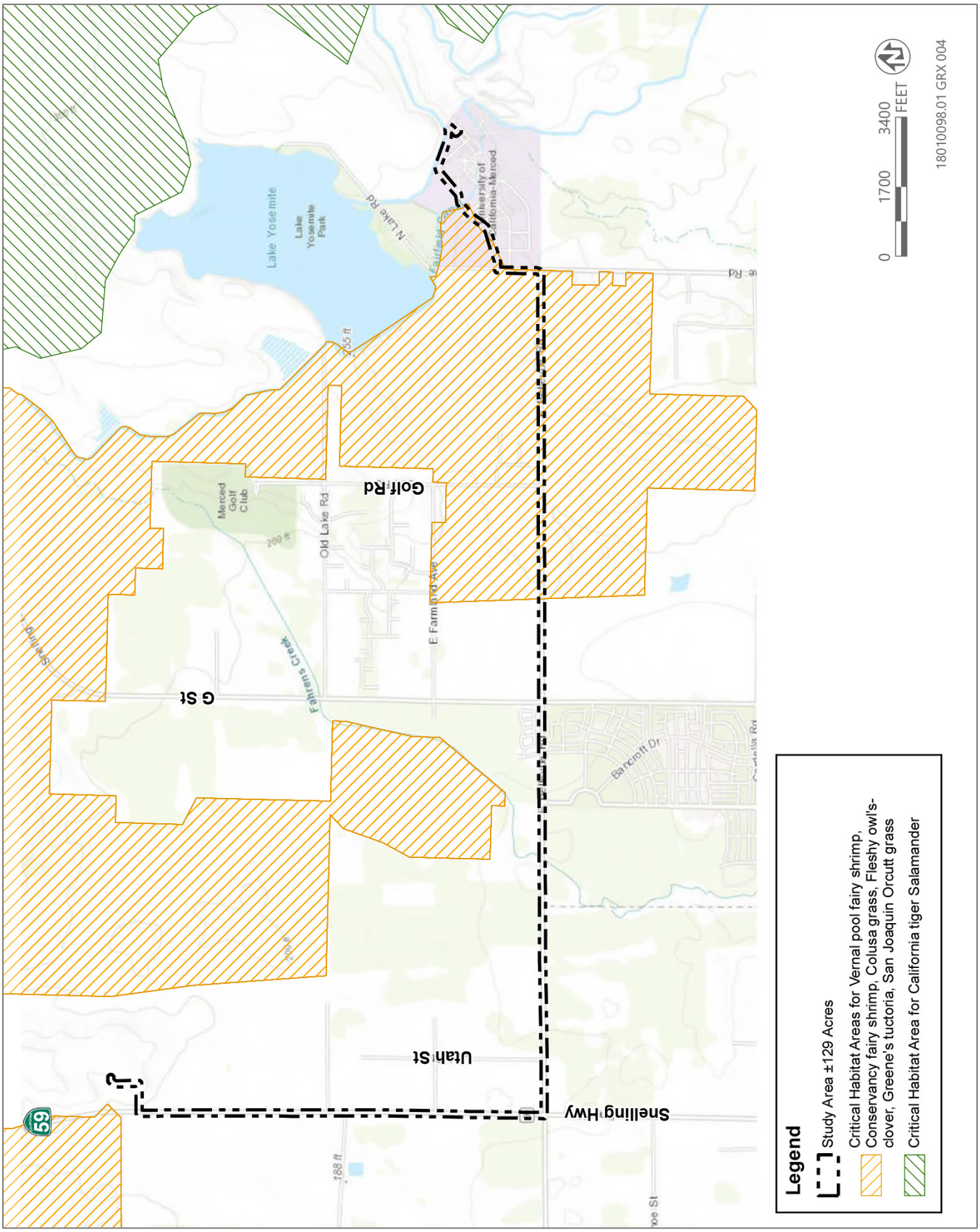
SPECIAL-STATUS SPECIES

Special-status species are plant and animal species that have been afforded special recognition by federal, State, or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Officially listed under CESA or FESA as endangered, threatened, or rare;
- A candidate for state or federal listing as endangered, threatened, or rare;
- Protected under other regulations (e.g. Migratory Bird Treaty Act);
- Included on the California Department of Fish and Wildlife (CDFW) Special Animals List;
- Plants considered by the CDFW to be "rare, threatened, or engendered in California" and identified by CDFW to have a California Rare Plant Rank (CRPR) as Rank 1 to 4, summarized as follows:
  - CRPR 1A - Plants presumed to be extinct in California;
  - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2 - Plants that are rare, threatened, or endangered in California but more common elsewhere;
  - CRPR 3 - Plants about which more information is needed (a review list); and
  - CRPR 4 - Plants of limited distribution (a watch list).

Available information regarding sensitive biological resources and special-status species known to occur in the project vicinity were reviewed. Site-specific published information was collected through a search of the following databases:

- California Department of Fish and Wildlife (CDFW). 2019. *California Natural Diversity Data Base* (CNDDB); For a 5-mile radius of the project area, and: *Merced, Atwater, Winton, and Yosemite Lake U.S*. Geological Survey (USGS) 7.5-minute series quadrangles, Merced County, CA. Accessed [January 10, 2019];
- California Native Plant Society (CNPS). 2019. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.45) For: *Merced, Atwater, Winton, and Yosemite Lake* quadrangles. Accessed [January 10, 2019];
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 1993. *Merced County, California*. USDA, NRCS, in cooperation with the Regents of the University of California (Agricultural Experiment Station);
- USDA, NRCS. 2019. *Web Soil Survey*. Available online at: http://websoilsurvey.sc.egov.usda.gov. Accessed [January 10, 2019];



Source: Image prepared and provided by Foothill Associates in 2019

Figure 3.4-1 Critical Habitat

- U.S. Fish and Wildlife Service (USFWS). 2019. *Information for Planning and Conservation* (IPaC) *Merced County Landfill Project*. Accessed [January 10, 2019]; and
- U.S. Geological Survey (USGS). 2012. *Merced, California*. 7.5-minute series topographic quadrangle. United States Department of Interior.

A list of special-status species compiled from these databases is presented in Table 3.4-1. Common and scientific names, legal status, critical habitat, and a brief description of potential to occur within the project area are included within this table.

Fifteen special-status plants have known occurrences within five miles of the project area or within the USGS quadrangles that the project occurs in (*Merced, Atwater, Winton, and Yosemite Lake*). Of these potentially occurring special-status plant species, Merced phacelia (*Phacelia ciliata* var. *opaca*), Sanford's arrowhead, and watershield (*Brasenia schreberi*) were determined to have suitable habitat within the project area and may occur within the project area. The remaining special-status plant species were eliminated from further analysis due to the lack of suitable habitat within the project area for the species in question, and specifically within the disturbed areas proposed for placement of the pipeline. The construction footprint of the project area largely occurs within road shoulders within ruderal habitat and includes existing typical roadside disturbance characteristics not suitable for special-status plants such as regular vegetation management practices.

Thirty special-status wildlife species have known occurrences within 5 miles of the project area or within the USGS quadrangles that the project occurs in (*Merced, Atwater, Winton, and Yosemite Lake*). Of these species, California tiger salamander, giant garter snake, burrowing owl, northern harrier, and Swainson's hawk were determined to have suitable habitat within the project area and may occur within the project area. The remaining special-status wildlife species were eliminated from further analysis due to the lack of suitable habitat within or directly adjacent to the project area. The project area occurs in a rural, yet moderately developed area, and includes levels of existing habitat and human disturbances. The construction footprint of the project area does not occur within vernal pools, nonnative annual grassland, or riparian habitat where most of these species would typically occur. See Table 3.4-1 for species specific habitat requirements and occurrence analysis.

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
Plants				
Beaked clarkia *Clarkia rostrata*	--; --; --; 1B	Annual herb that occurs in foothill woodland and grassland habitats. Commonly occurs on slopes.	N/A	**None**; the project area is not located within foothill woodland habitat and suitable grassland habitat is absent. Grassland habitat present within the project area is largely used for grazing and no slopes are present.
Colusa grass *Neostapfia colusana*	FT; CE; --; 1B	Annual grass that occurs in vernal pools. Typically, within foothill grassland and wetland habitats.	Yes	**Low;** small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under aquatic features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur within the construction footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants. Six CNDDB occurrences are documented within 5 miles of the project area (CDFW 2019).
Dwarf downingia *Downingia pusilla*	--; --; --; 2B	Annual herb that occurs in vernal pools. Typically, within foothill woodland, grassland, or wetland habitats.	N/A	**Low;** small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur within the construction footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants. Two CNDDB occurrences are documented within 5 miles of the project area (CDFW 2019).
Greene's tuctoria *Tuctoria greenei*	FE; --; --;1B	Annual grass that occurs in vernal pools. Typically, within grassland and wetland habitats.	Yes	**Low;** small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
				to be traversed or directly impacted by the project. Vernal pools that occur within the construction footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants.
Hairy Orcutt grass *Orcuttia pilosa*	FE; CE; --; 1B	Annual grass that occurs in vernal pools. Typically, within grassland and wetland habitats.	No	Low; small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools **that** occur within the construction footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants. One CNDDB occurrence is documented within 5 miles of the project area (CDFW 2019).
Henderson's bent grass *Agrostis hendersonii*	--; --; --; 3.2	Annual grass that occurs in vernal pools. Typically, within grassland and wetland habitats.	N/A	None; small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur within the construction footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants. One CNDDB occurrence is documented within 5 miles of the project area (CDFW 2019).
Keck's checkerbloom *Sidalcea keckii*	FE; --; --; 1B	Annual herb that occurs in valley grassland or foothill woodland habitats. Highly associated with serpentine. May occur in clay soils derived from serpentine.	No	None; Although grassland is present in portions of the project area, serpentine soil types area absent. One CNDDB occurrence is documented within 5 miles of the project area (CDFW 2019).

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
Merced phacelia *Phacelia ciliata* var. *opaca*	--; --; --; 3.2	Annual herb that occurs in valley and foothill grasslands. Typically, within clay soil types, sometimes within alkaline.	N/A	**Low**; minimally suitable habitat is present within the project area. Alkaline soil is absent from the project area but small portions of clay and clay-loam soil types are present. While the majority of grassland habitat is located within private property not anticipated to be directly impacted, grassland **habitat** is present within the landfill portion of the pipeline alignment. However, the soil type mapped within this grassland area is not of clay origin. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	FT; CE; --; 1B	Annual grass that occurs within vernal pools. Typically, within grassland and wetland habitats.	**Yes**	**Low**; small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur within the **construction** footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants. Three CNDDB occurrences are documented within five miles of the project area (CDFW 2019).
Sandford's arrowhead *Sagittaria sanfordii*	--; --; --; 1B	Perennial, rhizomatous herb that occurs in freshwater wetlands.	N/A	**Low**; minimally suitable habitat is present in the project area within the wetlands along State Route 59. The wetlands are located within the road shoulder **and** show evidence of disturbance that may not be suitable to support this species. Three CNDDB occurrences are documented within five miles of the project area (CDFW 2019).
Shining navarretia *Navarretia nigelliformis* ssp. *radians*	--; --; --; 1B	Annual herb that occurs within vernal pools. Typically, within grassland, foothill woodland, or wetland habitats.	N/A	**Low**; small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
				within the **construction** footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants. Fifteen CNDDB occurrences are documented within five miles of the project area (CDFW 2019).
Spiny-sepaled button-celery *Eryngium spinosepalum*	--; --; --; 1B	Annual or perennial herb that occurs within vernal pools. Typically, within grassland or wetland habitats.	N/A	**Low**; small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to **further** reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur within the construction footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants. Four CNDDB occurrences are documented within five miles of the project area (CDFW 2019).
Fleshy owl's clover *Castilleja campestris* var. *succulenta*	FT; CE; --; 1B	Annual herb that occurs within vernal pools. Typically, within grassland, foothill woodland, or wetland habitats.	**Yes**	**Low**; small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the **project** Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur within the construction footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants. Fifteen CNDDB occurrences are documented within five miles of the project area (CDFW 2019).
Vernal pool small scale *Atriplex persistens*	--; --; --; 1B	Annual herb that occurs in vernal pools. Especially within alkaline areas.	N/A	**Low**; Alkaline habitat is not present within the project area. Small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
				remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur within the construction footprint may also be previously disturbed based on the location within the road shoulder and may not be suitable to support special-status plants.
Watershield *Brasenia schreberi*	--; --; --; 2B	Perennial species that occurs in lacustrine or riverine habitat. Typically grows in sunny areas within sandy, loamy or clay soils.	N/A	High; suitable habitat is present within the project area within Fahrens Creek. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Invertebrates				
California linderiella *Linderiella occidentalis*	--; --; --; CSA	Occurs in a variety of vernal pool types and often found within deeper pools. Known within Shasta, Tehama, Butte, Yuba, Placer, Sacramento, El Dorado, Solano, San Joaquin, Contra Costa, Alameda, Stanislaus, Merced, Madera, Fresno, Monterey, Marin, Sonoma, San Benito, San Luis Obispo, Santa Barbara, and Ventura Counties.	N/A	Low; small portions of shallow vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to **further** reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Twelve CNDDB occurrences are documented within five miles of the Study Area (CDFW 2019).
Conservancy fairy shrimp *Branchinecta conservatio*	FE; --; --; --	Inhabits large, cool vernal pools with moderately turbid water. Known within Butte, Tehama, Glenn, Yolo, Solano, Stanislaus, Merced, and Ventura Counties. Has been documented within the Grasslands Ecological Area within Merced County.	Yes	Low; small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting **directional** drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Vernal pools that occur within the construction footprint are also relatively small and did not contain turbid water at the time of the field survey. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Midvalley fairy shrimp *Branchinecta mesovallensis*	--; --; --; CSA	Inhabits small vernal pools and grassy swales. Known within the Southeastern Sacramento, Southern Sierra Foothill, San Joaquin, and Solano-Colusa Vernal Pool	N/A	Low; no grassy swales are present within the construction footprint and the small portions of vernal pools that occur within the road shoulder and within the construction footprint are anticipated to be avoided by

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
		Regions. Has been documented within the Virginia Smith Trust property within Merced County.		conducting directional drilling under features. Avoidance and minimization measures to **further** reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Twenty-three CNDDB occurrences are documented within five miles of the Study Area (CDFW 2019).
Molestan blister beetle *Lytta molesta*	--; --; --; CSA	Adults are often found on flowers, especially on *Lupinus*, and vegetation within dried vernal pools. Typically absent in areas with non-vernal pool vegetation.	N/A	Low; small portions of vernal pools occur within the road shoulder and within the construction footprint but are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. No *Lupinus* vegetation was observed within the project area at the time of the field survey. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT; --; --; --	Sole hosts are elderberry (*Sambucus* sp.) shrubs usually associated with riparian areas. Plants with a 1-inch or greater diameter are required for breeding. This species occurs within portions of the Central Valley of California often near riverine or aquatic resources.	No	None; no elderberry shrubs were identified within the project area during the January 11, March 5, or March 6, 2019 field surveys. The project area does not provide suitable habitat for this species and is outside of the designated critical habitat area.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT; --; --; --	Inhabits vernal pools, swales, and ephemeral freshwater habitats. Known within Alameda, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Kings, Madera, Merced, Monterey, Napa, Placer, Riverside, Sacramento, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Ventura, Yolo, and Yuba counties.	Yes	Low; No swales or ephemeral systems occur within the project area and the small portions of vernal pools that occur within the road shoulder and within the construction footprint are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be implemented. The remaining vernal pools are located within a portion of the project **Study** Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Twenty-three CNDDB occurrences are documented within five miles of the Study Area (CDFW 2019).

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
Vernal pool tadpole shrimp *Lepidurus packardi*	FE; --; --; --	Inhabits vernal pools, swales, and ephemeral freshwater habitats. Known within Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Kings, Merced, Placer, Fresno, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties.	No	Low; No swales or ephemeral systems occur within the project area and the small portions of vernal pools that occur within the road shoulder and within the construction footprint are anticipated to be avoided by conducting directional drilling under features. Avoidance and minimization measures to further reduce potential impacts are also expected to be **implemented**. The remaining vernal pools are located within a portion of the project Study Area that is within private property and is not anticipated to be traversed or directly impacted by the project. Two CNDDB occurrences are documented within five miles of the Study Area (CDFW 2019).
Fish				
Hardhead *Mylopharodon conocephalus*	--; --; CSC; --	Typically occur in low to mid-elevation clear, cool streams in relatively undisturbed habitats. Occur in larger streams, rivers, and river tributaries. Sand, gravel, or boulder substrates are required.	N/A	None; the project area does not provide suitable habitat for this species. The aquatic features within the project area are highly altered and sand, gravel, or boulder substrates are absent.
Central Valley steelhead DPS Oncorhynchus mykiss irideus	FT; --; --; --	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample riparian vegetation cover or overhanging banks. Spawning occurs in streams with pool and riffle complexes. The species requires cold water and gravelly streambed to successfully breed. Spawn in the Fresno and San Joaquin rivers and tributaries before migrating to the Delta bays.	No	None; the project area does not provide suitable habitat for this species. Aquatic features within the project area are not clear, and do not contain gravely substrate or riffle complexes. Two CNDDB occurrences are documented within five miles of the Study Area (CDFW 2019).
Delta smelt *Hypomesus transpacificus*	FT; CE; --; --	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	No	None; the project area does not provide suitable habitat for this species and is outside of the designated critical habitat area.
Amphibians and Reptiles				
Blunt-nosed leopard lizard *Gambelia silus*	FE; CE; CFP; --	Prefers areas with flat open space, typically within semiarid grasslands, alkali flats and washes. Large shrubs and mammal burrows and dens are used for refugia habitat.	No	None; the project area does not provide suitable habitat for this species. Semiarid grassland and alkali soil types are absent from the project area. Large shrubs and other shade providing vegetation is also absent from the project area.

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
California red-legged frog *Rana draytonii*	FT; CSC; --; --	Aquatic habitat typically includes slow-moving streams, ponds, or marsh communities with emergent vegetation. Small standing pools (less than 3 feet deep) are typically used for breeding. Nearby upland habitat with downed debris for refuge is also required. Typically found in or within 300 feet of aquatic habitat but may disperse up to two miles away from aquatic habitats. Elevational range extends from sea level to about 5,000 ft., but typically occur below 3,935 ft.	No	None; the project area does not provide suitable habitat for this species and is outside of the designated critical habitat area. Aquatic features within the project area are not slow-moving and no suitable breeding pools were observed. Downed debris suitable for refugia habitat is also lacking from the project area.
California tiger salamander *Ambystoma californiense*	FT; CT; --; --	Requires both aquatic breeding habitat such as vernal pools, temporary ponds, stock ponds, or wetlands, and adjacent upland habitat with small mammal burrows present for refuge. Typically aestivates throughout summer. This species is known to occur within the Central Valley, Santa Barbara, and Sonoma counties.	No	High; the project area contains suitable habitat for this species. Upland and aquatic breeding habitat occurs within private property along Bellevue Road. Portions of suitable habitat occur within the project area although project construction is not anticipated to occur or directly impact features within the **private** property. The project area and construction footprint are within dispersal distance to/from suitable habitat and potentially suitable burrows may occur within or adjacent to the project area. Fourteen CNDDB occurrences are documented within five miles of the Study Area (CDFW 2019).
Giant garter snake *Thamnophis gigas*	FT; CT; --; --	Occurs in aquatic habitats with abundant prey, open, sunny areas for basking, and vegetation cover along banks. Typically occurs in agricultural wetlands, canals, and sloughs; especially rice fields. Upland habitat with small mammal burrows present above flood level is also required for this species. Known in Sacramento, Sutter, Butte, Colusa, Merced and Glenn counties.	No	Low; the project area provides minimally suitable habitat for this species. Although a riverine feature, Fahrens Creek contains areas of abundant vegetation cover and sunny areas suitable for basking; especially in the southern **portion** of the project area. Fairfield canal also contains abundant vegetation cover and some open banks suitable for basking but the water level may not be suitable to support a giant garter snake population year-round. A small giant garter snake population is known within Merced County but no known occurrences are within the project area. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Western pond turtle *Emys marmorata*	--; CSC; --; --	Occurs in a variety of aquatic habitats such as ponds, creeks, ditches, lakes, and marshes. Prefers areas with abundant vegetation and rocky or muddy substrate. Exposed banks or other basking areas such as logs or cattail mats are required. Upland	N/A	None; the project area does not contain suitable habitat for this species. Although aquatic systems are present within the project area, some or all required **habitat** features such as basking areas, abundant vegetation, and preferred substrate are lacking. Many aquatic features are lined with concrete, lacking rocky substrate, and lack basking areas.

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
		habitat typically occurs within woodland, forest, or grasslands, within the vicinity of aquatic habitat.		One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Birds				
Bald eagle *Haliaeetus leucocephalus*	FD; CE; CFP; --	Nesting habitat typically occurs within 2.5 miles of aquatic habitat such as lakes, reservoirs, rivers, bays, and coastal areas. Nests are often built in tall trees or on pinnacles or cliffs near water.	N/A	None; the project area does not contain suitable habitat for this species. Although **within** suitable distance from aquatic habitat, nesting is not likely to occur within the project area based on the absence of large trees. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Burrowing owl *Athene cunicularia*	--; CSC; --; --	Occur in a variety of open habitats, typically grasslands, vegetated desert scrub, fallow fields, washes, and human disturbed lands such as golf courses and vacant lots. Small mammal burrows, perch sites and friable soil are necessary for this species. May utilize culverts, abandoned pipelines, and other manmade structures for nesting.	N/A	High; the project area contains suitable habitat for this species. May inhabit grassland or agriculture habitat within the project area. Suitable burrows were not observed during the January 11, 2019, March 5, and March 6, 2019 field surveys but abandoned pipes and culverts were observed within the project area that may be suitable nesting sites. Due to the proximity of the construction footprint to existing roads, nesting is unlikely to occur within the construction footprint. Three CNDDB occurrences are documented within five miles of the Study Area (CDFW 2019).
Ferruginous hawk *Buteo regalis*	--; --; CSA; --	Uncommon winter resident and migrant of California. No records of breeding within California. Forages in large open areas such as grasslands, sagebrush flats, low foothills and valleys, and desert scrub.	N/A	None; the project area does not provide suitable habitat for this species. Although open areas of grassland occur within the project area, the proximity to **existing** roads and disturbances likely limits the potential for this species to occur. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Merlin *Falco columbarius*	--; --; CSA; --	Uncommon California migrant from September-May. Does not breed in California. Typically forages in open grasslands, woodlands, coastlines, and wetlands.	N/A	None; the project area does not provide suitable habitat for this species. Although open areas of grassland occur within the project area, the proximity to existing roads and disturbances likely limits the potential for this species to occur.
Mountain plover *Charadrius montanus*	--; CSC; --; --	Uncommon winter resident of California. Does not breed in California. Suitable winter habitat includes open areas with short grasses, sagebrush, or plowed fields.	N/A	None; the project area does not provide suitable habitat for this species. Although suitable winter habitat occurs in portions of the project area, the proximity to existing roads and disturbances likely limits the potential for this species to occur.

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
				One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Northern harrier *Circus hudsonius*	--; CSC; --; --	Occur in large tracts of undisturbed wetland and grassland habitats with low, dense vegetation. May also occur in agricultural or riparian corridor habitats. Typically nest in upland vegetation near wetland or marsh habitats and place nest on the ground in dense vegetated areas.	N/A	**Low**; the project area contains minimally suitable habitat for this species. Portions of grassland, agricultural, and riparian habitat that occurs within the project area is adjacent to roads and other disturbances and therefore nesting within the project area is unlikely. Suitable grassland nesting habitat does however occur adjacent to the project area.
Swainson's hawk *Buteo swainsoni*	--; CT; --; --	Found in a variety of habitats including grasslands, agricultural areas, and open woodlands. Often nests peripherally to riparian systems or other aquatic habitats; nests in lone trees or groves of trees in agricultural fields, residential trees, or road break trees when aquatic habitat is absent. Prefers nest sites adjacent to open areas suitable for foraging. Trees greater than 30 feet in height are generally used for nesting.	N/A	**High**; the project area contains suitable habitat for this species. Open grasslands and agricultural areas are present for foraging, and roadside trees are **present** that could be suitable for nesting. Other trees outside but adjacent to the project area may also provide suitable nesting habitat. Two CNDDB occurrence are documented within five miles of the project area (CDFW 2019).
Tricolored blackbird *Agelaius tricolor*	--; SCE; --; --	Nest colonies occur in areas with open accessible water, protected nesting substrate such as flooded areas, dense or thorny vegetation, and a suitable foraging site within a few miles from the nesting area. Typically occurs in dense marshes or agricultural land.	N/A	**None**; the project area does not provide suitable habitat for this species. Nesting habitat requirements are absent from the project area. May forage in grassland habitat outside but adjacent to the project area. Six CNDDB occurrence are documented within five miles of the project area (CDFW 2019).
Mammals				
Hoary bat *Lasiurus cinereus*	--; --; CSA; --	Occur in a variety of habitats. Typically roost in dense tree foliage and often along forest edges. Not attracted to manmade structures and sensitive to disturbance at roosts.	N/A	**None**; the project area does not contain suitable habitat for this species. Trees are largely absent from the project area and only occur within residential properties. The proximity to existing roads and other disturbances further limits the potential for occurrence.
Merced kangaroo rat *Dipodomys heermanni dixoni*	--; --; CSA; --	Prefers sandy or gravelly soils generally within dry grassland habitats. Also occurs in open or sloped sparse chaparral habitats.	N/A	**None**; the project area does not contain suitable habitat for this species. Sandy soil is absent from the project area and gravelly areas only occur within road shoulders **that** would not be suitable for this species. Chaparral is absent from the project area. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).

Table 3.4-1 Special-Status Species with Potential to Occur on the Project Site

Special-Status Species	Regulatory Status	Habitat Requirements	Critical Habitat within Study Area	Potential for Occurrence
Pallid bat *Antrozous pallidus*	--; CSC; --; --	Occur in a variety of habitats, especially open arid regions with rocky outcroppings. Often uses rocky crevices, caves, bridges, attics, and tree foliage for roosting. Very sensitive to disturbance at roost sites.	N/A	**None**; the project area does not contain suitable habitat for this species. The proximity to existing roads and other disturbances further limits the potential for occurrence.
San Joaquin kit fox *Vulpes macrotis mutica*	FE; CT; --; --	This species is known to occur from central Contra Costa County, south through Kern County, and into the northeast edge of Santa Barbara County. Loose, deep soil types are typically used and this species is generally found within scrub, valley sink scrub, grassland, and sometimes agricultural habitats. In soil types where dens cannot be constructed, the San Joaquin kit fox may utilize culverts, abandoned pipelines, or other manmade structures for den sites.	No	**None**; the project area does not contain suitable habitat for this species. Loose, deep soil is absent from the project area and because of the close proximity to roads and other developments, denning is unlikely to occur within the **project** area. No dens or sign of San Joaquin kit fox was observed during field surveys on January 11, 2019, March 5, and March 6, 2019. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
San Joaquin pocket mouse *Perognathus inornatus*	--; --; CSA; --	Occur in open grassland, savanna, desert, and semi-desert habitats. Prefers areas with sandy washes and fine soil, and are most abundant in uncultivated areas.	N/A	**None**; the project area does not contain suitable habitat for this species. The proximity to existing roads and other disturbances further limits the potential for occurrence.
Western mastiff bat *Eumops perotis californicus*	--; CSC; --; --	Occur in open habitats typically containing rocky outcrops. Primarily roosts in rocky crevices and requires a vertical drop of at least 10 ft from the entrance for flight. May also roost in cracks of buildings.	N/A	**None**; the project area does not contain suitable habitat for this species. Rocky **outcrops** and suitable buildings for roosting are absent from the project area. One CNDDB occurrence is documented within five miles of the project area (CDFW 2019).
Western red bat *Lasiurus blossevillii*	--; CSC; --; --	Occur in a variety of habitats and typically roost within forest and woodland habitats. Not known to occur in desert areas. Primarily roosts in tree foliage often in edge habitats.	N/A	**None**; the project area does not contain suitable habitat for this species. The proximity to existing roads and other disturbances further limits the potential for occurrence.
Yuma myotis *Myotis yumanensis*	--; CSC; --; --	Occur in a variety of throughout western North America. Typically roosts in tree cavities, buildings, bridges, mines or caves. Forages over water in forested areas.	N/A	**None**; the project area does not contain suitable habitat for this species. The proximity to existing roads and other disturbances further limits the potential for occurrence.

3.4.2 Discussion

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

Less than significant with mitigation incorporated. No species identified as a candidate, sensitive, or special-status by local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS) were observed during the reconnaissance-level field surveys conducted on January 11, 2019, March 5, 2019, and March 6, 2019. The following special-status plant and wildlife species could potentially occur within the project construction footprint:

SPECIAL-STATUS PLANTS

Special-status plants with known occurrences in the vicinity of the project area and with potential to occur within the project area based on vegetation communities within the project area include Merced phacelia, Sanford's arrowhead, and watershield. Merced phacelia may occur within the nonnative annual grassland habitat, Sandford's arrowhead may occur within the depressional seasonal wetlands, and watershield may occur within the riparian habitat of Fahrens Creek. Special-status plants that may occur within the nonnative annual grassland are anticipated to largely be avoided construction activities. The majority of the nonnative annual grassland within the project area is located within private properties and behind a fence line that is not anticipated to be traversed by the project during construction. A portion of nonnative annual grassland occurs within the Merced County Landfill directly adjacent to the gravel road that is proposed for construction. The remaining portion of nonnative annual grassland within the project area is directly adjacent to road shoulders and ruderal habitat, and is disturbed, likely treated by California Department of Transportation (Caltrans) for weed control, or of otherwise low quality not suitable for special-status plants. Special-status plants that may occur within the depressional seasonal wetlands or riparian habitat are anticipated to be avoided by implementing project construction methods, such as directional drilling under features, to avoid impacting aquatic features during pipeline construction. If special-status plant species are present within the construction footprint of the pipeline, plant individuals could be subject to direct or indirect removal, soil compaction, or crushing by construction equipment or personnel. This impact is considered potentially significant.

Mitigation Measure 3.4-1a: Conduct Preconstruction Special-Status Plant Surveys and Implement Avoidance/Minimization Measures, if Necessary

MCRWMA or its contractor shall conduct a protocol-level pre-construction survey completed by a qualified botanist to determine the presence of any potentially-occurring special-status plants within the project area. The pre-construction survey shall take place within the appropriate identification period (blooming period) for all potentially occurring special-status plant species. If no special-status plant species are found, the findings shall be documented in a letter report, and no further mitigation for special-status plants would be necessary.

If special-status plant species are found, the location of the special-status plants shall be marked with pin flags or other highly visible markers and may also be marked by GPS. The project proponent shall determine if special-status plant populations can be avoided by project design or utilize construction techniques, such as directional drilling, to avoid impacts to special-status plant species. All special-status plants to be avoided within the project area shall have exclusion fencing marking the avoidance area throughout the entire construction period. Prior to commencement of work activities, a designated botanist/biologist shall provide a worker environmental awareness training for all project-related personnel. The training shall include information on identifying special-status plant species, their ecology and habitat requirements, the project boundaries, and the avoidance and minimization measures to be followed to avoid documented populations of special-status plant species within the project footprint.

If special-status plants are found within the project area and cannot be avoided, the project proponent shall consult with the California Department of Fish and Wildlife (CDFW) and/or the U.S. Fish and Wildlife Service (USFWS) as appropriate, and depending on the status of the plant species in question to determine appropriate measures to mitigate for the loss of special-status plant populations within the footprint. These measures may include gathering seed from impacted populations for planting within the pipeline right-of way after construction, preserving or enhancing existing offsite populations of the plant species affected by the project, or restoring suitable habitat for special-status plant species habitat as directed by the regulatory agencies.

SPECIAL-STATUS INVERTEBRATES

Special-status invertebrates with known occurrences in the vicinity of the project area include vernal pool fairy shrimp (*Branchinecta lynchi*), midvalley fairy shrimp (*Branchinecta mesovallensis*), California linderiella (*Linderiella occidentalis*), Conservancy fairy shrimp (*Branchinecta conservation*), vernal pool tadpole shrimp (*Lepidurus packardi*), and molestan blister beetle (*Lytta molesta*). Potentially suitable habitat for these species includes vernal pools and vernal pool vegetation for the molestan blister beetle. The molestan blister beetle has also been collected on *Lupinus* flowers but has largely been absent in areas with non-vernal pool vegetation (Holstein 1980, Halstead, and Haines 1992). The majority of vernal pools present within the project area occur outside of the construction footprint and within private property that is not anticipated to be impacted by the project. However, small portions of vernal pools do occur within the road shoulder and within the construction footprint.

If these species were present within the vernal pool habitat within the construction footprint, pipeline construction could potentially result in the loss of suitable habitat or individuals during construction. However, directional drilling is proposed to avoid directly impacting mapped aquatic features including vernal pools. In addition, all impacts to the construction footprint are expected to be temporary in nature and no permanent change in the contour of the land is expected to occur that could potentially affect the hydrology of aquatic features within or adjacent to the construction footprint.

Despite these construction measures, the vernal pools within the construction footprint and adjacent pools may be inadvertently impacted during construction due to unintended expansion of the footprint or inadvertent placement of equipment or vehicles within avoided aquatic features. Silt or equipment fluids could also unintentionally enter adjacent aquatic features that were meant to be avoided. As a result, special-status invertebrates that may inhabit vernal pools may also be unintentionally impacted. These unintentional impacts are considered to be potentially significant.

Mitigation Measure 3.4-1b: Vernal Pool Avoidance

1. Standard silt fencing shall be installed in areas where vernal pools occur within and adjacent to the project area (portions of Bellevue Road). The purpose of the silt fencing will be to limit any potential silt, debris, or other material from entering the areas where vernal pools occur and to mark the points where directional drilling will be required for vernal pool and other wetland avoidance. Fencing shall be installed in the following manner:

    I. Fencing shall be installed in areas designated by a biologist or other approved individual, and shall be installed on the road side of the existing barbed wire fence to cover the entire vernal pool area(s). Fencing shall continue for at least 20 feet beyond the designated vernal pool area(s).

    II. Fencing shall be trenched into the soil at least four (4) inches and the soils must be carefully compacted against both sides of the fence for its entire length to prevent animals, silt, and other debris from passing under the fence.

    III. Fences shall be inspected at least twice weekly on non-consecutive days AND after any significant rain event (defined as any event that produces 0.5 inches or more precipitation within a 48-hour period). Repairs to the fencing must be made within 24 hours of the inspection that first noted a fencing breach, such as a broken stake, hole in the fencing material, material pulled away from a stake, and objects, rain, wind or sediment that cause fences to sag which would allow the animals to overtop the fence.

    IV. Fencing shall be maintained until all construction activities have been completed in the area.

2. A worker awareness training session shall describe the location and extent of vernal pools within the construction area and the special-status invertebrates that may inhabit them.
3. A frac-out plan shall be prepared and approved by Merced County prior to any directional drilling to be implemented to avoid vernal pool features.
4. No vehicles, heavy equipment, or other machinery shall be fueled within 250 feet of mapped vernal pool features. Spill prevention and containment materials shall be available onsite during construction activities that occur within 250 feet of avoided wetland features.
5. Upon project completion, the fencing shall be completely removed, the area cleaned of all debris and trash, and returned to natural/pre-project conditions.

SPECIAL-STATUS AMPHIBIANS

Special-status amphibians with known occurrences in the vicinity of the project area and with potential to occur within the project area include California tiger salamander (*Ambystoma californiense*) and western spadefoot (*Spea hammondii*). Potentially suitable upland habitat for these two species exists within the nonnative annual grassland present in the project area. Potentially suitable aquatic habitat for both species is present within vernal pools that are outside, but immediately adjacent to the project area and within typical species dispersal distance to/from the project area. Potentially suitable burrows that serve as refugia for both species were observed within and adjacent to the project area along Bellevue Road, Lake Road, and Ranchers Road. While the project area contains potentially suitable upland and refugia habitat for these species, the project is not expected to impact any potentially suitable breeding habitat for California tiger salamander or western spadefoot by avoiding impacts to aquatic features through project construction techniques (directional drilling).

Pipeline construction could potentially impact these amphibian species if they were utilizing upland refugia habitat during project construction. Pipeline construction could temporarily result in removal of upland refugia habitat, and direct mortality or injury could occur for individuals present within the construction footprint or within burrows in the construction footprint. This impact is considered potentially significant.

Mitigation Measure 3.4-1c: California Tiger Salamander Surveys and Implement Avoidance/Minimization Measures, if Necessary, During Construction

1. MCRWMA or its contractor shall conduct a pre-construction survey completed by a qualified biologist to determine and mark potentially suitable burrows (typically small mammal burrows such as California ground squirrel [*Otospermophilus beecheyi*] or Botta's pocket gopher [*Thomomys bottae*]) for use by California tiger salamander within the project disturbance area. The burrows shall be marked with a pin flag and may also be marked by using a hand-held Global Positioning System (GPS) unit with sub-meter accuracy. All burrows marked shall be avoided to the greatest extent possible and shall remain marked throughout the entire construction period of the area. CDFW typically requires an avoidance buffer of 50 feet for suitable burrows. Contractors shall be made aware of burrow locations to avoid during construction and burrow locations shall be marked on all project plans.

   If potentially suitable burrows are located within the construction zone that cannot be avoided by construction, excavation of burrows shall be conducted as follows:

   I. All excavations shall be conducted between April 1 and September 30 (during the non-breeding season for California tiger salamander). Excavation will be done with hand tools by a qualified biologist that has been approved by both USFWS and CDFW for this project to handle California tiger salamanders to determine if California tiger salamander are present within the burrow.

   II. Burrow excavation shall occur by slowly removing the burrow (including any side tunnels) using hand tools (e.g., shovel, digging bar, garden trowel, masonry trowel, etc.). If hand tools cannot be used safely due to soil compaction and/or extreme burrow depth, burrows may be excavated using mechanical methods. Mechanical

methods will include either hand power tools or a backhoe and/or hand tools (e.g., shovel, garden trowel, masonry trowel, etc.).

III. All burrows (including side burrows) will be excavated to the endpoints and the excavation will then be backfilled.

2. If construction is expected to occur during the active period for California tiger salamander (November through March), amphibian exclusion fencing shall be installed prior to the initiation of construction within all construction areas adjacent to potential California tiger salamander breeding habitat. This fencing shall be installed continually along the northeast project boundary of Ranchers Road, the east project boundary of Lake Road, and the entire project boundary of Bellevue Road until the intersection of G Street (Mitigation Measure BIO-1B Vernal Pool Avoidance may also serve as fencing). The purpose of the fencing is to prevent amphibians, including California tiger salamander, from accessing the construction zone. Amphibian exclusion fencing shall be composed of standard silt fencing that is installed in the following manner:

   I. Fencing shall be trenched into the soil at least four (4) inches and the soils must be carefully compacted against both sides of the fence for its entire length to prevent animals from passing under the fence.

   II. Fencing shall be installed with turn-arounds at each end and at any access openings or other openings (such as over aquatic features) in order to redirect animals away from openings and entering the construction zone.

   III. Fences shall be inspected at least twice weekly on non-consecutive days AND after any significant rain event (defined as any event that produces 0.5 inches or more precipitation within a 48-hour period). Repairs to the fencing must be made within 24 hours of any noted fencing breach, such as a broken stake, hole in the fencing material, material pulled away from a stake, and objects, rain, wind or sediment that cause fences to sag which would allow animals to overtop the fence.

   IV. Fencing shall be maintained throughout the entire active period for California tiger salamander (November through March) or until all construction activities have been completed in the area, whichever occurs first. If the project continues into multiple seasons, fencing must be maintained during the animal's active season until project completion in the fenced area.

   V. Upon project completion, the fencing shall be completely removed, the area cleaned of all debris and trash, and returned to natural/pre-project conditions.

3. If California tiger salamander are observed within the project area, specifically within the construction zone, all work shall immediately halt in the vicinity of the animal and the animal will be allowed to leave the area on its own will. If the animal is in immediate danger, a USFWS- and CDFW- approved biologist will relocate the animal outside of the construction zone, at a safe distance from all construction related activities, and within suitable habitat. No one other than an approved biologist shall handle, take, or otherwise harass the animal. No work shall resume until the animal has moved or been removed from areas of potential disturbance.

4. Any soil stockpile areas shall be covered at the end of each work day to discourage habitation by wildlife, and inspected in the morning for burrows and listed species prior to disturbance.

5. Any open trench, excavation, or other significant hole (>6 inches) shall have a wildlife escape ramp suitable for California tiger salamander and other wildlife species to exit the hole if trapped; or shall be completely covered at the end of each work day to prevent wildlife entrapment.

6. All stored pipes, culverts, or similar material stored overnight shall be inspected for animals before being moved, buried, or capped.

7. Best Management Practices (BMPs) shall be implemented during construction to prevent any construction debris or sediment from impacting adjacent habitat for California tiger salamander.

8. Movement of all vehicles and heavy equipment shall be confined to the project area, existing roadways, and existing parking spaces/pullouts to minimize habitat disturbance.

9. Nighttime construction shall be avoided to the greatest extent practicable. If necessary, night lighting will be shielded, downward-directed, and illuminate only the work area.
10. Hazardous materials such as fuels, oils, solvents, etc., shall be stored in sealable containers in a designated location that is at least 200 feet from aquatic habitats. All fueling and maintenance of vehicles and other equipment, and staging areas will occur at least 200 feet from any aquatic habitat.
11. All food-related trash items such as wrappers, cans, bottles, bags, and food scraps shall be disposed of in covered containers and removed at least once daily from the project site.
12. Prior to commencement of work activities, a designated biologist shall provide a worker environmental awareness training for all project related personnel. Training will also be required of new or additional personnel before they are allowed to access the project site. At a minimum, training will include information on identifying special-status species, their ecology and habitat requirements, the project boundaries, and the avoidance and minimization measures to be followed.
13. For any within the UC Merced campus, the construction contractor shall comply with the conditions of the CDFW Incidental Take Permit No. 2081-2009-010-04.

SPECIAL-STATUS REPTILES

Special-status reptiles with known occurrences in the vicinity of the project area and with potential to occur within the project area include giant garter snake (*Thamnophis gigas*). Potentially suitable aquatic habitat occurs within Fahrens Creek and Fairfield Canal; and potentially suitable upland habitat occurs within 200 feet adjacent to these aquatic resources (see Appendix C). Although Fahrens Creek contains some riparian habitat typically not suitable for giant garter snake, the majority of the creek contains features similar to a canal habitat that is suitable for this species (open sunny banks and dense vegetation near water), Other aquatic resources located within the project area such as Le Grand Canal, other small canals/drainages, and wetland features, are lacking key habitat requirements necessary for this species. Suitable burrows for giant garter snake were not observed within the project area within the vicinity of suitable aquatic habitat. The project area contains potentially suitable upland and refugia habitat but the project is not expected to impact any potentially suitable aquatic habitat for this species by avoiding impacts to aquatic features through project construction techniques (directional drilling).

Pipeline construction could potentially impact this species if individuals were utilizing upland refugia habitat during project construction. Pipeline construction could temporarily result in removal of upland refugia habitat, and direct mortality or injury may occur for individuals present within the construction footprint or within burrows in the construction footprint. This impact is considered potentially significant.

Mitigation Measure 3.4-1d: Giant Garter Snake Surveys and Avoidance and Minimization Measures During Construction

1. MCRWMA or its contractor shall conduct all construction activity within potential giant garter snake habitat during the active season (between May 1 and October 1) for giant garter snake to lessen direct impacts to the species. Giant garter snakes are mobile and typically not within burrows during this time.
2. MCRWMA or its contractor shall conduct a pre-construction survey for giant garter snake within 24 hours prior to the commencement of any construction activity within potential giant garter snake habitat. The pre-construction survey shall be conducted by a USFWS-approved biologist. The biologist shall provide a field report of the survey results that shall be made available to USFWS within one (1) week of the completion of the survey.
    a. If giant garter snake or suitable burrows are observed within the project area during the pre-construction survey, the USFWS-approved biologist shall monitor all ground-disturbing activity within the suitable habitat area.
    b. The project area shall be re-surveyed whenever a lapse in construction activity of two weeks or greater has occurred within suitable habitat areas.

3. If giant garter snake is observed within the project area, and specifically the construction zone, all work shall immediately halt and the animal will be allowed to leave the area on its own will. If the animal is in immediate danger and needs to be relocated, a USFWS-approved biologist shall relocate the animal outside of the construction zone and at a safe distance from all construction related activities. No one other than an approved biologist shall handle, take, or otherwise harass the animal. No work shall resume until the animal is outside of the project area and construction zone.
4. Exclusion fencing per the special-status amphibian requirements shall also serve as exclusion fencing for giant garter snake in the area of Fairfield Canal. Because this species is highly aquatic, other mitigation measures (Mitigation Measure BIO-2: Sensitive Natural Community Avoidance) will also serve as a mitigation measure for giant garter snake aquatic habitat in the area of Fahrens Creek.

SPECIAL-STATUS BIRDS AND OTHER MIGRATORY BIRDS AND RAPTORS

Special-status birds with known occurrences in the vicinity of the project area and with potential to occur within the project area include burrowing owl (*Athene cunicularia*), northern harrier (*Circus hudsonius*), and Swainson's hawk (*Buteo swainsoni*). These species have potentially suitable foraging habitat within the nonnative annual grassland within the project area and within agricultural habitat within the project area. In addition to these special-status species, the nests of most avian species are protected under the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.

No potentially suitable burrows for burrowing owl were observed within the project area but a number of unused pipes within nonnative annual grassland habitat are present in the project area within the Merced County Landfill. No sign of occupancy (past or present) was observed during the field survey but the pipes may provide suitable nesting habitat for burrowing owl. Potentially suitable habitat for northern harrier such as grassland, agricultural fields, and riparian corridors is present in and adjacent to the project area, but portions of these habitat types within the project area are not suitable for northern harrier nesting based upon the close proximity to roads and other existing sources of disturbance. Suitable nesting habitat for Swainson's hawk is present within large trees located on various residential properties along Bellevue Road, and within large trees adjacent to the project area. Potentially suitable nesting and foraging habitat for other protected migratory birds and raptors is also present in the project area.

Pipeline construction could potentially impact protected avian species if they were nesting within or adjacent to the construction corridor or otherwise utilizing habitat within the construction corridor. Pipeline construction could temporarily result in removal of suitable nesting habitat, and direct mortality or injury to avian species present within the construction footprint or within occupied burrows in the construction footprint. This impact is considered potentially significant.

Mitigation Measure 3.4-1e: Nesting Bird Surveys and Nest Avoidance

1. If construction is expected to occur during the typical avian nesting season (generally February 1 to August 31), MCRWMA or its contractor shall conduct a pre-construction nesting bird survey. The survey shall be completed by a qualified biologist to determine if any active nests are present within or adjacent to the project area. The survey shall include a general survey buffer of 500 feet, where accessible, and a half-mile Swainson's hawk survey buffer, where accessible. The pre-construction survey shall take place within 14 days prior to the commencement of any construction related activities.
    a. If an active nest is found, a qualified biologist shall implement a species-specific no disturbance buffer around the nest (generally a 75-foot standard buffer for most songbirds, a 300-foot standard buffer for most raptors, and up to a buffer of 1,320-2,640 feet for Swainson's hawk). The buffer shall remain in place until a qualified biologist determines the nest has successfully fledged and/or is no longer active.
    b. Nest monitoring during construction activities shall occur if construction is determined to potentially adversely affect the nest due to proximity of the nest to construction activities.

Level of Impact after Implementation of Mitigation Measures

Implementation of Mitigation Measures 3.4-1a through 3.4-1e would reduce impacts to special-status plant and wildlife species by requiring surveys and implementing avoidance measures to minimize potential take of these species, and to minimize or avoid effects on their habitat during construction. Therefore, impacts to special-status plant and wildlife species would be reduced to a less-than-significant level.

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

Less than significant with mitigation incorporated. According to the *2030 Merced County General Plan*, *Natural Resources Element*, sensitive natural communities present within the project area include wetlands and grasslands. Riparian habitat is also included in the general plan and occurs within the project area at Fahrens Creek. No other sensitive natural communities identified by the CDFW or the USFWS are present in the project area. Vegetation communities within the project area are shown in Appendix C.

The project is anticipated to avoid riparian habitat and other sensitive natural communities by designing the project to conduct directional drilling under sensitive features and habitat or otherwise avoid the sensitive natural communities within the project area through project construction and design. Restricted work areas shall be designated to avoid sensitive communities within or adjacent to work areas and/or construction will avoid sensitive communities by conducting directional drilling under all sensitive communities (such as riparian habitat and wetlands) present within the construction zone. The majority of the nonnative annual grassland within the project area is located within private properties and behind a fence line that is not anticipated to be traversed by the project or project-related activities. However, a small portion of nonnative annual grassland occurs directly adjacent to the gravel road within the Merced County Landfill and within the project footprint. The remaining portion of nonnative annual grassland within the project area is directly adjacent to road shoulders and ruderal habitat, and is disturbed, treated as part of road maintenance, or of otherwise low quality.

Although sensitive vegetation communities are anticipated to be avoided by conducting directional drilling under the sensitive communities, there is still some potential for indirect impacts or accidental removal of sensitive vegetation communities to occur during project construction. This impact is considered potentially significant.

Mitigation Measure 3.4-2: Sensitive Natural Community Avoidance

1. MCRWMA or its contractor shall install high-visibility, adequately tall fencing around any sensitive community to be avoided within the construction footprint. This fencing shall prohibit any potential disturbance or impacts within these communities by project personnel, equipment, or other project activities. The fencing shall be installed prior to the initiation of any construction activities and in the following manner:
    a. Fencing shall be installed in areas identified by a designated botanist/biologist.
    b. The fencing shall be staked with as few stakes as necessary but still provide structure to the fencing. Stakes shall be located at least 15 feet outside of the mapped boundary of the sensitive vegetation community.
    c. Fencing will be shown as an environmentally sensitive area (ESA) on project design plans. Avoidance measures for ESAs will be included on project plans.
    d. A worker awareness training session shall describe the location and extent of ESAs, including sensitive vegetation communities, within the project area.
    e. Fencing shall be inspected at least twice weekly on non-consecutive days AND after any significant rain event (defined as any event that produces 0.5 inches or more precipitation within a 48-hour period). Repairs to the fencing must be made within 24 hours of the inspection that first noted a fencing breach, such as a broken stake, hole in the fencing material, material pulled away from a stake, and objects, rain, wind or sediment build-up or damage.

f. The fencing shall remain in place and in good condition until all work is completed in the area. Fencing shall be removed within two (2) weeks of completion of construction within 250 feet of any designated sensitive vegetation community and the area shall be restored to natural/pre-project conditions.

2. MCRWMA or its contractor shall install standard silt fencing along the bank of the riparian corridor of Fahrens Creek within the project area. The purpose of the fencing is to limit potential silt, construction debris, and other materials from entering the riparian community or Fahrens Creek from adjacent construction. This fencing will also serve as an exclusion barrier for giant garter snake that may utilize the adjacent riparian corridor that will be avoided during construction. The fencing shall be installed in the following manner:

   a. Fencing shall be trenched into the soil at least four (4) inches and the soils must be carefully compacted against both sides of the fence for its entire length to prevent animals, silt, and other debris from passing under the fence.

   b. Fencing shall be installed with turn-arounds at each end and at any access openings needed in the fencing in order to redirect animals away from openings.

   c. Fences shall be inspected at least twice weekly on non-consecutive days AND after any significant rain event (defined as any event that produces 0.5 inches or more precipitation within a 48-hour period). Repairs to the fencing must be made within 24 hours of the inspection that first noted a fencing breach, such as a broken stake, hole in the fencing material, material pulled away from a stake, and objects, rain, wind or sediment that cause fences to sag which would allow the animals to overtop the fence.

   d. Fencing shall be maintained until all construction activities have been completed in the area.

3. Hazardous materials such as fuels, oils, solvents, etc., shall be stored in sealable containers in a designated location that is at least 200 feet from sensitive habitats. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 200 feet from any aquatic habitat.

4. All construction debris should be prevented from falling into the riparian channel. Any material that does fall into the channel during construction shall be immediately removed in a manner that has minimal impact to the bed and water quality.

5. Riparian habitat is anticipated to be avoided during construction through the use of directional drilling. However, CDFW will likely require the preparation of a streambed alteration agreement because unintended impacts to riparian habitat could occur during directional drilling (i.e. frac-outs), MCRWMA or its contractor shall submit a Streambed Alteration Agreement Notification to CDFW prior to directional drilling under any riparian or stream habitat. If CDFW determines that the project requires a Streambed Alteration Agreement, MCRWMA or its contractor shall be responsible for implementation of any additional avoidance measures or conditions contained within the Streambed Alteration Agreement.

Level of Impact After Implementation of Mitigation Measures

Implementation of Mitigation Measure 3.4-2, would reduce impacts to sensitive vegetation communities by setting work limits to avoid sensitive vegetation communities. These include silt fencing and avoidance fencing to demarcate environmentally sensitive areas, and to preclude construction equipment or personnel from entering sensitive habitat areas. The impact to sensitive vegetation communities including riparian habitat would therefore be reduced to a *less-than-significant* level.

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

Less than significant with mitigation incorporated. All wetlands within the project area are anticipated to be avoided by siting the pipeline alignment and restricting designated work areas to avoid wetland features adjacent to work areas (features not within the construction zone) or by conducting directional drilling under all wetland features encountered within the construction zone to avoid directly impacting the features.

Because wetlands are present within the construction footprint, there is the potential for indirect impacts or accidental removal of these features during project construction. This impact is considered potentially significant.

Mitigation Measure 3.4-3a: Wetland Avoidance

1. MCRWMA or its contractor shall install high-visibility, adequately tall fencing around wetlands to be avoided during construction in order to prohibit any potential disturbance or impacts by project personnel, equipment, or other project activities. The fencing shall be installed prior to the initiation of any ground disturbance.
    a. The fencing shall be staked with as few stakes as necessary but still provide structure to the fencing. Stakes will be located at least 15 feet outside of the mapped boundary of the wetlands.
    b. Fencing shall be shown as an environmentally sensitive area (ESA) on project design plans. Avoidance measures for ESAs will be included on project plans.
    c. A worker awareness training session shall describe the location and extent of ESAs within the construction area.
    d. A frac-out plan shall be prepared and approved by Merced County prior to any directional drilling to be implemented to avoid wetland features.
    e. No vehicles, heavy equipment, or other machinery shall be fueled within 250 feet of mapped wetland features. Spill prevention and containment materials shall be available onsite during construction activities that occur within 250 feet of avoided wetland features.
    f. ESA fencing will be inspected at least twice weekly on non-consecutive days AND after any significant rain event (defined as any event that produces 0.5 inches or more precipitation within a 48-hour period). Repairs to the fencing must be made within 24 hours of the inspection that first noted a fencing breach, such as a broken stake, hole in the fencing material, material pulled away from a stake, and objects, rain, wind or sediment build-up or damage.
    g. The fencing will remain in place and in good condition until all work is completed in the area. Fencing will be removed within two (2) weeks of completion of construction within 250 feet of any designated wetland area and the area shall be restored to natural/pre-project conditions.

Mitigation Measure 3.4-3b: Clean Water Act Permitting

If the project proponent determines that the project cannot avoid impacts to wetlands or other waters subject to federal or state regulation, the project proponent shall obtain appropriate 404/401 permits prior to any construction activity that will result in fill of jurisdictional wetlands or other waters. The project proponent shall adhere to all avoidance and minimization measures, as well as mitigation requirements, for impacts to regulated wetlands and other waters. MCRWMA shall commit to replace, restore, or enhance wetlands so that "no net loss" of protected wetland features will occur. Any wetland mitigation shall occur at an acreage and location specified by the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), and/or CDFW as specified in project wetland permits.

Level of Impact After Implementation of Mitigation Measures

Implementation of Mitigation Measure 3.4-3a and Mitigation Measure 3.4-3b, would reduce impacts to wetlands by implementing measures to avoid direct impacts to wetland features and, if necessary, obtaining appropriate 404/401 permits that would include appropriate avoidance and minimization measures, and mitigation requirements to result in "no-net-loss" of the current wetland functions. The impact to protected wetlands and other aquatic features would therefore be reduced to a less-than-significant level.

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

Less than significant. The movement of any native resident, migratory fish, or wildlife species would not be impacted by the project. Wildlife migration corridors and native wildlife nursery sites are not present within or adjacent to the project area. The project is located along existing developed roads with adjacent residential and agricultural development. The project area does not contain suitable habitat for migratory fish species. These areas do not support movement corridors or native wildlife nursery sites. The project may result in minor temporary disturbances to the project area but any local movement of wildlife can continue to occur immediately adjacent to the project footprint. Although exclusion fencing is recommended to be installed in portions of the project area, it is not anticipated to cause substantial interference with local wildlife movement. Current barbed wire fencing, residential fencing, and moderately trafficked roads occur throughout the entire project area and likely represent permanent existing wildlife movement barriers more substantial than that of the proposed exclusion fencing. Exclusion fencing is also anticipated to be installed in segments and not throughout the entire project construction area, and will be removed upon the completion of construction. The proximity of the project area to established roads further limits the likelihood of any impacts or permanent disturbance to wildlife movement corridors or nursery sites. No new permanent fencing is proposed that would further restrict wildlife movement in the area of the project. Therefore, impacts to wildlife movement corridors and nursery sites would be less than significant as a result of the project. No mitigation measures are required.

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

No impact. The project would not conflict with any local policies or ordinances protecting biological resources. No trees are located within the construction zone and therefore trees are not anticipated to be impacted by the project construction or operations. Applicable mitigation measures for special-status species and sensitive habitats are consistent with local ordinances. Local ordinances that apply to the project would be supported by all BIO Mitigation Measures previously discussed. Therefore, no impacts resulting from conflicts with local policies or ordinances protecting biological resources would occur due to project development. No mitigation measures are required.

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?

No impact. No adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan occurs for areas covered within the project area. The project footprint does not occur within any designated conservation areas designated by the UC Merced Reserve Management Plan (Airola 2008). Therefore, the project would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or local, regional, or state habitat conservation plan. Therefore, no impacts would occur due to project development. No mitigation measures are required.

3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources.				
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

3.5.1 Environmental Setting

Natural Investigations Company prepared a cultural and paleontological resources inventory and effect assessment for the project in February 2019. This report is included as Appendix D of this IS/MND. Preparation of the report included a review of cultural literature, Sacred Lands File and paleontological records searches, an intensive-level pedestrian survey of the Area of Potential Effects (APE), and a project effects assessment. The study was completed in compliance with CEQA and Section 106 of the National Historic Preservation Act.

Fourteen historic-era resources have been previously recorded within the search radius; seven are within the APE. Two local agency bridges within the APE and one within the search radius have been previously determined not eligible for listing in the National Register of Historic Places (NRHP).

No archaeological or built-environment resources were newly identified during the survey. One historic-era resource report was updated; no changes were observed to the other six within the APE. No historic properties or historical resources are known to be located within the APE. The potential for discovery of archaeological deposits during construction of the project is low, due in part to the extensively disturbed nature of the APE.

3.5.2 Discussion

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

No impact. The cultural resources inventory prepared for the project identified seven historic-era sites within the APE and three sites adjacent to but outside the APE (NIC 2019:23). Further review of the seven sites indicated that one site was lost during development of the Bellevue Ranch Master Plan development project while the other six sites were unchanged (NIC 2019:23). Of these six remaining sites, none qualify as eligible for the NRHP or California Register of Historic Resources (CRHR). Because the project site does not include any historic resources eligible for listing in the NRHP or CRHR, the project would have no impact on historic resources.

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

Less than significant with mitigation incorporated. The records search for archaeological resources included in the cultural resources inventory found no records of archaeological resources within or adjacent to the APE or within the search radius (NIC 2019:19). Based on search results, map and literature review, geoarchaeological study, site-specific variables, and the field survey, the report concluded that the potential for discovery of buried archaeological materials within the APE is considered to be low (NIC 2019:34). This is considered a potentially significant impact.

Mitigation Measure 3.5-1: Inadvertent discovery of archaeological resources.

Should any previously undiscovered archaeological resources be discovered during construction activities, the contractor shall halt all work within 50 feet of the find, and shall notify a qualified archaeologist (36 CFR Part 61) immediately to evaluate the significance of the find. If the discovery proves to be significant, additional work such as data recovery excavation may be warranted and would be discussed in consultation with the property owner, MCRWMA, and any other relevant regulatory agency, as appropriate.

Level of Impact after Implementation of Mitigation Measures

Implementation of Mitigation Measures 3.5-1 would reduce impacts to previously undiscovered archaeological resources by requiring work to stop and the find to be evaluated. Therefore, impacts to archaeological resources would be reduced to a less-than-significant level.

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

Less than significant. Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or un-marked human interments are present within or in the immediate vicinity of the project site. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project site and could be uncovered by project-related construction activities.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated Most Likely Descendant, and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant**.

3.6 ENERGY

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

3.6.1 Environmental Setting

Natural gas and electricity service in the project area is provided by the Pacific Gas & Electric Company.

ENERGY TYPES AND SOURCES

California relies on a regional power system composed of a diverse mix of natural gas, petroleum, renewable, hydroelectric, and nuclear generation resources.

- Petroleum: Petroleum products (gasoline, diesel, jet fuel) are consumed almost exclusively by the transportation sector, and account for almost 99 percent of the energy used in California by the transportation sector, with the rest provided by ethanol, natural gas, and electricity (Bureau of Transportation Statistics 2015). Between January 2007 and May 2016, an average of approximately 672 billion gallons of gasoline were purchased in California (California State Board of Equalization 2016). Gasoline and diesel fuel sold in California for motor vehicles is refined in California to meet specific formulations required by the California Air Resources Board (CARB) (EIA 2018).
- Natural Gas: Almost two-thirds of California households use natural gas for home heating, and about half of California's utility-scale net electricity generation is fueled by natural gas (EIA 2018).
- Electricity and Renewables: The California Energy Commission (CEC) estimates that 34 percent of California's retail electricity sales in 2018 will be provided by RPS-eligible renewable resources (CEC 2018). California regulations require that electricity consist of 33 percent renewables by 2020 and 50 percent renewables by 2030 for all electricity retailers in the state.
- Alternative Fuels: Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many alternative transportation fuels (e.g., biodiesel, hydrogen, electricity, and others). Use of alternative fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard, Assembly Bill [AB] 32 Scoping Plan).

FEDERAL REGULATIONS

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Under this act, the National Highway Traffic and Safety Administration, is responsible for revising existing fuel economy standards and establishing new vehicle economy standards. The Corporate Average Fuel Economy program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Three Energy Policy Acts have been passed, in 1992, 2005, and 2007, to reduce dependence on foreign petroleum, provide tax incentives for alternative fuels, and support energy conservation.

STATE REGULATIONS

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the CEC. The Act established state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

State of California Energy Action Plan

The CEC, CPUC, and now defunct Consumer Power and Conservation Financing Authority prepared the first State of California Energy Action Plan in 2003 to establish shared goals and specific actions to ensure that adequate, reliable, and reasonably-priced electrical power and natural gas supplies are achieved and provided through policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers. The plan was updated in 2005 and 2008 to address policy the emerging importance of climate change, transportation-related energy issues, and research and development activities (CEC and CPUC 2008).

GHG Reduction Regulations

Several regulatory measures such as AB 32 and the Climate Change Scoping Plan, Executive Order B-30-15, SB 32, and AB 197 were enacted to reduce GHGs and have the co-benefit of reducing California's dependency on fossil fuels and making land use development and transportation systems more energy efficient.

Renewable Energy Regulations

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California. SB X1-2 mandates that renewables from these sources make up at least 50 percent of the total renewable energy for the 2011-2013 compliance period, at least 65 percent for the 2014-2016 compliance period, and at least 75 percent for 2016 and beyond.

SB 100, signed in September 2018, requires that all California utilities, including independently-owned utilities, energy service providers, and community choice aggregators, supply 44 percent of retail sales from renewable resources by December 31, 2024, 50 percent of all electricity sold by December 31, 2026, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. The law also requires that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045.

University of California

In November 2013, President Janet Napolitano announced the Carbon Neutrality Initiative, which commits the University of California to emitting net zero GHGs from its buildings and vehicle fleet by 2025. In accordance with this initiative and with the UC Sustainable Practices Policy, UC Merced has established Triple Net Zero Goals, which include reducing campus energy usage through conservation and renewable energy generation such that the full demand of campus is satisfied by renewable energy sources.

UC Merced prepared a campus climate action plan (CAP) in 2018 that lays out a strategic roadmap for achieving carbon neutrality and the campus' Triple Zero Commitment through energy efficiency, renewable energy generation, and climate offsets. Specifically, the CAP calls for achieving net zero energy by 2020 through aggressive conservation efforts and development of renewable power. The CAP identifies using biogas from the Highway 59 landfill for campus electricity and hot water generation as a key part of its strategy for reducing GHGs (UC Merced 2018)

3.6.2 Discussion

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

Less-than-significant impact. Energy would be consumed during project construction to operate and maintain construction equipment, transport construction materials, and for worker commute. Levels of construction-related energy consumption by the project were calculated using the California Emissions Estimator Model Version 2016.3.2 and from fuel consumption factors in the EMFAC and OFFROAD models (see Appendix E for detailed calculations). An estimated 3,040,405 gallons of gasoline and 54,639 gallons of diesel would be consumed to enable project construction, accounting for both onsite equipment use and offsite vehicle travel. This one-time energy expenditure required to construct the project would be nonrecoverable. The energy needs for project construction would be temporary and would not require additional capacity or increase peak or base period demands for electricity or other forms of energy.

During operation, one full-time employee may be located at either UC Merced or the landfill to regularly inspect and monitor the proposed facilities, which would result in an additional vehicle roundtrip over those already occurring at UC Merced and the landfill during existing maintenance and operations. Fuel consumption associated with this additional trip would be minimal. Furthermore, the project would allow for the beneficial reuse of existing and future LFG collected by the MCRWMA at the Highway 59 Landfill by UC Merced in a manner that furthers the long-term sustainability goals of the area and reduces dependence on fossil fuels and would result in an overall decrease in demands for off-site electricity and natural gas (for heating purposes). The contemplated option, which would involve an additional microturbine at the landfill, would decrease off-site electricity demands at the landfill for equipment and on-site structures. Therefore, this would not be an inefficient, wasteful, or unnecessary consumption of energy resources. Impacts would be less than significant.

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

No impact. Applicable plans include the State's *2008 Update Energy Action Plan* and the UC Merced CAP. The *2008 Update Energy Action Plan* focuses on energy efficiency, demand response, renewable energy, and energy provisioning reliability and infrastructure (CEC and CPUC 2008). The State's plan acknowledges the importance of a diverse portfolio of natural gas supplies and reliable deliveries of those supplies. The project would support this goal by allowing for the beneficial reuse of existing and future LFG collected by the MCRWMA at the Highway 59 Landfill and by establishing a new transmission pipeline. The project is specifically identified in the UC Merced CAP and would support UC Merced in achieving its Triple Net Zero Goals. Furthermore, as discussed in criterion (a), the project would not be considered an inefficient, wasteful, or unnecessary consumption of energy resources. Thus, it would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. There would be no impact.

3.7 GEOLOGY AND SOILS

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

3.7.1 Environmental Setting

The project site is within the east-central portion of the San Joaquin Valley in the Great Valley geomorphic province of California. Regionally, the topography grades from the Sierra Nevada foothills west to the valley floor, with surface runoff draining to the San Joaquin River. Elevations at the project site range from 190 to 200 feet (58-61 meters). The San Joaquin River, which drains the flat, 50-mile-wide and 250-mile-long San Joaquin Valley, is located approximately 25 miles west of the project site. The Merced River, a major tributary of the San Joaquin River, is located 8 miles northwest of the project site (NIC 2019:7).

Geologic mapping shows the project area is underlain by Miocene through Pleistocene non-marine alluvial deposits (Wagner et al. 1991). The deposits are mapped as the late Miocene and Pliocene Mehrten Formation (Tm) (12–3 million years), Pliocene Laguna Formation (Pl) (5–2.6 million years), Early to Middle Pleistocene North Merced Gravel (QTnm) (1 million years), Middle Pleistocene Riverbank Formation (Qr) (450,000–130,000 years), and Late Pleistocene Modesto Formation (Qm) (40,000–11,500 years) (Atwater et al. 1986; Busacca et al. 1989; Helley and Harwood 1985; Marchand and Allwardt 1981).

SOILS

Soils mapped in the project area are primarily San Joaquin loam along SR 59 and along Bellevue Road west of G Street, and primarily Redding gravelly loam and Raynor clay east of G Street (California Soil Resource Lab 2019; NRCS 2018a). The San Joaquin and Redding soils are moderately well drained and formed in mixed alluvium from mixed sources. San Joaquin soils generally have a thin, disturbed, brown Ap horizon (0–6 inches) overlying an argillic horizon (Bt) to 25 inches, with an abrupt boundary at an underlying duripan (Bqm) (25–60 inches). Redding soils typically have a thicker A horizon (0–19 inches) overlying an argillic horizon (Bt) (19–22 inches), with an abrupt boundary at an underlying duripan (Bqm) (22–35 inches) (NRCS 2018b; NRCS 2018c; NRCS 2018d; NRCS 2018e; NRCS 2018f). There is no official series description for the Raynor series in the Soil Survey Geographic database (SSURGO), but Raynor soils have been described in Stanislaus County as well drained, clay rich Vertisols, that formed from residuum weathered from sedimentary rock (Soil Conservation Service 1964:18). No buried soils are described for the typical 5-foot profiles of these moderately developed soils.

SEISMICITY

According to the California Geological Survey Fault Activity Map of California (2010a), the Ortigalita Fault Zone is the closest active fault zone to the project and is located approximately 39 miles southwest of the project site. The San Joaquin Fault Zone, located approximately 33 miles west of the project, is the closest potentially active fault zone. No fault zones occur within the project site.

3.7.2 Discussion

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

No impact. The project is not located near an earthquake fault zone. The nearest earthquake fault zone, delineated on the Alquist Priolo Earthquake Fault Zoning Map, is the Ortigalita Fault Zone, located in the western portion of Merced County approximately 39 miles southwest of the project site (CGS 2018). The nearest cities to the project site, Atwater and Merced, are not listed on the California Geological Survey list of Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones (CGS 2010b). Therefore, there is no substantial risk of rupture of a known earthquake fault which could directly or indirectly cause potential substantial adverse effects. There would be no impact. No mitigation measures are required.

ii) Strong seismic ground shaking?

Less than significant. The project site is located approximately 39 miles northeast of an active earthquake fault zone and is anticipated to experience lower levels of shaking less frequently (CGS 2016; Merced County 2013:10-4). Seismicity evaluations were previously conducted for the Highway 59 Landfill in the Joint Technical Document (JTD),

Amendment No. 1, prepared for the Merced County Regional Waste Management Authority (2013) and indicated a low potential for seismic ground shaking. More specifically, the JTD indicated the permanent displacement of the critical slope failure plane during the design earthquake would be significantly less than the U.S. Environmental Protection Agency (1995) acceptable value of 1 foot for landfill baselines (MCRWMA 2013). In addition, the project would comply with the current California Building Standards Code (California Code of Regulations, Title 24) to prevent significant damage from ground shaking during seismic events. As a result, the project would not directly or indirectly cause potential substantial adverse effects involving strong seismic ground shaking, and this impact would be less than significant. No mitigation measures are required.

iii) Seismic-related ground failure, including liquefaction?

Less than significant. According to the *2030 Merced County General Plan Background Report*, no specific liquefaction hazard areas have been identified in Merced County; however, liquefaction may occur in areas where unconsolidated sediments and a high water table coincide, specifically near levees or in wetland areas (Merced County 2013:10-6). As described above, soils within the project site are described as well drained or moderately drained. The Natural Resources Conservation Service (NRCS) Web Soil Survey has described the depth to water table of San Joaquin loam, Redding gravelling loam, and Raynor clay as more than 80 inches. Structures would be designed and constructed in accordance with current California Building Standards Code (California Code of Regulations, Title 24). Based on this information, the project site is not subject to risk of seismic-related ground failure, including liquefaction, and this impact would be less than significant. No mitigation measures are required.

iv) Landslides?

No impact. The project site is located in a topographically flat area with elevations ranging from 190 to 200 feet above mean sea level. The project would not introduce any new slopes to the area. There would be no impact related to landslides. No mitigation measures are required.

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

Less than significant. Soils at the project site have high to very high runoff potential. The project footprint would include 80 feet by 80 feet at the existing landfill, 7.1 miles of pipeline (constructed in 20 feet by 500 feet segments) and 0.2 acres of new facilities at the UC Merced Campus. This would result in a total project footprint of approximately 17 acres. Vegetation removal, excavation, and other soil disturbance could result in substantial soil erosion and loss of topsoil.

The *2030 Merced County General Plan, Natural Resource Element,* Policy NR-3.2: Soil Erosion and Contamination requires minimal disturbance of vegetation during construction to improve soil stability, reduce erosion, and improve stormwater quality. In addition to the County's policies, construction projects disturbing one acre or more need to obtain coverage under the State Water Resources Control Board's General Construction Stormwater Permit. The general construction permit requires preparation of a detailed stormwater pollution prevention plan (SWPPP) for the construction site that includes measures to prevent and control erosion. The general construction permit also requires the developer to conduct regular inspections of their best management practices (BMPs) before, during, and after storm events.

Once operational, inspections and regular maintenance of the facilities and pipeline would not require soil disturbance and would not result in substantial soil erosion or loss of topsoil.

Compliance with the County's requirement to minimize vegetation disturbance as well as implementation of a SWPPP and BMPs required by the general construction permit would reduce potential for soil erosion or the loss of topsoil during construction and would ensure impacts are less than significant. No mitigation measures are required.

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

Less than significant. The project site is located in a topographically flat area and is not subject to landslides.

Lateral spreading involves the lateral displacement of large, intact blocks of soil down gentle slopes and can occur in fine-grained, sensitive soils, particularly if remolded or disturbed by construction and grading. Lateral spreading can also occur as a result of liquefaction. The project area is flat and has low risk of liquefaction due to well drained soils and distance to the water table. Therefore, the potential risk of lateral spreading is low.

Subsidence occurs when an area settles due to over saturation or extensive withdrawal of ground water, oil, or natural gas. The County has identified two subsidence areas near Los Banos and El Nido; however, no subsidence areas have been identified near the project site (Merced 2013:10-7).

In addition, the *2030 Merced County General Plan, Health and Safety Element,* includes Policy HS-1.9 which requires and enforces all standards contained in the International Building Code related to construction on unstable soils. Furthermore, the project would comply with the California Building Code. This impact would be less than significant. No mitigation measures are required.

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

Less than significant with mitigation incorporated. Expansive soils have high shrink-swell potential that expand when wet and shrink when dry. This can result in damage to foundations and structures. Soils at the project site present consist of sandy and clay loams that present the potential for expansion. Although the project would comply with the County's general plan Policy HS-1.9 and would comply with the International Building Code, risks associated with expansive soils may still be present and impacts would be potentially significant.

Mitigation Measure 3.7-1 Complete design level geotechnical investigation before final design.

Before final design and the commencement of construction, the construction contractor shall prepare a design-level geotechnical investigation with recommendations, which shall be submitted to MCRWMA for review/approval. Those recommendations shall present geotechnical engineering conclusions and specific recommendations for site preparation, foundation design, site drainage, addressing expansive soils, and pavement design to achieve compliance with the California Building Code, which would reduce risk associated with expansive soils. The construction contractor shall ensure that all recommendations are incorporated into site design and construction.

Level of Impact after Implementation of Mitigation Measures

Implementation of Mitigation Measure 3.7-1 would reduce impacts related to expansive soils by ensuring that site-specific recommendations for design and construction are implemented. Therefore, impacts related to expansive soils would be reduced to a less-than-significant level.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No impact. The project would not require the use of septic tanks or waste water disposal systems. There would be no impact.

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

Less than significant with mitigation incorporated. The Cultural and Paleontological Resource Inventory and Effects Assessment for the Merced Landfill Pipeline Project, Merced County, California prepared for the project concluded that the Mehrten, Riverbank, and Modesto formations are considered to have a high sensitivity for paleontological

resources. However, no evidence of these rock units and no fossils were discovered during the survey (NIC 2019). Therefore, the project is considered to have a low potential to uncover or damage fossils or to cause a significant impact on any resource that currently qualifies as a significant paleontological resource.

While field surveys indicate that there would be a low potential for discovery of previously-unknown paleontological resources, the high sensitivity of the geological formations in the area indicate that paleontological resources could be discovered during construction activities. This impact is considered potentially significant.

Mitigation Measure 3.7-2: Previously undiscovered paleontological resources

Should any previously undiscovered paleontological resources be discovered during construction activities, the contractor shall halt all work within 50 feet of the find, and a qualified paleontologist notified immediately to evaluate the find. If the discovery proves to be significant under Society for Vertebrate Paleontology criteria, additional work, such as fossil recovery excavation, may be warranted and would be discussed in consultation with the property owner, MCRWMA, and any other relevant regulatory agency, as appropriate.

Level of Impact after Implementation of Mitigation Measures

Implementation of Mitigation Measure 3.7-2 would reduce impacts to previously undiscovered paleontological resources by requiring work to stop in the area and the potential resource to be examined by a qualified paleontologist. Therefore, impacts related to paleontological resources would be reduced to a less-than-significant level.

3.8 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Greenhouse Gas Emissions.				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.8.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with on-road and off-road transportation, industrial/manufacturing, electricity generation by utilities and consumption by end users, residential and commercial onsite fuel usage, and agriculture and forestry. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcings together (IPCC 2014: 5).

Climate change is a global problem. GHGs are global pollutants because even local GHG emissions contribute to global impacts. GHGs have long atmospheric lifetimes (one to several thousand years) and persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any particular GHG molecule is dependent on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration (IPCC 2013:467).

GHG INVENTORY

A GHG inventory is a quantification of all GHG emissions and sinks within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (i.e., for global and national entities) or on a small scale (i.e., for a particular building or person). The most recent local GHG inventory for Merced County is presented in Table 3.8-1 to provide context for the GHG emissions associated with the project.

Table 3.8-1 2005 Unincorporated Merced County GHG Emissions Inventory

Sector	Yearly GHG Emissions (MT CO_2e)	Percent of Total Emissions
Transportation	1,297,634	29%
Area Source	49,345	1%
Electricity	100,978	2%
Natural Gas	93,534	2%

Table 3.8-1 2005 Unincorporated Merced County GHG Emissions Inventory

Sector	Yearly GHG Emissions (MT CO_2e)	Percent of Total Emissions
Water and Wastewater	3,421	<1%
Solid Waste	30,151	1%
Agricultural Sources	2,913,940	65%
Total	4,489,082	100%

Notes: MT CO_2e = metric tons of carbon dioxide equivalent

Source: Merced County 2012

FEDERAL PLANS, POLICIES, LAWS, AND REGULATIONS

On December 7, 2009, the U.S. Environmental Protection Agency (EPA) issued findings regarding GHGs under the Clean Air Act (CAA). The *Final Endangerment and Cause or Contribute Findings for Greenhouse Gases* states that current and projected concentrations of the six key well-mixed GHGs in the atmosphere— CO_2, CH_4, N_2O, HFC, PFC, and SF_6—threaten the public health and welfare and that combined emissions of GHGs from new motor vehicles contribute to this issue. This allowed EPA to regulate GHGs under the CAA. For example, EPA and the National Highway Traffic Safety Administration issued two rules (81 Fed. Reg. 73478 and 77 Fed. Reg. 62623) that require substantial improvements in fuel economy for all vehicles sold in the U.S. for model years 2017 through 2025 of passenger cars, light-duty trucks, and medium-duty passenger vehicles. In 2012, EPA issued the California Air Resources Board (CARB) a waiver that allows California to more strictly regulate pollution from cars than the federal government.

STATE PLANS, POLICIES, LAWS, AND REGULATIONS

Statewide GHG Emission Targets and the Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades (State of California 2018). GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 2016). Executive Order (EO) S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. EO B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015:3).

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). The state has also passed more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below.

Highway 59 Landfill is not currently required to report its GHG emissions under the AB 32 mandatory reporting program but may be required to report as LFG combustion emissions increase or if devices other than flares are used to control LFG. ARB has developed a statewide cap and trade program; however, landfills are not capped sources under the regulation.

In response to AB 32, ARB passed the Landfill Methane Control Measure (LMCM), 17 Code of California Regulations (CCR) Subchapter 10, Article 2, Subarticle 1, sections 95460 to 95476, which is intended to reduce methane emissions from landfills. The LMCM contains performance standards for the collection and control of LFG and requires additional monitoring and collection of LFG at landfills subject to the rule, including the Highway 59 Landfill. The LMCM is implemented and enforced by SJVAPCD per a memorandum of understanding with ARB that was signed on October 20, 2011. The proposed project would not affect the status of the landfill with respect to its need to continue to comply with the LMCM.

University of California

In November 2013, President Janet Napolitano announced the Carbon Neutrality Initiative, which commits the University of California to emitting net zero GHGs from its buildings and vehicle fleet by 2025. In accordance with this initiative and with the UC Sustainable Practices Policy, the 2009 update to UC Merced's Long Range Development Plan established a "triple zero commitment," requiring the campus to produce its power renewably (known as "zero net energy"), eliminate landfill wastes (zero-net wastes), and achieve climate neutrality (zero net emissions footprint) by 2020. UC Merced prepared a campus CAP in 2018 that lays out a strategic roadmap for achieving carbon neutrality and the campus' Triple Zero Commitment through energy efficiency, renewable energy generation, and climate offsets. Specifically, the CAP calls for achieving net zero energy by 2020 through aggressive conservation efforts and development of renewable power. The CAP identifies using biogas from the Highway 59 landfill for campus electricity and hot water generation as a key part of its strategy for reducing GHGs (UC Merced 2018).

LOCAL PLANS, POLICIES, LAWS, AND REGULATIONS

San Joaquin Valley Air Pollution Control District

SJVAPCD has issued guidance for the assessment of GHG significance. Projects can demonstrate that the associated GHG emissions are not significant by complying with adopted state, regional, or local plans to reduce or mitigate GHG emissions (SJVAPCD 2009). According to SJVAPCD guidance, projects implementing Best Performance Standards (BPS), which the air district defines as the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source, would be determined to have a less than significant individual and cumulative impact on global climate change and would not require project specific quantification of GHG emissions. Projects complying with an approved GHG emission reduction plan or mitigation program would also be determined to have a less-than-significant individual or cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources and have a certified final CEQA document. Projects not implementing BPSs or consistent with an approved GHG emission reduction plan or mitigation program would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions would be reduced or mitigated consistent with GHG emission reduction targets established in ARB's AB 32 Scoping Plan as compared to the Business-as-Usual (BAU) scenario. Projects achieving at least the GHG emission reduction targets under AB 32 compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG. There are no SJVAPCD-approved BPSs for landfills or landfill-gas-to-energy projects. For the purposes of this analysis and in the absence of established standards, no net increase in emissions above existing conditions is considered to be consistent with BPS.

Merced County

Merced County has adopted general plan policies which address greenhouse gas related issues through energy efficiency, education, transportation measures, and agricultural methane sequestration. Policy AQ-1.5 tasks the County with preparing a CAP, although as of the writing of this document, the County does not have a CAP (Merced County 2013).

City of Merced

The City of Merced developed a CAP which goals, strategies, and actions to reduce local community GHG emissions to 1990 levels by the year 2020, consistent with the state objectives set forth in as AB 32. Relevant strategies include increasing reliance on local renewable energy sources and improving building energy efficiency.

3.8.2 Discussion

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

Less-than-significant. As discussed in Section 2.5.3, "Construction Activities and Schedule," construction would involve demolition of existing pavement, grading, installation of LFG transfer and treatment facilities, installation of microturbines on concrete foundations, trenching, installation of pipeline, and repaving. These activities would result in the generation of GHG emissions from the use of heavy-duty off-road construction equipment, trucks associated with materials transport, and vehicle use during worker commute. Project air pollutant emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 computer program. Modeling was based on project-specific information (e.g., number and type of equipment, and construction phase schedule) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on location. Project construction would generate a total of 214 MT CO_2e in 2019 and 64 MT CO_2e in 2020 (see Appendix A for detailed modeling results).

During the operational phase, the project would decrease emissions at the landfill due to the decreased use of the on-site flare and increase GHG emissions at UC Merced due to the use of the proposed microturbines at the Central Plant. However, overall GHG emissions associated with the project would result in a net decrease in GHG emissions, as shown in Table 3-8-2. As GHG emissions are not considered to have localized but global effects, the overall decrease in emissions compared to existing conditions is considered a beneficial impact of the project. With implementation of the option, project-related GHG emissions would further decrease due to the off-setting of on-site electrical demands by the additional microturbine at the landfill. Although the overall level of GHG emissions associated with the project would be less than zero on an annual basis once operational and overall, construction-related emissions in 2019 would represent a minor net increase for that year, and as a result and for the purposes of this analysis, impacts would be less than significant.

Table 3.8-2 GHG Emissions of the Project

Emission	At UC Merced (MT CO_2e/year)	At Highway 59 Landfill (MT CO_2e/year)	Total (MT CO_2e/year)
CO_2	82,784	(113,485.42)	(30,701.41)
CH_4		(1.12)	(1.12)
N_2O		(0.22)	(0.22)
CO_2e	82,784	(113,582.48)	(30,798.47)

Notes: MT CO_2e = metric tons of carbon dioxide equivalent; emissions shown in Appendix A were converted from short (US) tons to metric tons for reporting purposes.

Source: Cornerstone 2019

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

No impact. Plans adopted for the purpose of reducing GHG emissions that would be applicable to the project include the 2017 Scoping Plan, Merced County General Plan, City of Merced's CAP, UC Sustainability Practices Policy, and UC Merced CAP.

The 2017 Scoping Plan lays out the framework for achieving compliance with emissions levels identified in SB 32 of 2016 (i.e., statewide GHG emissions that are 40 percent below 1990 levels by 2030). Consistency with the emissions targets provided by SB 32 would also result in consistency with emissions targets provided by AB 32 of 2006, which are less stringent and are based on a 2020 milestone year. While landfill-gas-to-energy projects are not specifically identified in the 2017 Scoping Plan, the project would support statewide renewable energy goals, reduce reliance on fossil fuels, and put waste resources to beneficial use.

Relevant policies from the County's general plan and the City of Merced's CAP include goals and strategies regarding local renewable energy sources and improving building energy efficiency. The project would harness a source of renewable energy and would improve building energy efficiency at UC Merced by reducing the dependence on less efficient campus boilers with a more efficient cogeneration facility to produce both electricity and heat onsite.

The project is specifically identified in the UC Merced CAP, which calls for using biogas from the Highway 59 landfill for campus electricity and hot water generation as a key part of its strategy for reducing GHGs (UC Merced 2018). Thus, the project would support UC Merced in achieving its Triple Net Zero Goals and support the University of California in its Carbon Neutrality Initiative.

The proposed project would be consistent with state and local plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs. No impact would occur.

3.9 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hazards and Hazardous Materials.				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

3.9.1 Environmental Setting

The Merced County Department of Public Health, Division of Environmental Health is the designated Certified Unified Program Agency (CUPA) for the incorporated city of Merced and the surrounding unincorporated areas. The Merced County Division of Environmental Health is responsible for implementing the unified hazardous waste and hazardous materials management regulatory program. Merced County defines hazardous materials or waste as "a substance that increases or poses a threat to human health and the environment because of the physical, chemical or radiological nature, quantity, or concentration of the substance" (Merced County 2013:10-79).

There are no active sites currently listed on the Cortese List, pursuant to Government Code Section 65962.5, located within or within 1,000 feet of the project site (DTSC 2019).

3.9.2 Discussion

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

Less than significant. The project would require the transport, use, or disposal of hazardous materials during construction and operation. Construction equipment would require the use of fuels, such as gasoline and diesel, as well as oils, lubricants, glues, and cleaners that could contain hazardous materials. Once operational, the project would include the transport and use of landfill gas. Landfill gas contains hydrogen sulfide (H_2S), volatile organic compounds (VOCs), siloxanes, and methane. H_2S and methane are flammable and potentially explosive gases that could create a hazard to the public or the environment (OSHA n.d.; New York State Department of Health 2010). In addition, VOCs can create photochemical smog under certain conditions (EPA 2017). Prior to entering the pipeline, the landfill gas would be scrubbed and compressed to remove H_2S, siloxanes and VOCs. Siloxanes and VOCs would not be directly released into the atmosphere, but rather siloxanes and VOCs would be incinerated using a thermal oxidizer. Landfill gas that would be conveyed to the central plant at UC Merced would contain 50 percent methane. Although methane is not toxic, it is flammable, potentially explosive, and identified as a principal greenhouse gas.

The transport, use, or disposal of hazardous materials, required during construction and operation of the project, would be conducted in compliance with material-specific instructions and would be subject to all applicable regulations and codes, including Division 20 of the California Health and Safety Code which includes miscellaneous health and safety provisions. In addition, the landfill gas pipeline would be constructed and maintained in compliance with the federal safety standards for transportation of gas by pipeline as required by 49 CFR 192. The pipeline would include block or isolation valves at each end of the pipeline and at the midway point. These valves would allow for the discharge of gas in the event of an emergency. A pressure relief valve would also be provided to regulate pressure within the pipeline, in the event that the microturbines cannot relieve the pipeline pressure.

In compliance with Health and Safety Code Section 25507, the project would prepare and implement a Hazardous Material Business Plan (HMBP). The HMBP would inventory hazardous materials at the facility, prepare emergency response plans and procedures in the event of a release of hazardous material, and provide training for all employees.

In addition, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented for the project. The SWPPP would describe any hazardous materials required for the project and would include best management practices for prevention of accidental spills as well as cleanup requirements for any accidental spills or releases of hazardous materials.

Therefore, compliance with applicable laws and regulations would minimize the potential for the project to create a significant hazard to the public or the environment, and impacts would be less than significant. No mitigation measures are required.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Less than significant. Hazardous materials would be handled in accordance with all applicable laws and regulations, as discussed above under threshold a). The preparation of an HMBP and a SWPPP would reduce potential hazard to the public or the environment involving the release of hazardous materials. In addition, the pipeline would include isolation valves and a pressure relief valve to reduce the risk of the release of hazardous materials. The potential of the project to create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment would be less than significant. No mitigation measures are required.

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

Less than significant. The project site includes the UC Merced campus. There are no other existing or proposed schools located within one-quarter mile of the project site. The landfill gas pipeline would be constructed underground along Scholars Lane, Ansel Adams Road, and Mineral King Road within the university campus. The pipeline would release landfill gas, containing methane, to microturbines at the central plant. Isolation valves and a pressure relief valve would be installed to minimize the risk of a high pressure or leaks. The project would comply with applicable laws and regulations, including Division 20 of the California Health and Safety Code and 49 CFR 192, to reduce the risk of hazardous materials. This impact would be less than significant. No mitigation measures are required.

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

Less than significant. The Department of Toxic Substances Control (DTSC) maintains a list of hazardous materials sites, or the Cortese List, as required by Government Code Section 65962.5. The project site does not include any hazardous materials sites, as described above (DTSC 2019). The following sites are listed on the State Water Resources Control Board GeoTracker website and are located within 1,000 feet of the project site (SWRCB 2019):

- Merced County Hwy 59 Landfill – LUST Cleanup Site - Case Closed 12/9/1996 (Diesel)
- University of California Merced - Cleanup Program Site – Case Closed 7/3/2006
- Lake Yosemite Park – LUST Cleanup Site – Case Closed 4/23/1996

However, these sites are no longer active, and cleanup has been completed. As a result, no additional hazards or risks are anticipated at any of the aforementioned sites. Therefore, project implementation would not create a significant hazard to the public or the environment, and this impact would be less than significant. No mitigation measures are required.

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?

Less than significant. Two airports are located within five miles of the project site. The Merced County Castle Airport is located approximately 2.5 miles west of the project site, and the Merced Municipal Airport is located approximately 5 miles south of the project site. The majority of the project site is not located within the land use planning area for the either airport and, as a result, would not present a safety hazard (Merced County 2012, Merced County 2013:10-109).

The portion of the project, between just north of the Nevada Street and SR 59 intersection and the R Street and Bellevue Road intersection, is located within Zone D of the Castle Airport Land Use Compatibility Plan (Merced County 2012). Zone D is the outer most zone and is described as Other Overflight Areas. Noise impacts within this zone are low and risk level is low (Merced County 2012). The project would not introduce any sensitive noise receptors to the area, nor, would the project necessitate modifications in flight patterns that could otherwise increase airport-related noise at existing receptors. The project would not include any tall structures or other safety hazards that would present a potential risk to overhead flights. This impact would be less than significant. No mitigation measures are required.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than significant. An Emergency Operations Plan has been adopted by both Merced County and UC Merced (Merced County 2017; UC Merced 2009). The project would include the construction of landfill gas capture equipment at the Highway 59 Landfill, energy conversion facilities at the UC Merced campus, and an underground pipeline between the landfill and university campus. If temporary road closures are required during construction, appropriate traffic control measures (e.g. implementation of a traffic control plan, flaggers, etc.) would be used to ensure access for local traffic and emergency response vehicles is maintained at all times. Once operational, the project would be inspected and maintained to ensure proper function. In addition, the pipeline would be located underground and would not impact emergency accesses. Therefore, the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and this impact would be less than significant. No mitigation measures are required.

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

Less than significant. The project is located just north of Merced and is largely surrounded by agricultural and open space lands. The project is located within a local responsibility area and is identified as a moderate fire hazard zone or unzoned area (CalFIRE 2007; Merced County 2013:10-65). The project would provide for the transfer of landfill gas which includes methane, a flammable gas. However, the project would be constructed and maintained in compliance with 49 Code of Federal Regulations (CFR) Part 192 for plastic pipe and California General Order No. 112-F for design and construction of gas distributing piping. The landfill gas pipeline would be installed underground, minimizing the risks of pipeline breakage or leaks. In addition, regular maintenance and inspections would ensure proper function of the project and acceptable pressure levels minimizing the risk of leakage. The HMBP, prepared for the project, would include an emergency response plan and employee training. As such, the project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. This impact would be less than significant. No mitigation measures are required.

3.10 HYDROLOGY AND WATER QUALITY

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

3.10.1 Environmental Setting

SURFACE WATER

The project site is located within the Merced River drainage basin, a subbasin of the San Joaquin River drainage basin. From its headwaters in Yosemite National Park, the Merced River flows through the northern portion of Merced County (approximately 8 miles northwest of the project site) and enters the San Joaquin River approximately 25 miles west of the project site. The Merced River drainage basin encompasses approximately 1,276 square miles (Merced County 2013a:8-9).

In addition to the Merced River, several creeks and drainages are located within the project vicinity. The Henderson Lateral crosses SR 59 north of the Highway 59 Landfill; Fahrens Creek crosses Bellevue Road west of G Street; drainage canals are located near G Street and Bellevue Road; Sells Lateral crosses Bellevue Road east of Golf Road; Yosemite Lateral crosses Bellevue Road east of Lake Road, crosses Lake Road, and crosses Ranchers Rd twice; and, lastly, Fairfield Canal crosses Ranchers Road.

Surface water quality within Merced County is impacted by climate, geology, and land use and generally diminishes closer to the valley floor due to diversions, decreased flows, and higher concentrations of natural and applied pollutants (Merced County 2013a:8-30). The lower Merced River (McSwain Reservoir to San Joaquin River) is listed as impaired pursuant to Section 303(d) of the Clean Water Act for chlorpyrifos, group A pesticides and mercury (SWRCB 2017).

GROUNDWATER

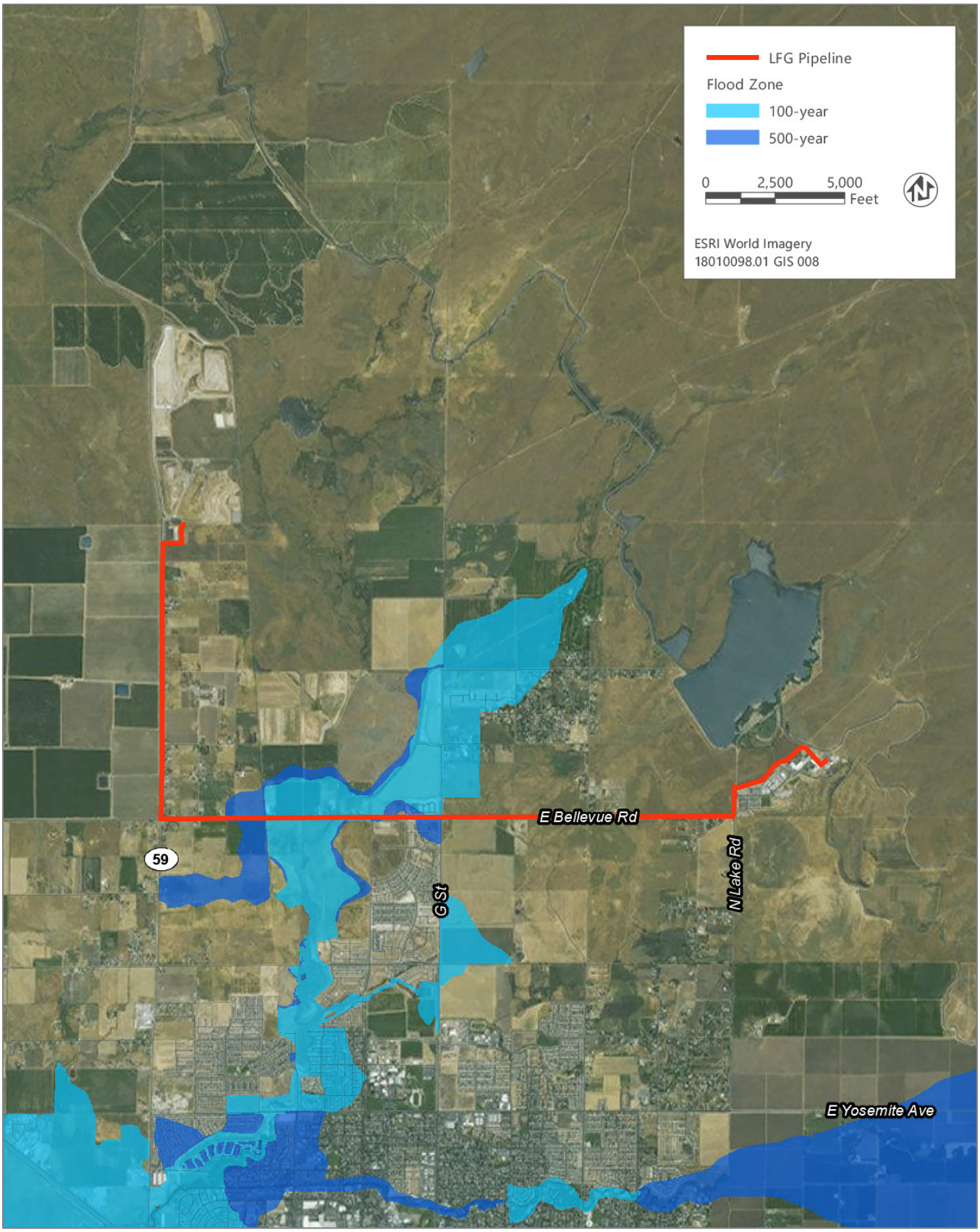
The project site is located within the Merced Groundwater Basin. The basin is the largest in the county and expands from the Merced River in the north, to the Chowchilla River in the south, and from the Valley Springs formation rocks in the Sierra Nevada foothills in the east, to the San Joaquin River in the west. Typical well yields at depths of 100 to 800 feet are 1,500 to 1,900 gallons per minute (gpm) with an annual urban extraction of 54,000 acre-feet and annual agricultural extraction of 492,000 acre-feet. The basin has experienced groundwater level decline with a loss of approximately 720,000 acre-feet between 1980 and 2007 (Merced County 2013a:8-26, 8-27). The project site includes areas under the responsibility of the Merced Subbasin Groundwater Sustainability Agency and the Merced Irrigation-Urban Groundwater Sustainability Agency (Merced County 2019). Neither of these agencies have yet adopted groundwater sustainability plans (GSPs) but are required to do so by January 31, 2020 (Merced County 2019).

Groundwater quality varies throughout the county depending on soil permeability and depth to groundwater. The area northeast of the City of Merced, including the project site, is anticipated to have medium sensitivity to groundwater contamination (Merced County 2013 a:8-32, 8-39). The most common contaminants are two soil fumigants, dibromochloropropane [DBCP] and ethylene dibromide [EDB]; two organic solvents, trichloroethylene [TCE] and tetrachloroethylene [PCE]; and inorganics including arsenic, iron, manganese, and nitrate. Nitrate concentrations frequently exceeded drinking water standards (Merced County 2013a:8-32).

FLOODING

Much of the project site is located within an area of minimal flood hazard, or Zone X, with the exception of the areas along Bellevue Avenue near Fahrens Creek. The area east of Utah Street and west of G Street ranges between a 0.2 percent annual chance flood hazard or 500-year flood zone (Zone X), and special flood hazard zone or 100-year flood zone and regulatory floodway (Zone AE), see Figure 3.10-1 (FEMA 2018).

The northern portion of Merced, including areas along Bellevue Avenue where the proposed pipeline would be installed, is located within the Lake Yosemite dam failure inundation area (City of Merced 2012:11-8, 11-9).



Source: Data downloaded from FEMA in 2018

Figure 3.10-1 Flood Hazard Zones within the Project Vicinity

3.10.2 Discussion

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

Less than significant. The *2030 Merced County General Plan, Water Element,* Goal W-2, Protect the quality of surface and groundwater resources to meet the needs of all users, includes Policy W-2.7: NPDES Enforcement, "Monitor and enforce provisions of the U.S. Environmental Protection Agency National Pollution Discharge Elimination System (NPDES) program to control non-point source water pollution" (Merced County 2013b:W-4).

In addition, the City's *Merced Vision 2030 General Plan* includes the implementing action under Policy OS-1.5, Preserve and Enhance Water Quality, to, "Utilize storm water retention basins and other 'Best Management Practices' to improve the quality of storm water discharged into the region's natural surface water system" (City of Merced 2012:7-26).

The University Community Plan also includes several policies to ensure water quality standards, as listed below (Merced County 2004).

- IW 8.2 Prohibit direct discharge of treated wastewater to surface waters.
- IW 8.3 Ensure that wastewater collection and treatment system(s) are designed and constructed to protect groundwater and surface water from contamination by wastewater.
- IW 8.6 Ensure that stormwater detention and groundwater recharge facilities are designed to avoid adverse impacts to groundwater.
- IW 8.7 Ensure that stormwater conveyance and storage facilities are designed and constructed to ensure no net degradation in stormwater quality.
- IW 8.9 Require the application of Best Management Practices (BMPs) for stormwater quality.

All projects disturbing one acre or more must obtain coverage under the NPDES general construction permit implemented by the State Water Resources Control Board. The project would require approximately 20 acres of soil disturbance, and therefore, would be subject to the NPDES general construction permit. Per the general construction permit, the project would be required to prepare an SWPPP and comply with BMPs to prevent degradation to surface or groundwater quality. As the project would restore conditions along the pipeline route and would not change drainage patterns at either terminus, the project would not require any changes to existing stormwater drainage and would comply with all local regulations. As such, the project would comply water quality standards or waste discharge requirements, and this impact would be less than significant. No mitigation measures are required.

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

Less than significant. The project would require the installation of equipment and construction of facilities at the existing Highway 59 Landfill and the UC Merced campus, directly adjacent to existing structures. In addition, the project would construct approximately 7.1 miles of pipeline between each terminus. The project would require minimal water supplies during construction for dust control; however, no other water supplies would be needed for the project. The project would result in a minimal increase in impervious surface at the landfill. This increase in impervious surfaces would occur within previously disturbed areas and would not result in a substantial decrease in groundwater supplies. Facilities at the UC Merced campus would be constructed on a previously paved area and would not affect groundwater recharge. The pipeline would be constructed underground and would not affect groundwater recharge. This impact would be less than significant. No mitigation measures are required.

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

i) Result in substantial on- or offsite erosion or siltation;

Less than significant. As noted above under 3.10.2 a), The project would not permanently alter the existing drainage pattern of the site or area. Directional drilling would be used for pipeline installation under waterways and other sensitive areas to ensure existing drainage patterns are preserved. Temporary staging areas would be required during installation of the pipeline and would occur within the roadway right-of-way or previously-disturbed areas. Project facilities at the UC Merced campus would be constructed on an existing paved area. Project equipment installed at the landfill, which retains all stormwater and runoff on-site, would result in a minimal addition of impervious surfaces. However, this would occur on previously disturbed areas. Equipment at the landfill would be installed adjacent to the existing landfill flare in an area where previous grading has occurred, and only minor soil disturbance would be required. In addition, all stormwater is retained and treated on-site at the landfill to prevent polluted runoff entering other streams or drainages. The project would be required to obtain a general construction permit and prepare a SWPPP and comply with BMPs, as described above. The SWPPP and required BMPs would also be applied to temporary staging areas and would reduce any risk of erosion or siltation from project implementation. This impact would be less than significant. No mitigation measures are required.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Less than significant. Facilities constructed at the landfill and UC Merced campus would conform to existing drainage patterns. The increase in impervious surfaces would be minimal, would occur outside of flood hazard zones, and would not result in a substantial increase in the rate or amount of surface runoff. The Highway 59 Landfill collects surface runoff to be treated on-site, and on-site facilities are designed to accommodate flows from the entire site. Additional runoff as a result of increased impervious surfaces at the landfill would be minimal and would not exceed existing landfill surface runoff capacity. The pipeline would be constructed underground and would not alter existing drainage patterns or increase impervious surfaces. As noted above, up to 10 staging areas may occur along SR 59, Bellevue Road, and Scholar Lane for installation of the pipeline. No permanent ground disturbance or structures would be constructed at these sites; rather, the staging areas would be utilized temporarily during construction and in conformance with SWPPP requirements prior to being restored to pre-project conditions. This impact would be less than significant. No mitigation measures are required.

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

Less than significant. As previously described, the project would not alter the existing drainage pattern of the site or area. Although there would be a minor increase in impervious surfaces at the landfill, these additional surfaces would be minimal and would not contribute runoff water that could exceed on-site stormwater drainage/treatment system capacity. The pipeline route and proposed facilities at UC Merced would also not result in an increase in impervious surfaces as they would either be located below grade or at the existing central plant, within a currently paved area. Construction staging areas would not include any structures or ground disturbance and would be returned to pre-project conditions after construction activities are completed. In addition, implementation of a SWPPP required for the general construction permit and compliance with BMPs would prevent additional sources of polluted runoff. This impact would be less than significant. No mitigation measures are required.

iv) Impede or redirect flood flows?

Less than significant. The Highway 59 Landfill and UC Merced campus are not located within a special flood hazard area and are classified by FEMA as Zone X or area of minimal flood hazard, 500-year flood zone. Much of the

pipeline is also located within Zone X; however, a portion of the proposed pipeline would be located within a special flood hazard area or 100-year flood zone (FEMA 2008). As such, the project would be subject to the Merced County Code Chapter 18.34 Special Flood Hazard Areas and the City of Merced Code of Ordinances Chapter 17.48 Flood Damage Prevention. A development permit would be required to ensure project implementation does not result in adverse effects related to flood.

The project would primarily be constructed outside of flood hazard areas and would result in a minimal increase in impervious surfaces at the Highway 59 Landfill. The pipeline connection between Highway 59 Landfill and the UC Merced campus would traverse a flood hazard area, however, the pipeline would be underground and would be installed using directional drilling when necessary. The pipeline would not result in an increase in impervious surfaces or alter the course of a stream or river. This impact would be less than significant. No mitigation measures are required.

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

Less than significant. Merced County is not located near the coast or any large lakes; and therefore, the project is not located within a tsunami or seiche zone (Merced County 2012:13-25). A portion of the proposed pipeline would be located within a flood hazard zone and the Lake Yosemite dam failure inundation area (FEMA 2008; City of Merced 2012: 11-8, 11-9). However, the pipeline would be constructed underground and in compliance with City and County ordinances related to flood hazard zones, described under threshold c(iv), as well as 49 CFR Part 192 for plastic pipe and California General Order No. 112-F governing the design and construction of gas distribution piping. Once operational, the pipeline would be inspected and maintained as required by 49 CFR 192.241, 192.243, 192.505 and 192.507 and would include visual inspection of the pipeline and welds, as well as a pressure test. Compliance with existing regulations regarding design, installation, and construction, as well as regular inspection and maintenance, would minimize the potential risk of release of pollutants due to project inundation. This impact would be less than significant. No mitigation measures are required.

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

Less than significant. The project would be located within the San Joaquin River Basin. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board (CVRWQCB) Central Valley Region (Fifth Edition) was prepared for the Sacramento River Basin and the San Joaquin River Basin. The Basin Plan includes water quality objectives for the San Joaquin River. Implementation of the plan is conducted through the NPDES permits and waste discharge requirements for pollution (CVRWQCB 2018).

The project is located within the Merced Groundwater Basin. The Merced Ground Water Basin Groundwater Management Plan Update, Merced County, CA was prepared for the basin in 2008 (MAGPI 2008). The Merced Irrigation-Urban Groundwater Sustainability Agency, the Merced Subbasin Groundwater Sustainability Agency, and the Turner Island Water District Groundwater Sustainability Agency are collectively preparing a Groundwater Sustainability Plan for the basin and is anticipated to be completed by January 2020 (Merced SGMA 2018).

The 2008 Groundwater Management Plan Update includes the key elements for regulating contaminant migration in groundwater; monitoring and controlling groundwater levels, quality, and storage; and the Merced groundwater basin groundwater monitoring program (MAGPI 2008).

The project would include installation of a landfill gas pipeline and associated facilities for landfill capture and conversion to energy. The project would only require temporary water supplies for dust control during construction and would not require water supplies during operation. The project would comply with the NPDES general construction permit and would prepare a SWPPP and comply with BMPs to prevent degradation of water quality. The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This impact would be less than significant. No mitigation measures are required.

3.11 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Land Use and Planning.				
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

3.11.1 Environmental Setting

The project site is located within unincorporated Merced County and portions of the City of Merced. The project would include structures and equipment at the Highway 59 Landfill and the UC Merced campus to facilitate the landfill gas to energy conversion. In addition, a pipeline would be constructed along SR 59 and Bellevue Road to transport the landfill gas to the UC Merced campus. The area surrounding the project site includes agricultural, residential, and commercial land uses.

3.11.2 Discussion

a) Physically divide an established community?

No impact. At the Highway 59 Landfill, scrubbing equipment and compression station would be installed as part of the project. This new equipment would be located adjacent to the existing flare and associated blower equipment and would connect directly to an outlet for the existing blowers. The footprint of the proposed equipment would be approximately 80 feet by 80 feet. At the UC Merced campus, up to four microturbines (800 kilowatts [kW] per microturbine) and associated heat utilization equipment would be installed within an approximately 80 feet by 80 feet enclosure that would be constructed adjacent and attached to the existing Central Plant. The proposed landfill gas pipeline would be approximately 7.1 miles long and would be installed approximately 3 feet below ground surface within existing roadway right-of-way. No residences would be removed as part of the project. Project features would be adjacent to existing structures or roadways and would not divide an established community. As a result, no impact would occur. No mitigation measures are required.

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?

No impact. The project would improve local landfill and university campus emissions and would not introduce an incompatible land use to the area. New equipment and facilities constructed by the project would be compatible with the existing landfill facility and the university's central plant. The pipeline would be constructed within existing roadway right-of-way and would not conflict with adjacent land uses. The project would not require any alterations in land use designations or existing zoning and would not 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. As a result, no impact would occur. No mitigation measures are required.

3.12 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Mineral Resources.				
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.12.1 Environmental Setting

Merced County defines a mineral resource as "a concentration of naturally occurring solid, liquid, or gaseous material in or on the earth's crust in a location and in such an amount that economic extraction of the commodity is feasible (Merced County 2013:8-43). Typical materials with economic value include gold, precious metals, and materials used in construction, such as sand, gravel, and clay." Sand and gravel are the primary mineral resources within the county. Such building material aggregate resources are sufficient within the county and exceed current and projected demand (Merced County 2013:8-50 - 8-52).

The Surface Mining and Reclamation Act of 1975 regulates mining operations and requires that a mineral resource report be prepared for each county. The California Division of Mines and Geology identified ten aggregate resource areas within the county. These areas are primarily located near creeks and rivers, none of which are located near or within the project site (Merced County 2013:8-50 - 8-52).

No identified mineral resources are located within the project vicinity (Merced County 2013:8-50 - 8-52; City of Merced 2010:3.10-1).

3.12.2 Discussion

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?

No impact. No important mineral resources have been identified within the project site (Merced County 2013:8-50 - 8-52; City of Merced 2010:3.10-1). Implementation of the project would not result in loss of availability of known mineral resources that would be of value to the region and the residents of the state. No impact would occur. No mitigation measures are required.

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?

No impact. The project site has not been identified as a locally important mineral recovery site in a local general plan, specific plan, or other land use plan. Therefore, no impact would occur. No mitigation measures are required.

3.13 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII.Noise.				
Would the project result in:				
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 in other applicable local, state, or federal standards?	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

3.13.1 Environmental Setting

ACOUSTIC FUNDAMENTALS

Acoustics is the scientific study that evaluates perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy, transmitted by a pressure wave through a solid, liquid, or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Non-auditory behavioral effects of noise on humans are primarily subjective effects such as annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communications, sleep, and learning.

Noise is typically expressed in decibels (dB), which is a common measurement of sound energy. A decibel is logarithmic; it does not follow normal algebraic methods and cannot be directly summed. For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100-fold increase in acoustical energy. The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed, identified as A through E. There is a strong correlation between the way humans perceive sound and A-weighted sound levels. For this reason, the A-weighted sound levels are used to predict community response to noise from the environment, including noise from transportation and stationary sources, and are expressed as A-weighted decibels. All sound levels discussed in this section are A-weighted decibels unless otherwise noted.

Noise Generation and Attenuation

Noise can be generated by many sources, including mobile sources such as automobiles, trucks, and airplanes and stationary sources such as activity at construction sites, machinery, and commercial and industrial operations. As sound travels through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on a variety of factors. Atmospheric conditions such as wind speed, wind direction, turbulence, temperature gradients, and humidity alter the propagation of noise and affect levels at a receiver. The presence of a barrier (e.g., topographic feature, intervening building, and dense vegetation) between the source and the receptor can provide substantial attenuation of noise levels at the receiver. Natural (e.g., berms, hills, and dense vegetation) and human-made features (e.g., buildings and walls) may function as noise barriers. To provide some context to noise levels described throughout this section, common sources of environmental noise and associated noise levels are presented in Table 3.13-1.

Table 3.13-1 Typical Noise Levels

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet	100	
Gas lawnmower at 3 feet	90	
Diesel truck moving at 50 mph at 50 feet	80	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	60	
Quiet urban daytime	50	Large business office, Dishwasher in next room
Quiet urban nighttime	40	Theater, Large conference room (background)
Quiet suburban nighttime	30	Library, Bedroom at night, Concert hall (background)
Quiet rural nighttime	20	Broadcast/Recording Studio
	10	
Threshold of Human Hearing	0	Threshold of Human Hearing

Notes: dB = A-weighted decibels; mph = miles per hour

Source: Caltrans 2013a

NOISE SOURCES AND AMBIENT NOISE LEVELS

The project is located in two distinct noise environments. The western terminus of the project and the majority of the pipeline alignment is in a rural agricultural area where ambient noise is primarily generated by vehicle traffic on Highway 59 and Bellevue Road. Other noise sources include existing landfill activities, seasonal harvesting activities in adjacent orchards, birds, and livestock. The eastern terminus of the project is located within the UC Merced campus where ambient noise is primarily generated by residential uses, parking lot and pedestrian activity, and campus events.

The nearest airport is the Merced County Castle Airport, which is located 2.7 miles to the west of the project area. The project area is roughly 2 miles outside of the airport's 60 dB CNEL noise contour, which defines areas where higher concentrations of aircraft takeoffs and landings could result in noise impacts to residents and workers. The nearest private airstrip is the Hunt Farms Airport, located 1.8 miles southeast of the project area. Hunt Farms is a private use airport with one dirt runway (AirNav.com 2019)

GROUND VIBRATION

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery or transient in nature, explosions). The existing ambient vibration environment in the project vicinity is extremely low.

NOISE- AND VIBRATION-SENSITIVE LAND USES AND RECEPTORS

Noise- and vibration-sensitive land uses generally include those uses where noise exposure could result in health-related risks to individuals, places where a quiet setting is an essential element of the intended purpose (e.g., schools and libraries), and historic buildings that could sustain structural damage due to vibration.

The western terminus of the project is located at the Highway 59 Landfill in Merced County, which is surrounded by agricultural land uses. The nearest receptor is a rural residence over 0.3 mile to the south. The majority of the pipeline alignment is also located in a rural agricultural area, and there are a few rural residential receptors adjacent to the pipeline alignment on Highway 59 and Bellevue Road. The eastern terminus of the project is located within the UC Merced campus in the City of Merced. Student residential housing is located adjacent to the pipeline alignment on Scholars Lane and is roughly 0.3 mile away from the UC Merced Central Plant, which is the eastern terminus of the project.

LOCAL NOISE AND VIBRATION REGULATIONS

Merced County General Plan

The *2030 Merced County General Plan* includes interior and exterior noise level standards for noise sensitive areas affected by existing non-transportation noise sources, which are shown in Table 3.13-2. These standards apply to unincorporated areas of Merced County, in which the western terminus of the project and portions of the pipeline alignment are located (Merced County 2013).

Table 3.13-2 Non-Transportation Noise Standards Median (L_{50}) / Maximum (L_{max})[1]

Outdoor Area[2]			Interior[3]
Receiving Land Use	Daytime	Nighttime	Day or Night
All Residential	55 / 75	50 / 70	35 / 55
Transient Lodging[4]	55 / 75	---	35 / 55
Hospitals and Nursing Homes[5,6]	55 / 75	---	35 / 55
Theaters and Auditoriums[6]	---	---	30 / 50
Churches, Meeting Halls, Schools, Libraries, etc.[6]	55 / 75	---	35 / 60
Office Buildings[6]	60 / 75	---	45 / 65
Commercial Buildings[6]	55 / 75	---	45 / 65
Playgrounds, Parks, etc.[6]	65 / 75	---	---
Industry[6]	60 / 80	---	50 / 70

Notes:

1 These standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards in this table, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.

2 Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.

3 Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.

4 Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.

5 Because hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

6 The outdoor activity areas of these uses (if any) are not typically used during nighttime hours.

7 Where median (L_{50}) noise level data is not available for a particular noise source, average (L_{eq}) values may be substituted for the standards of this table provided the noise source operates for at least 30 minutes. If the source operates less than 30 minutes the maximum noise level standards shown shall apply.

Source: Merced County 2013

The following general plan goal and policies relevant to the proposed project address ways to eliminate or reduce existing or future conflicts between land uses and noise.

GOAL HS-7: Protect residents, employees, and visitors from the harmful and annoying effects of exposure to excessive noise.

- Policy HS-7.4: New Noise or Groundborne Vibration Generating Uses: Require new commercial and industrial uses to minimize encroachment on incompatible noise or groundborne vibration sensitive land uses. Also consider the potential for encroachment by residential and other noise or groundborne vibration sensitive land uses on adjacent lands that could significantly impact the viability of the commercial or industrial areas.
- Policy HS-7.5: Noise Generating Activities: Limit noise generating activities, such as construction, to hours of normal business operation.
- Policy HS-7.8: Project Design: Require land use projects to comply with adopted noise and vibration standards through proper site and building design, such as building orientation, setbacks, natural barriers (e.g., earthen berms, vegetation), and building construction practices. Only consider the use of soundwalls after all design-related noise mitigation measures have been evaluated or integrated into the project or found infeasible.
- Policy HS-7.12: New Project Noise Mitigation Requirements: Require new projects to include appropriate noise mitigation measures to reduce noise levels in compliance with the Table 3.13-2 standards within sensitive areas. If a project includes the creation of new non-transportation noise sources, require the noise generation of those sources to be mitigated so they do not exceed the interior and exterior noise level standards of Table 3.13-2 at existing noise-sensitive areas in the project vicinity. However, if a noise-generating use is proposed adjacent to lands zoned for residential uses, then the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the standards shown in Table 3.13-2 at the property line of the generating use in anticipation of the future residential development.

Merced County Noise Ordinance

Section 10.60.030 of the Merced County Code of Ordinances specifies sound level limitations that would apply to the portion of the project within the unincorporated County:

- A. No person shall cause, suffer, allow, or permit the operation of any sound source on private property in such a manner as to create a sound level that results in any of the following, when measured at or within the real property line of the receiving property:
    1. Exceeds the background sound level by at least ten (10) dBA during daytime hours (7 a.m. to 10 p.m.) and by at least five (5) dBA during nighttime hours (10 p.m. to 7 a.m.). The background sound level for purposes of this section shall be determined as set forth in Section 10.60.060; or
    2. Exceeds sixty-five (65) dBA L_{dn} on residential real property or seventy (70) dBA L_{dn} on nonresidential real property; or
    3. Exceeds seventy-five (75) dBA L_{max} on residential real property or eighty (80) dBA L_{max} on nonresidential real property.
- B. The following are exempt from the sound level limits of Section 10.60.030(A).
    1. Noise from emergency signaling devices;
    2. Noise from an exterior burglar alarm of any building, provided such burglar alarm shall terminate its operation within five minutes of its activation.
    3. Noise from domestic power tools, lawn mowers, and agricultural equipment when operated between 7 a.m. and 8 p.m. on weekdays and between 8 a.m. and 8 p.m. on weekends and legal holidays, provided they generate less than 85 dBA at or within any real property line of a residential property;
    4. Sound from church bells and chimes when a part of a religious observance or service; and

5. Noise from construction activity, provided that all construction in or adjacent to urban areas shall be limited to the daytime hours between 7 a.m. and 6 p.m., and all construction equipment shall be properly muffled and maintained.

Section 18.41.070 of the Merced County Code of Ordinances specifies noise performance standards and states that: Noise generated by mechanical equipment, buzzers, bells, loud speakers, or other noise generating devices shall comply with the noise standards below at any boundary line of the parcel, except fire protection devices, burglar alarms, and church bells. The following general plan standards for unacceptable noise levels shall apply:

- A. If the proposed use is adjacent to property that is zoned for residential use, the maximum noise level shall not exceed 65 dBA L_{dn} or 75 dBA L_{max} at the property line.
- B. If the proposed use is adjacent to a parcel that is not zoned for residential land use, the maximum noise level at the property line shall not exceed 70 dBA L_{dn} or 80 dBA L_{max} at the property line.
- C. The maximum noise level for uses receiving noise shall be 65 dBA L_{dn} for uses in Residential Zones and 70 dBA L_{dn} for Institutional, Commercial, Industrial, and Agricultural Zones.

Elevated Noise Level During Construction. During construction, the noise level may be temporarily elevated. To minimize the impact, all construction in or adjacent to urban areas shall follow the following procedures for noise control: Construction hours shall be limited to the daytime hours between 7 a.m. and 6 p.m., and all construction equipment shall be properly muffled and maintained.

City of Merced General Plan

The *Merced Vision 2030 General Plan* includes several policies for controlling and reducing noise. The City has not developed a noise ordinance. For this reason, noise standards within the City are established by the general plan (City of Merced 2012). These standards apply to the eastern terminus of the project and portions of the pipeline located in the City of Merced.

- Policy N-1.3. Reduce Equipment Noise Levels.
  - 1.3a: Limit operating hours for noisy construction equipment used in the City of Merced.
- Policy N-1.5. Coordinate Planning Efforts so that Noise-Sensitive Land Uses are not Located Near Major Noise Sources.
  - 1.5.b. Noise created by new proposed non-transportation noise sources should be mitigated to the extent feasible so as not to exceed the exterior noise level standards of 55 dB L_{eq} from the hours of 7 a.m. to 10 p.m., and 45 dB L_{eq} from the hours of 10 p.m. to 7 a.m. as measured immediately within the property line of lands designated for noise-sensitive uses.

University of California Merced Long Range Development Plan

The *UC Merced Long Range Development Plan* (LRDP) is a comprehensive land use plan that identifies the policies and physical development needed to achieve the University's academic goals. The LRDP does not contain any policies relevant to noise and vibration (UC Merced 2009).

3.13.2 Discussion

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 in other applicable local, state, or federal standards?

Project construction and operation would generate noise that is subject to the Merced County noise standards and the City of Merced noise standards.

CONSTRUCTION

Less-than-significant with mitigation incorporated. Noise-intensive construction activities include site preparation, grading, installation of mechanical equipment and concrete foundations, trenching, pipeline installation, repaving, and loaded haul truck trips. These activities would involve the use of heavy-duty construction equipment that would generate noise. It was conservatively assumed that construction activities at the terminuses could involve the simultaneous use of a dump truck, crane, and two backhoes. It was conservatively assumed that pipeline installation could involve the simultaneous use of a dump truck, concrete mixer, and roller. Based on noise reference levels and accounting for typical usage factors of individual pieces of equipment along with typical attenuation rates, construction noise levels were calculated and are shown in Table 3.13-3 (see Appendix F for detailed calculations).

Table 3.13-3 Estimated Activity Noise Levels

Activity	Noise Level at 50 Feet	Distance to Nearest Receptor (feet)	Noise Level at Nearest Receptor
Terminus Construction	88.9 dB L_{max}/84.9 dB L_{eq}	1,750	58 dB L_{max}/54 dB L_{eq}
Pipeline Installation	89.5 dB L_{max}/85.5 dB L_{eq}	35	92.6 L_{max}/88.6 dB L_{eq}

Note: dB = decibels; L_{max} = maximum noise level; L_{eq} = equivalent noise level

Source: Appendix F

As discussed in Section 3.13.1, "Environmental Setting," the Merced County Code Sections 10.60.030 and 18.41.070 limit construction activities within or adjacent to urban areas to daytime hours, between 7:00 a.m. and 6:00 p.m., and require that all construction equipment be properly muffled and maintained. While the project is not located within or adjacent to an urban area, the County's general plan Policy HS-7.5 also limits noise generating activities, such as construction, to normal business hours of operation. Lastly, although the City of Merced has not established specific construction noise standards, it supports limiting operating hours for noisy construction equipment in Policy N-1.3a. Thus, policies and standards established by the County of Merced regarding construction noise are applied to sensitive receptors located in both the unincorporated areas of Merced County and in the City of Merced.

Given the County's construction noise exemption, project construction that occurs during daytime hours, between 7:00 a.m. and 6:00 p.m., would not result in significant, temporary noise impacts. Further, as noted in Chapter 2, "Project Description," construction of the proposed pipeline (similar to other linear pipeline projects) would generally progress in a manner such that construction activities would occur proximate to a receptor for approximately one week, and receptors would likely not perceive construction-related noise for the majority of the pipeline construction period (Phase 3). Nonetheless, if construction occurs outside of daytime hours, noise levels at residences would exceed local standards for non-transportation noise sources, as shown in Table 3.13-3. Impacts would be potentially significant. The following mitigation measure would be implemented to reduce construction noise impacts:

Mitigation Measure 3.13-1: Construction Hours

Prior to the start of construction activities, the contractor shall prepare and implement a construction schedule that limits construction activities to daytime hours, pursuant to Sections 10.60.030 and 18.41.070 of the Merced County Code which limits construction activity to daytime hours, between 7:00 a.m. and 6:00 p.m.

OPERATION

Less-than-significant. Long-term stationary source noise impacts would be significant if stationary noise sources associated with operation of the proposed project would result in noise levels that exceeded the City of Merced's non-transportation exterior noise level standards of 55 dB L_{eq} from the hours of 7 a.m. to 10 p.m., and 45 dB L_{eq} from the hours of 10 p.m. to 7 a.m. as measured immediately within the property line of lands designated for noise-sensitive uses. It shall be noted that projects that comply with the City of Merced's standards would also comply with

the County of Merced's General Plan Land Use Compatibility Noise Levels for non-transportation noise sources (Table 3.13-2) and the Maximum Permissible Noise Levels of 65 L_{dn} and 75 L_{max} established by the Merced County Noise Ordinance for residential land uses.

The pipeline itself would not generating noise. Proposed equipment that would be installed at the Highway 59 Landfill and the UC Merced Central Plant would be comparable to existing noise generated by Central Plant and landfill equipment at both facilities. Microturbines, similar to those of the proposed project, generate typical noise levels of 61-66 dBA at 50 feet (Beith 2011, Capstone 2010). Based on the aforementioned distance between either termini and the nearest receptor(s), noise associated with the operation of the microturbines would likely be inaudible. In addition, at UC Merced, the proposed terminus facility would be enclosed within a pre-cast concrete wall that would further attenuate noise levels. As a result, noise levels are not anticipated to exceed applicable noise standards during project operation and impacts would be less than significant.

Level of Impact after Implementation of Mitigation Measures

Implementation of Mitigation Measure 3.13-1 would ensure that construction activities would take place between the daytime hours of 7 a.m. and 6 p.m., when receptors are least sensitive to noise, as specified by the local general plan and noise ordinance. Therefore, impacts related to construction noise would be reduced to a less-than-significant level.

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

CONSTRUCTION

Less-than-significant. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. The source of the highest level of vibration during project construction would be from loaded haul trucks. According to the FTA, vibration levels associated with loaded haul trucks are 0.076 in/sec PPV and 86 VdB at 25 feet.

The California Department of Transportation (Caltrans) *Transportation and Construction Vibration Guidance* (Caltrans 2013b) includes a variety of vibration thresholds related to structural damage. For residential structures, Caltrans provides the Dowding Building Structure Vibration Criteria of 0.5 PPV (in/sec) to avoid risk of architectural damage (Dowding 1996, as cited in Caltrans 2013b). Based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, vibration levels from loaded haul trucks could exceed the Caltrans recommended level of 0.5 in/sec PPV with respect to architectural damage to newer residential structures within 8 feet of project activities. The nearest residential structure is roughly 35 feet away from project activities, thus, structural damage would not occur.

To address the human response to groundborne vibration, the Federal Transit Administration (FTA) set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. For residential uses and buildings where people normally sleep, the maximum-acceptable vibration limit is 80 VdB (FTA 2018). Based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, vibration levels from loaded haul trucks could exceed FTA's maximum acceptable level of 80 VdB with respect to human response within 40 feet of project activities (See Appendix F). One residence is within 40 feet of project activities and thus, may experience vibration levels in excess of 80 VdB during construction. Passing loaded haul trucks would cause impacts only intermittently, when the truck is within 40 feet of the receptor. Furthermore, it is anticipated that haul truck trips would occur only once or twice per day, generally during daytime hours when receptors are less sensitive to vibration. Therefore, the project would not expose persons to excessive groundborne vibration levels. Impacts would be less than significant.

OPERATION

No impact. The project would not result in the long-term operation of a source of ground vibration (i.e., train or highway). Maintenance activities would be similar to those already conducted for the existing equipment. There would be no impact.

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

Less-than-significant. The project is located within the vicinity of the Hunt Farms Airport, which is a private airstrip, and within the airport land use plan of the Merced County Castle Airport. While the project does not introduce permanent residents to the project area, temporary construction workers may be exposed to airport noise. Hunt Farms Airport is located 1.8 miles away from the eastern terminus of the project, and is a small private use airport with one dirt runway. Given the distance from the project area and the lack of substantial air traffic, Hunt Farms Airport would not be expected to generate substantial airport noise in the project area. The project area is roughly 2 miles outside of the Merced County Castle Airport's 60 dB CNEL noise contour, which defines areas where higher concentrations of aircraft takeoffs and landings could result in noise impacts to residents and workers. Therefore, the project would not expose people working in the project area to excessive airport noise levels.

3.14 POPULATION AND HOUSING

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

3.14.1 Environmental Setting

The project site extends from the southern portion of the Highway 59 Landfill, along SR 59 and Bellevue Road, to the northeastern portion of the UC Merced Campus. Residential uses/housing are located along Bellevue Road near G Street and Golf Road, and at the UC Merced campus.

According to the Department of Finance (DOF) population and housing estimates for January 1, 2018, the estimated total population of unincorporated Merced County was 95,125 and the estimated total population of the city of Merced was 86,750 (DOF 2018). A total of 28,525 housing units exist within unincorporated Merced County with a housing vacancy rate of 10.3 percent and a total of 27,863 housing units exist within the city of Merced with a housing vacancy rate of 4.1 percent (DOF 2018).

3.14.2 Discussion

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than significant. The project would not include the development of new homes or businesses. The project would provide for emission reductions at both the landfill and the university campus by capturing and converting landfill gas to energy that would be used on the university campus. This increased energy production would be used to replace other less efficient heat and energy sources in order to support UC Merced in attaining its Net Zero Energy goal. As a result, the project would not induce substantial unplanned population growth, either directly or indirectly, as the project would not propose new homes, businesses, or roads and would replace existing infrastructure and would not be capacity increasing. The project would require approximately 10-15 employees during construction and one permanent full-time employee once operational. Construction employees would be required for a limited duration and would not require new housing. One permanent full-time employee required for operation of the project would not result in substantial population growth and based on the population and housing data listed above, would not require additional housing or infrastructure. This impact would be less than significant. No mitigation measures are required.

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

No impact. Project construction and operation would not require the displacement of existing people or housing. Project facilities would be constructed within existing landfill and university facility sites and within the existing roadway right-of-way. The project would not interfere with any existing housing development or planned housing development. There would be no impact. No mitigation measures are required.

3.15 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Public Services.				
Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

3.15.1 Environmental Setting

The project site is located within the northern portion of the City of Merced, within portions of northeastern Merced County, and within the UC Merced campus. Fire protection is provided within the City of Merced by the City of Merced Fire Department. Station 53, located at 800 Loughborough Drive, Merced, and Station 55, located at 3520 Parsons Ave, Merced, are nearest to the project site approximately 2.5 miles south (City of Merced 2012:5-2, 5-3). Merced County Fire Department provides services to the portions of the project located in unincorporated Merced County. The nearest station is Merced County Fire Station #85, located at 3360 McKee Road, Merced, 2.5 miles south of the project site (Merced County 2013:7-53, 7-55).

The project site is dispersed across three different police jurisdictions: Merced County Sherriff's Department, City of Merced Police Department, and UC Merced Police Department.

The Merced County Sherriff's Department covers the entire unincorporated Merced County and consists of 101 total sworn offices, 22 patrol vehicles and 4 unmarked non-patrol vehicles. The Department's main station and main office is located at 700 W. 22nd Street, Merced, approximately 3.7 miles south of the project site. The Department's average response time to emergency calls is below 10 minutes. (Merced County 2013:7-49).

The City of Merced Police Department provides police protection to the entire city of Merced (City of Merced 2012:5-4). The Department's main station is located at 611 W. 22nd Street, Merced, approximately 3.7 miles south of the project site (City of Merced n.d.).

The UC Merced Police Department is located at 5200 Lake Road, Merced. The Department's police officers, public safety dispatchers, community service officers, volunteers, and support staff provide both police services and emergency management at the university campus and property that is owned or controlled by the university (UC Merced Police Department 2019).

Education services are provided to the project site by the Merced City Unified School District (Grades K-8), Merced Union High School District (Grades 9-12), Merced Community College, and UC Merced (City of Merced 2012:5-11 – 5-14).

The City of Merced maintains a standard of five acres of park land for every thousand residents. In 2010, the City maintained 24 total parks and 328.6 acres of parkland (City of Merced 2012:7-3). In addition, park areas are provided through school grounds, churches, and the nearby Lake Yosemite Regional Park, maintained by Merced County (City of Merced 2012:7-3).

The Merced County Library system operates a main branch in Merced, as well as several other regional branches dispersed throughout the county. The main branch is located at 2222 M Street, Merced, approximately 3.7 miles south of the project (Merced County 2013:5-15). In addition, UC Merced provides library services at the Leo & Dottie Kolligian Library located on the university campus (UC Merced n.d.).

3.15.2 Discussion

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered 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?

Less than significant. Although not anticipated, temporary roadway closures may occur during construction of the project. If such closures were to occur, access would be maintained for local traffic and emergency response vehicles at all times through the appropriate traffic control measures (e.g., implementation of a traffic control plan, flaggers, etc.). Once operational, the project would not result in the need for new or altered governmental facilities and would not affect fire protection service ratios, response times, or performance objectives. This impact would be less than significant. No mitigation measures are required.

Police protection?

Less than significant. During construction of the project, temporary roadway closures may occur. However, access would be maintained for local traffic and emergency response vehicles at all times. Once operational, the project would not result in the provision or need for new or altered governmental facilities and would not affect police protection service ratios, response times, or performance objectives. This impact would be less than significant. No mitigation measures are required.

Schools?

Less than significant. The project would result in alterations to the UC Merced electricity and heating sources. The project would supply landfill gas to the campus and would convert the landfill gas to energy that would be used for electricity and heating at the site. Operation of the project would require one full time employee. This would not result in a substantial increase in population that would impact service ratios or performance objectives for local schools. This impact would be less than significant. No mitigation measures are required.

Parks?

Less than significant. The project would not include any alterations to existing parks located within the project vicinity. Once operational, the project would require one full time employee that may attend parks located within the vicinity for recreational use. However, this would not be a substantial increase in park attendees and would not require the construction or alteration of park facilities. This impact would be less than significant. No mitigation measures are required.

Other public facilities?

Less than significant. The project would consist of the construction of landfill gas capture, transfer, and conversion facilities, including a 7.1-mile underground pipeline between Highway 59 Landfill and UC Merced. Construction of the project would introduce additional workers to the area; however, this increase in workers would be temporary. Once operational, the project would require one full-time employee to maintain project facilities. The project would not substantially impact public facilities, service ratios, response times or performance objectives. This impact would be less than significant. No mitigation measures are required.

3.16 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Recreation.				
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Environmental Setting

Recreational facilities and services are provided within the project area by Merced County, the City of Merced, and UC Merced.

Merced County owns and operates Lake Yosemite Regional Park, located at 5714 N. Lake Road, Merced, approximately 0.25 miles northwest of the project site. The park provides picnicking, fishing, boating, swimming, and other water recreation to County residents (Merced County 2013:9-9).

The City of Merced maintains 24 total parks (328.6 acres), ranging from mini-parks or tot lots, community parks, and linear parks including linear parks along creek corridors. In addition, park areas are provided through school grounds and churches (City of Merced 2012:7-3). The City of Merced 2004 Park and Open Space Master Plan identified 13.11 miles of bike trails along 4 creek corridors throughout the city (City of Merced 2004).

In addition, UC Merced provides bike trails throughout the campus as well as standard athletic and recreation facilities of a university campus. Recreational facilities are anticipated to include at least 116 acres (Merced County 2013:9-16).

3.16.2 Discussion

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?

Less than significant. The project would require up to 10 to 15 construction workers at any given time during construction. Once operational, the project would require one full time employee for regular maintenance of project facilities. This increase in workers would be minimal and is not anticipated to result in an increase of the use of existing parks or recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. This impact would be less than significant. No mitigation measures are required.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No impact. The project would not include any construction or alteration of recreation facilities, nor would the construction or expansion of recreational facilities be required as a result of the project. There would be no impact. No mitigation measures are required.

3.17 TRANSPORTATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Transportation.				
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☒	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d) Result in inadequate emergency access?	☐	☒	☐	☐

3.17.1 Environmental Setting

The project site extends from the southern portion of the Highway 59 Landfill, along SR-59 and Bellevue Road, to the northeastern portion of the UC Merced Campus. The pipeline route occurs primarily within the right-of-way of the following roads: SR-59; Bellevue Road; Lake Road; Ranchers Road, Ansel Adams Road; and Mineral King Road. SR-59, Bellevue Road, Lake Road, and Ranchers Road are two-lane roads but Bellevue Road is anticipated for widening to six lanes (City of Merced 2012:4-14). Ansel Adams Road and Mineral King Road are within the UC Merced campus and are two-lane roads.

3.17.2 Discussion

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less than significant with mitigation incorporated. Project construction may require temporary lane closures of roadways and adjacent sidewalks, bike lanes, or transit stops. A portion of Bellevue Road is identified by the City's *Merced Vision 2030 General Plan* as a transitway (City of Merced 2012:Figure 4.1). Additionally, UC Merced is served by local transit. Temporary construction impacts would terminate upon completion of construction activities and would not result in permanent effects on the circulation system. During project operation, only one additional employee may be needed at UC Merced. The addition of one employee and associated vehicle trips would not be expected to conflict with any program, plan, ordinance, or policy related to the circulation system. However, impacts related to construction would be potentially significant.

Mitigation Measure 3.17-1: Traffic Control Plan

Prior to project construction within or adjacent to public roadways, the construction contractor or MCRWMA shall develop a traffic control plan for the project and submit the plan to the appropriate jurisdiction (City of Merced, County of Merced, Caltrans), potentially as part of each agency's respective encroachment permit application. The plan shall identify temporary lane, sidewalk, and transit stop closures and provide information regarding how access and connectivity will be maintained during construction activities. The plan shall include details regarding traffic controls that would be employed,

including signage, detours, and flaggers. The traffic control plan shall be implemented by the contractor during construction to allow for the safe passage of vehicles, pedestrians, and cyclists along the pipeline route.

Level of Impact after Implementation of Mitigation Measures

Implementation of Mitigation Measures 3.17-1 would reduce impacts related to the circulation system by ensuring that accessibility and connectivity is maintained during construction activities. Therefore, this impact would be reduced to a less-than-significant level.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3(b), which pertains to vehicle miles travelled?

Less than significant. Temporary construction activities would result in slight increases in vehicle trips associated with worker commute and materials delivery. However, these additional trips would only occur during the 16-month construction period. During operation, one full-time employee may be located at UC Merced to regularly inspect and monitor the proposed facilities, which would result in an additional vehicle roundtrip over those occurring during existing maintenance and operations. This would be a minimal increase in VMT. Because the project would not change the amount of development projected for Merced County, would be consistent with the population growth and VMT projections in regional and local plans, and would have only a slight increase in VMT from the one employee, this impact would be less than significant.

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

Less than significant with mitigation incorporated. Project operation would not result in any changes in road geometry or new uses. As discussed above, project construction would require temporary closure of lanes as well as sidewalks, bike lanes, or transit stops. This impact is considered potentially significant.

Mitigation Measure 3.17-2: Implement Mitigation Measure 3.17-1

Level of Impact after Implementation of Mitigation Measures

Implementation of Mitigation Measures 3.17-2 would reduce impacts related to traffic hazards during construction by requiring a plan to maintain access and provide safety information. Therefore, impacts related to traffic hazards would be reduced to a less-than-significant level.

d) Result in inadequate emergency access?

Less than significant with mitigation incorporated. As discussed in item c) above, project operation would not change any existing roads, including areas provided for emergency access. Project construction would involve temporary lane closures, which has the potential to impact access for emergency vehicles. This impact is considered potentially significant.

Mitigation Measure 3.17-3: Implement Mitigation Measure 3.17-1

Level of Impact after Implementation of Mitigation Measures

Implementation of Mitigation Measures 3.17-3 would reduce impacts related to inadequate emergency access during construction by requiring a plan to maintain access for emergency vehicles during construction. Therefore, impacts related to emergency access would be reduced to a *less-than-significant* level.

3.18 TRIBAL CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Tribal Cultural Resources.				
Has a California Native American Tribe requested consultation in accordance with Public Resources Code section 21080.3.1(b)?	☐ Yes		☒ No	
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:				
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)?	☐	☐	☐	☒
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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☐	☒	☐

3.18.1 Environmental Setting

Natural Investigations Company prepared a cultural and paleontological resources inventory and effect assessment for the project in February 2019. This report is included as Appendix D of this IS/MND. Preparation of the report included a review of cultural literature, Sacred Lands File and paleontological records searches, an intensive-level pedestrian survey of the APE, and a project effects assessment. The study was completed in compliance with CEQA and Section 106 of the National Historic Preservation Act.

The cultural inventory included a search of the Sacred Lands File database maintained by the Native American Heritage Council (NAHC). The search failed to indicate the presence of Native American sacred lands in the immediate vicinity of the project site (NIC 2019:21). Letters were sent to the four tribes on the contact list provided by NAHC, informing them of the project and requesting background information relative to the project area. Follow-up phone calls were placed to the tribes and two tribes responded that they had no concerns about the project (NIC 2019:21). No response was received from the other two tribes.

Assembly Bill 52 (AB 52), signed by the California Governor in September of 2014, established a new class of resources under CEQA: "tribal cultural resources," defined in PRC 21074. Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an environmental impact report, negative declaration, or mitigated negative declaration.

In March 2019, the Native American Heritage Council provided a consultation list of Native American tribes that are traditionally and culturally affiliated with the geographic area of the project. The list identified four tribes. To comply with the requirements of AB 52, letters were sent to these four tribes via certified mail on March 26, 2019. No responses were received. (Note to MCRWMA: To be updated after the 26th, pending level of response from tribes)

3.18.2 Discussion

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:

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)?

No impact. The cultural resources inventory prepared for the project identified seven historic-era sites within the APE and three sites adjacent to but outside the APE (NIC 2019:23). Further review of the seven sites indicated that one site was being destroyed by development of the Bellevue Ranch Master Plan development project while the other six sites were unchanged (NIC 2019:23). Of these six remaining sites, none qualify as eligible for the NRHP or California Register of Historic Resources (CRHR). Because the project site does not include any historic resources eligible for listing in the NRHP or CRHR, the project would have no impact on historic resources.

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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less than significant. The cultural resources inventory prepared for the project included a search of the Sacred Lands File database and follow-up contact with the tribes did not yield any records of sacred lands or other tribal cultural resources. As required by AB 52, letters were sent via certified mail to the tribes affiliated with the project area. No tribes have requested consultation and there are no records of any tribal cultural resources in the project area.

Because the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project site and could be uncovered by project-related construction activities.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated Most Likely Descendant, and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097 would provide an opportunity to avoid or minimize the disturbance of Native American human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be less than significant.

3.19 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. Utilities and Service Systems.				
Would the project:				
a) Require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.19.1 Environmental Setting

The project site is in Merced County, just north of Merced, between the Highway 59 Landfill and the UC Merced campus. Water supply is provided to the project site by the Merced Irrigation District (MID) and is primarily sourced from the Merced Groundwater Basin. The City of Merced provides wastewater collection and treatment to the city and surrounding unincorporated areas. The City Wastewater Treatment Plant (WWTP) is located in the southwest portion of Merced (City of Merced 2012). Stormwater drainage at the Highway 59 Landfill is provided by the Merced County Regional Waste Management Authority. Other stormwater drainage facilities are provided along SR 59 and Bellevue Road and at the UC Merced Campus.

Merced Electrical power is provided to the site by Pacific Gas and Electric (PG&E) and MID. Natural gas is also supplied by PG&E (City of Merced 2012). Telecommunications facilities are provided by various vendors including SBC/AT&T (City of Merced 2012; Merced County 2013).

Solid waste disposal services are provided by the Merced County Regional Waste Management Authority. The Highway 59 Landfill serves the project site (City of Merced 2012).

3.19.2 Discussion

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

Less than significant. The project would provide for the conversion of gas collected at the Highway 59 Landfill to electricity for the UC Merced campus. Implementation of the project would offset the existing energy requirements of the campus by converting biogas from the landfill to supplement the electricity and heating needs of the upper campus. The project would include collection, scrubbing, and compression equipment at the landfill, an optional microturbine at the landfill, a 7.1-mile underground pipeline, and up to four microturbines would be constructed adjacent to the existing central plant located on the campus. However, these facilities would support the university's Net Zero Energy goal, reduce emissions at both the landfill and the university campus, and would not result in significant environmental effects. Existing utility lines located along the pipeline route are anticipated to be avoided through project design and engineering, and relocation would not be necessary. Further, the project would not require or result in the construction of new or expanded water, wastewater treatment or stormwater drainage, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects. This impact would be less than significant. No mitigation measures are required.

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

Less than significant. The project may require minimal water supplies for dust control during construction. Once construction activities are complete the project would not require any water supplies. Existing water supplies would be sufficient as water needs for the project would be minimal and temporary. This impact would be less than significant. No mitigation measures are required.

c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

No impact. The project would involve the installation of a landfill gas pipeline and associated gas compression and conversion facilities. The project would have no wastewater treatment demand, and there would be no impact. No mitigation measures are required.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than significant. The project would not require the demolition or removal of existing structures, and therefore, would only generate minimal amounts of solid waste related to construction and equipment installation activities. The southern portion of the old entrance road to the Highway 59 Landfill would be removed and graded to accommodate the proposed facilities at the Highway 59 Landfill. The concrete and base rock would be recycled and used for future road construction. Similarly, the existing paved area at the UC Merced Central Plant would be removed and recycled, likely at the Highway 59 Landfill. The project would not generate minimal solid waste during operation, limited to waste generated by the one additional employee and maintenance of the scrubbing equipment at the Highway 59 Landfill. This impact would be less than significant. No mitigation measures are required.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than significant. As discussed above under threshold d), the project would generate minimal amounts of solid waste, primarily related to construction activities. Any solid waste generated would be transferred and disposed of in accordance with federal state and local management and reduction statutes and regulations related to solid waste. This impact would be less than significant. No mitigation measures are required.

3.20 WILDFIRE

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

3.20.1 Environmental Setting

The entire project site, including the pipeline route, is located within the local responsibility area. Lands located northeast of Lake Yosemite and the UC Merced campus are within the state responsibility area. The Highway 59 Landfill, and portions of the project site located east of G Street are classified as a moderate fire hazard severity zone. Portions of the project site located within south of the landfill along SR 59 and west of G Street along Bellevue Road are classified as unzoned. No portion of the project site is located in or near lands classified as high fire hazard severity zones (CalFIRE 2007).

3.20.2 Discussion

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than significant. Merced County and UC Merced have each adopted an Emergency Operations Plan (Merced County 2017; UC Merced 2009). The project would result in the construction and installation of landfill gas capture equipment at the Highway 59 Landfill, energy conversion facilities at the UC Merced campus, and an underground pipeline between the landfill and university campus. No roadway closures are anticipated during construction. However, if temporary closures would be required, emergency access would be maintained at all times. Once operational, the project would not conflict with emergency response or evacuation plans. The project would not

substantially impair an adopted emergency response plan or emergency evacuation plan and this impact would be less than significant. No mitigation measures are required.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than significant. The project would not result in any alterations to slope, wind, or other factors. The project would include the installation of a landfill gas pipeline and gas to energy conversion facilities. The pipeline would be constructed underground, and all surfaces would be returned to pre-project conditions upon completion of construction activities. In addition, the pipeline and associated equipment and facilities would be constructed and maintained in compliance with 49 CFR Part 192 for plastic pipe and California General Order No. 112-F for design and construction of gas distributing piping. The pipeline would be tested in accordance with ASME B31.8 – 2016, Gas Transmission and Distribution Piping Systems. Inspections of the pipeline would also be conducted in accordance with requirements established in 49 CFR 192.241, 192.243, 195.505 and 192.507. In addition, isolation valves would be located at each end of the pipeline and at the midway point in order to allow for the rapid discharge of gas in the event of an emergency. A pressure relief valve would also be installed at the UC Merced terminus to regulate pipeline pressure. Compliance with applicable regulations and regular inspection of project facilities would reduce wildfire risks and the exposure to pollutant concentrations or uncontrolled spread of wildfire. This impact would be less than significant. No mitigation measures are required.

c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less than significant. The project would include collection and scrubbing equipment and a compressor station, as well as an optional microturbine, at the Highway 59 Landfill. At the UC Merced campus, up to four microturbines and associated heat utilization equipment would be installed adjacent to the existing central plant. In addition, a 7.1-mile underground pipeline would be constructed along SR 59 and Bellevue Road between the landfill and university campus. As described above, under threshold b), project facilities would be constructed, designed, inspected, and maintained in accordance with applicable regulation to reduce fire risk. The project would not require the installation of any other infrastructure or utilities that may exacerbate fire risk. This impact would be less than significant. No mitigation measures are required.

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?

Less than significant. The project would not result in an increase in population, nor would the project include the construction of residential or commercial structures. The project site is topographically flat and is not at risk for landslides. The pipeline would be constructed underground and would not affect flooding. The project would not result in a substantial change in runoff, post-fire slope instability, or drainage changes that would expose people or structure to significant risks. This impact would be less than significant. No mitigation measures are required.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

3.21.1 Discussion

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less than significant with mitigation incorporated. As discussed in Section 3.4, "Biological Resources," with the incorporation of mitigation measures, the project would not have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal. As discussed in Section 3.5, "Cultural Resources," potential impacts to previously unknown archaeological resources would be reduced to a less-than-significant level with incorporation of the mitigation measures presented above.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less than significant. Project impacts would be individually limited and not cumulatively considerable due to the site-specific nature of the potential impacts. The potentially significant impacts that can be reduced to a less-than-significant level with implementation of recommended mitigation measures include the following areas: biological resources, cultural resources, geology and soils, noise, and transportation. These impacts would primarily be related to construction activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics.

Potentially significant biological resources impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures 3.4-1a through 3.4-1e, 3.4-2, 3.4-3a, and 3.4-3b. Potentially significant cultural resources impacts would be reduced to less-than-significant levels with implementation of Mitigation Measure 3.5-1. Potentially significant impacts related to geology and soils would be reduced to less-than-significant levels with implementation of Mitigation Measures 3.7-1 and 3.7-2. Potentially significant construction noise impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure 3.13-1. Potentially significant transportation impacts would be reduced to less-than-significant levels with implementation of Mitigation Measures 3.17-1 and 3.17-2.

The project would have no impact or less than significant impacts to the following environmental areas: aesthetics, agriculture and forestry resources, air quality, energy, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, utilities and service systems, and wildfire. Therefore, the project would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the proposed project would be reduced to a less-than-significant level through the implementation of the mitigation measures recommended in this document. Implementation of these measures would ensure that the impacts of the project would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project implementation. Therefore, this impact would be less than significant.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less than significant with mitigation incorporated. The proposed project would have a potentially significant impacts related to the following areas: air quality, biological resources, cultural resources, geology and soils, noise, and transportation. However, all of these impacts would be reduced to less-than-significant levels with incorporation of the mitigation measures included in the respective section discussions. No other direct or indirect impacts on human beings were identified in this IS/MND.

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No references were used in this section.

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