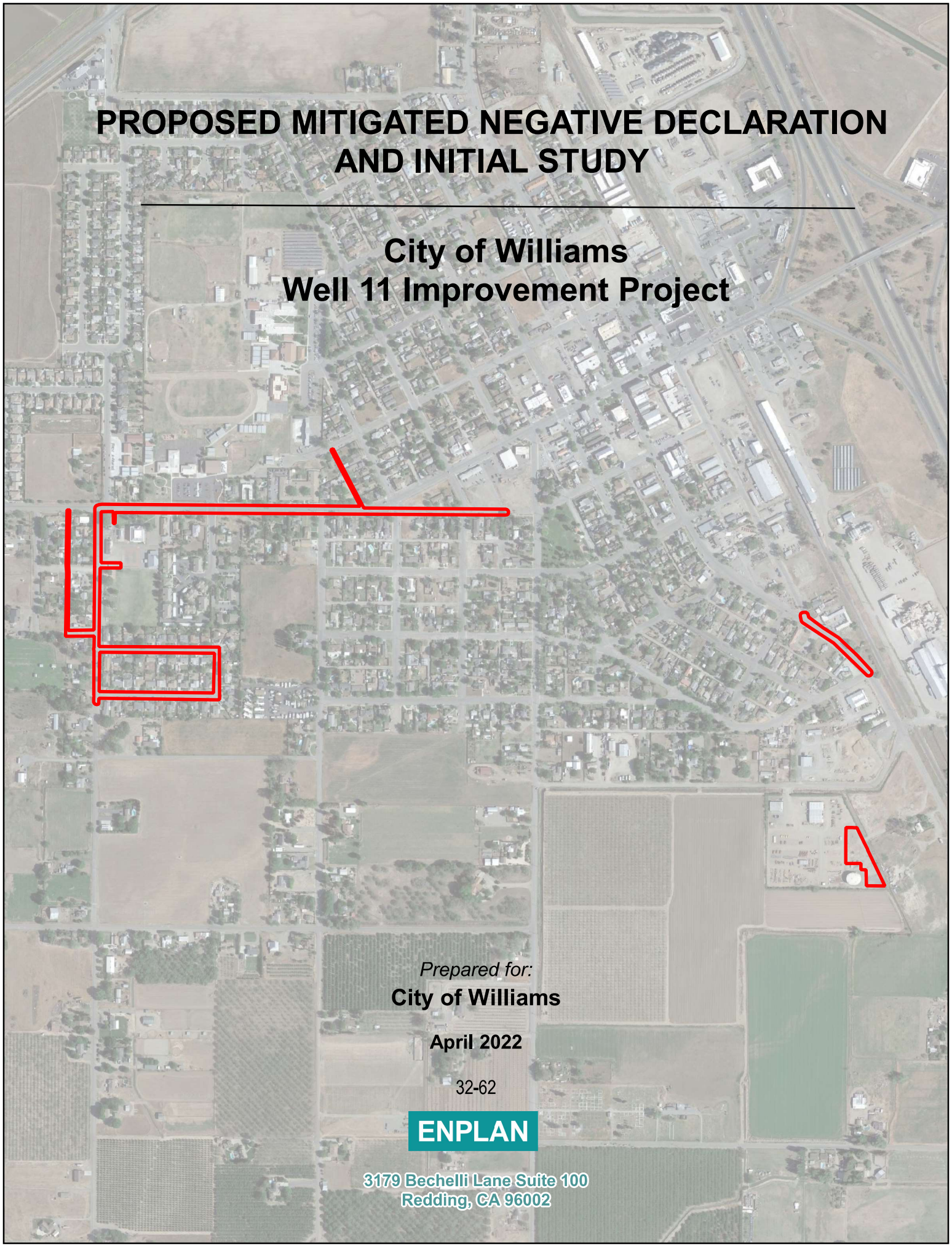
PROPOSED MITIGATED NEGATIVE DECLARATION AND INITIAL STUDY

City of Williams
Well 11 Improvement Project



Prepared for:

City of Williams

April 2022

32-62

ENPLAN

3179 Bechelli Lane Suite 100
Redding, CA 96002

MITIGATED NEGATIVE DECLARATION

LEAD AGENCY:	City of Williams
PROJECT PROPONENT:	City of Williams
PROJECT NAME:	**Well 11 Improvement Project**
PROJECT SUMMARY:	The proposed project includes improvements to the City of Williams' water supply and distribution infrastructure. Improvements would occur at the City's water tank site on Theatre Road, and distribution system improvements would occur in public road rights-of-way (ROW) and utility easements. Improvements at the water tank site would include installing a new well and associated equipment, installing a new oxidation-filtration system to remove manganese (Mn), constructing a well house, constructing a new backwash tank, installing a new water main from the well to the water tank, and installing an emergency back-up generator. Distribution system improvements would include replacing/upsizing ±8,110 linear feet of water mains; constructing just over 200 linear feet of new main to create a loop out of existing dead-end lines; replacing ±80 water services, ±6 water meters and meter boxes, and ±13 fire hydrants; and adding one new fire hydrant. The purpose of the proposed project is to replace aging infrastructure, increase system pressures, provide improved fire flows and fire protection in the southwestern areas of the City, and to ensure a safe and reliable potable water supply for customers in the City's water service area.
LOCATION:	The project is located in the City of Williams in Colusa County. The water tank site is located south of Theatre Road, generally west of 7th Street (Old Highway 99W) and east of Zumwalt Road. Distribution system improvements would occur in various public road ROWs and utility easements in or adjacent to E Street, F Street, Venice Boulevard, Westgate Drive, 7th Street and Solano Street; in an alley between Solano Street and E Street, west of Venice Boulevard; and in an alley between E Street and D Street, west of 11th Street. *See **Figure 1** of the Initial Study.*

Findings / Determination

As documented in the Initial Study, project implementation could result in possible impacts on the quality of the environment due to the introduction and/or spread of noxious weeds during construction, impacts on cultural resources and tribal cultural resources due to inadvertent discovery during construction, temporarily increased air emissions, and temporarily increased noise and vibration levels.

Design features incorporated into the project would avoid or reduce certain potential environmental impacts, as would compliance with existing regulations and permit conditions. Remaining impacts can be reduced to levels that are less than significant through implementation of the mitigation measures presented in Section 1.10 of the Initial Study. Because the City of Williams will adopt mitigation measures as conditions of project approval and will be responsible for ensuring their implementation, it has been determined that the project will not have a significant adverse impact on the environment.

The final Mitigated Negative Declaration was adopted by the City of Williams City Council on _____, 2022.

INITIAL STUDY

WILLIAMS WELL 11 IMPROVEMENT PROJECT

CITY OF WILLIAMS

COLUSA COUNTY, CALIFORNIA

LEAD AGENCY:

City of Williams
P.O. Box 310
Williams, CA 95987
530.275.3002

PREPARED BY:

ENPLAN
3179 Bechelli Lane, Suite 100
Redding, CA 96002
530.221.0440

April 2022

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FIGURES

TABLES

APPENDICES

SECTION 1.0 INTRODUCTION

1.1 PROJECT SUMMARY

Project Title:	**Well 11 Improvement Project**
Lead Agency Name and Address:	**City of Williams** P.O. Box 310 Williams, CA 95987
Contact Person and Phone Number:	**Frank Kennedy, City Administrator** 530.473.2955 ext. 117
Lead Agency's Environmental Consultant:	**ENPLAN** 3179 Bechelli Lane, Suite 100 Redding, CA 96002

1.2 PURPOSE OF STUDY

The City of Williams (City), as Lead Agency, has prepared this Initial Study to provide the general public and interested public agencies with information about the potential environmental impacts of the proposed Well 11 Improvement Project (project). Details about the proposed project are included in Section 3.0 (Project Description) of this Initial Study.

This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified in California Public Resources Code (PRC) §21000 et seq., and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3. Pursuant to these regulations, this Initial Study identifies potentially significant impacts and, where applicable, includes mitigation measures that would reduce all identified environmental impacts to less-than-significant levels. This Initial Study supports a Mitigated Negative Declaration (MND) pursuant to CEQA Guidelines §15070.

1.3 EVALUATION TERMINOLOGY

The environmental analysis in Section 4.0 is patterned after the Initial Study Checklist recommended in the State CEQA Guidelines. For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the proposed project. To each question, there are four possible responses:

- **No Impact.** The proposed project will not have any measurable environmental impact on the environment.
- **Less-Than-Significant Impact.** The proposed project has the potential to impact the environment; however, this impact will be below established thresholds of significance.
- **Potentially Significant Impact Unless Mitigation Incorporated.** The proposed project has the potential to generate impacts which may be considered a significant effect on the environment; however, mitigation measures or changes to the proposed project's physical or operational characteristics can reduce these impacts to levels that are less than significant.
- **Potentially Significant Impact**. The proposed project will have significant impacts on the environment, and additional analysis is required to determine if it is feasible to adopt mitigation measures or project alternatives to reduce these impacts to less than significant levels.

1.4 ORGANIZATION OF THE INITIAL STUDY

This document is organized into the following sections:

Section 1.0: **Introduction:** Describes the purpose, contents, and organization of the document and provides a summary of the proposed project.

Section 2.0: **CEQA Determination:** Identifies the determination of whether impacts associated with development of the proposed project are significant, and what, if any, additional environmental documentation may be required.

Section 3.0: **Project Description:** Includes a detailed description of the proposed project.

Section 4.0: **Environmental Impact Analysis (Checklist):** Contains the Environmental Checklist from CEQA Guidelines Appendix G with a discussion of potential environmental effects associated with the proposed project. Mitigation measures, if necessary, are noted following each impact discussion.

Section 5.0: **List of Preparers**

Section 6.0: **Abbreviations and Acronyms**

Appendices: Contains information to supplement Section 4.0.

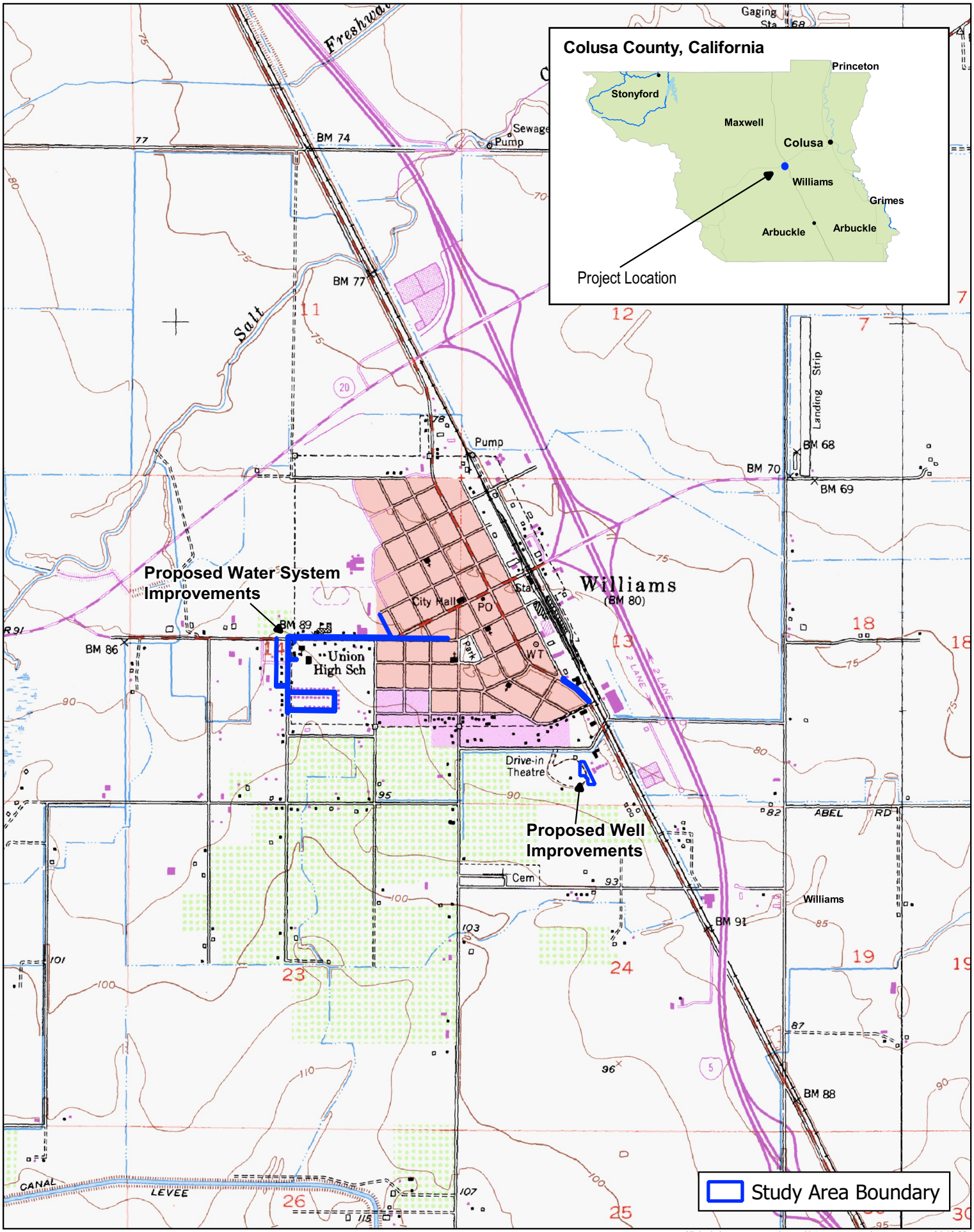
1.5 PROJECT LOCATION

As shown in **Figure 1**, Project Location and Vicinity Map, the proposed project is located in the City of Williams, Colusa County. Well improvements would be located on City-owned property south of Theatre Road west of its intersection with 7th Street/I-5 Business Route. Waterline improvements would occur within the public road rights-of-way (ROWs) of Westgate Drive, Venice Boulevard, D Street, E Street, F Street, 7th Street and Solano Street; within an alleyway between Solano Street and E Street, west of Venice Boulevard; in an alleyway between E Street and D Street, west of 11th Street; and within existing public utility easements on private property. **Figure 2** shows the study area for the waterline and well site improvements overlain on aerial imagery. **Figure 3** provides a site plan for the proposed well and associated improvements.

Temporary staging of construction materials and equipment would occur within the fenced well site parcel, and in the affected road ROW throughout the project area. No physical improvements are needed to establish the staging areas.

The proposed project is located in Sections 13 and 14, Township 15 North, Range 3 West, of the U.S. Geological Survey (USGS) Williams 7.5-minute quadrangle. Latitude 39° 09' 06" N; Longitude -122° 09' 01" W (centroid).

Assessor's Parcel Numbers. Well Site: Colusa County Assessor's Parcel Number 016-320-123; Waterline Improvements: Various public road ROWs.



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All depictions are approximate. Not a survey product. 04.12.22

Figure 1

Project Vicinity Map

ENPLAN

Path: N:\company\files\01-Jobs Active\032-62 PACE - City of Williams Well 11\3-Project GIS\3-Map Documents\CEQA\Figure 2 Waterline Improvements 122221.qgz

0 175 350 Feet

Figure 2

Waterline Improvements

Feature and boundary locations depicted are approximate only.
This is not a survey product.

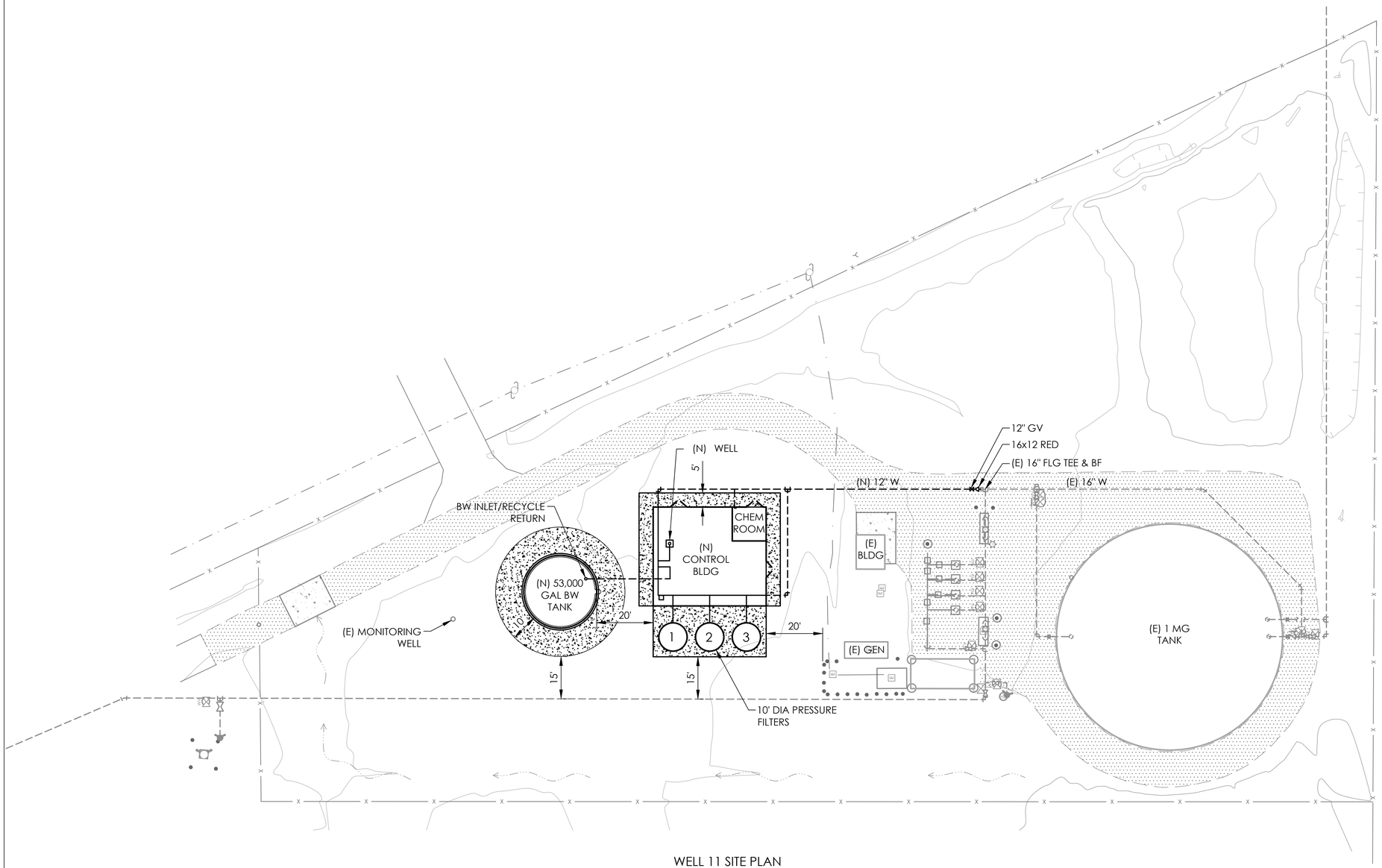
04.07.22

ENPLAN

1"=20'

LEGEND

- AC PAVING
- AGGR BASE
- CONC
- FLOW LINE
- BOLLARD



WELL 11 SITE PLAN

DRAFT

BAR IS ONE INCH ON ORIGINAL DRAWING
0" 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

REVISIONS		
NO	DATE	DESCRIPTION

PACE ENGINEERING
REDDING, CALIFORNIA

DES ??	CKD ??	JOB NO.
DRN ??	DATE 1/15/21	2290.14

SIGNED

CITY OF WILLIAMS
WELL 11 IMPROVEMENT PROJECT
FIGURE 3
WELL 11 SITE AND PIPING PLAN

SHEET
C2.0
PG 4 OF 15

Plot Date: February 18, 2021 - 12:25 pm Login Name: rbowser
File Name: M:\land projects\2290\14 well 11 improvement project\1_DWG\C_CD\Existing Site Plan.dwg, Layout: SITE AND PIPING PLAN

1.6 ENVIRONMENTAL SETTING

General Plan Designations:	Distribution System Improvements: Neighborhood Conservation, Parks and Recreation, Commercial Well Site: Business Park
Zoning:	Distribution System Improvements: Neighborhood Conservation (NC87-6, NC80-7, and NC80-6), and Commercial Suburban (C-S) Well site: Business Park (BP)
Surrounding Land Uses:	The well site is located on City-owned property currently developed with a booster pump station and a 1 million-gallon water tank. Land uses surrounding the well site include single-family residences to the northwest and east, irrigated agricultural land to the south, an office and storage yard to the north, and a trucking business to the east. An irrigation ditch runs along the south side of Theatre Road to the north of the well site. Land uses adjacent to the water main improvements include single-family residences, an elementary school on E Street, a park and museum on Venice Boulevard, and an auto repair shop on 7th Street.
Topography:	Elevations in the study area range between ±80 feet and ±100 feet above sea level. The study area is characterized by nearly flat terrain.
Plant Communities/Wildlife Habitats:	Plant community types present in the project study area are agricultural and urban. An agricultural community is present adjacent to the well site and consists of plowed fields and irrigation ditches. An urban community is present throughout the remainder of the study area and includes roads and road shoulders, and developed properties. The urban plant community consists of ornamental/horticultural landscaping and interspersed with weedy, ruderal vegetation. *See Section 4.4 (Biological Resources)*
Climate:	The study area is characterized by a Mediterranean climate with cool, wet winters and hot, dry summers. The average annual temperature is about 61 degrees Fahrenheit (°F). Monthly mean maximum temperatures range from a high of 96° F in July to a low of 36° F in January. Daily high temperatures commonly exceed 100° F during the summer. Precipitation is about 16 inches per year.

1.7 TRIBAL CULTURAL RESOURCES CONSULTATION

Public Resources Code (PRC) §21084.2 (AB 52, 2014) establishes that *"a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."* Pursuant to PRC §21080.3.1, in order to determine whether a project may have such an effect, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if the tribe requested to be informed through formal notification of proposed projects in the geographical area; and the tribe responds, in writing, within 30 days of receipt of the formal notification and requests the consultation.

The Yocha Dehe Wintun Nation requested notification of project under the jurisdiction of the City of Williams. Project information was mailed to the Nation on December 2, 2021, and the Nation responded to the letter on December 10, 2021. The Nation stated that the project is within the aboriginal territories of the Yocha Dehe Wintun Nation; however, the Nation is not aware of any known cultural resources near the project site and a cultural monitor is not needed. The Nation recommended cultural sensitivity training for any onsite personnel to be made a condition of approval. A mitigation measure was subsequently added to the cultural resources inventory report and to this Initial Study requiring cultural sensitivity training for construction personnel. Due to subsequent modification of the project proposal, additional information was mailed to the

Nation on March 9, 2022; a response was received on March 22, 2022, restating the request for cultural sensitivity training for construction personnel. See Section 4.5 (Cultural Resources) and Section 4.18 (Tribal Cultural Resources) for a discussion regarding Native American outreach and consultation.

No other comments or concerns were reported by any Native American representative or organization.

1.8 REGULATORY REQUIREMENTS

Permits and approvals that may be necessary for construction and operation of the proposed project are identified below.

City of Williams

- Adoption of a Mitigated Negative Declaration pursuant to CEQA.
- Adoption of a Mitigation Monitoring and Reporting Program for the project that incorporates the mitigation measures identified in this Initial Study.
- Approval of an Encroachment Permit for work in the public road right-of-way.

State Water Resources Control Board (SWRCB)/Central Valley Regional Water Quality Control Board (CVRWQCB):

- Coverage under the NPDES permit for *Discharges of Storm Water Runoff Associated with Construction Activity* (currently Order No. 2009-009-DWQ, amended by 2010-0014-DWQ & 2012-0006-DWQ). Permit coverage may be obtained by submitting a Notice of Intent to the SWRCB. The permitting process requires the development and implementation of an effective Storm Water Pollution Prevention Plan (SWPPP) that includes Best Management Practices (BMPs) to reduce pollutants and any additional controls necessary to meet water quality standards.
- If construction dewatering activities result in the direct discharge of relatively pollutant-free wastewater, coverage under CVRWQCB General Order R5-2016-0076-01 (NPDES NO. CAG995002) Waste Discharge Requirements - Limited Threat Discharges to Surface Water. This Order includes specific requirements for monitoring, reporting, and implementing BMPs for construction dewatering activities.

State Water Resources Control Board, Division of Drinking Water

- Approval of a Domestic Water Supply Permit amendment pursuant to the California Safe Drinking Water Act, Article 7, Section 116550, for modifications/additions to the water system.

California Office of Historic Preservation, State Historic Preservation Officer (SHPO)

- Due to federal permits for the proposed project, consultation regarding potential impacts to cultural resources is required pursuant to Section 106 of the National Historic Preservation Act (NHPA).

1.9 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the proposed project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages. Impacts to these resources are evaluated using the checklist included in Section 4.0. The proposed project was determined to have a less-than-significant impact or no impact without mitigation on unchecked resource areas.

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

1.10 PROPOSED MITIGATION MEASURES

The following mitigation measures are proposed to reduce impacts of the proposed project to less than significant levels.

AIR QUALITY

MM 4.3.1 In order to minimize emissions during construction, the City shall ensure through contractual obligations that all off-road mobile construction equipment (e.g., cranes, excavators, graders, dozers, etc.) shall be California Air Resources Board (CARB) Tier 4 Certified.

MM 4.3.2 The following measures shall be implemented throughout construction:

a. All material excavated, stockpiled, or graded shall be covered or sufficiently watered to prevent fugitive dust from leaving property boundaries and causing a public nuisance or a violation of ambient air quality standards. Watering shall occur at least twice daily with complete site coverage, preferably in the mid-morning and after work is completed each day.

b. All material transported offsite shall be either sufficiently watered or securely covered to prevent a public nuisance.

c. All areas (other than paved roads) with vehicle traffic shall be watered periodically or have dust palliatives applied for stabilization of dust emissions.

d. All on-site vehicles shall be limited to a speed of 15 miles per hour on unpaved roads.

e. All land clearing, grading, earth moving, and excavation activities on the project site shall be suspended when winds are causing excessive dust generation.

f. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of free board in accordance with the requirements of Section 23114 of the California Vehicle Code. This provision is enforced by local law enforcement agencies.

g. Paved streets in and adjacent to the construction site shall be swept or washed at the end of the day to remove excessive accumulations of silt and/or mud resulting from activities on the development site.

h. When not in use, motorized construction equipment shall not be left idling for more than five minutes.

BIOLOGICAL

MM 4.4.1 The potential for introduction and spread of noxious weeds shall be avoided/minimized by:

a. Using only certified weed-free erosion control materials, mulch, and seed;

b. Limiting any import or export of fill material to material that is known to be weed free; and

c. Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the job site and upon leaving the job site.

CULTURAL

MM 4.5.1 Prior to commencement of any earth disturbance (e.g., clearing, grading, trenching, etc.), all construction personnel participating in the earth-disturbing activities and their supervisors shall receive training regarding cultural and tribal cultural resources that may be present on the project site. Training shall be provided by the Yocha Dehe Wintun Nation or, if tribal representatives are not available, by a qualified archaeologist. At a minimum, the training shall include a discussion of pertinent laws protecting cultural and tribal cultural resources, examples of resources that could be encountered during project construction, and procedures to be followed if resources are found. The latter shall include familiarity with conditions requiring pause of work, notifications to be made if cultural materials or human remains are encountered, and dignity/respect training.

If new personnel are added to the project, the City shall ensure that they receive the mandatory training before starting work. The initial training session may be videotaped and presented to new personnel to satisfy the sensitivity training requirement. If individuals can provide documentation of cultural resources training within the past two years, recertification is not required.

MM4.5.2 In the event of any inadvertent discovery of cultural resources (i.e., burnt animal bone, midden soils, projectile points or other humanly modified lithics, historic artifacts, etc.), all work within 50 feet of the find shall be halted until a professional archaeologist can evaluate the significance of the find in accordance with PRC §21083.2(g) and §21084.1, and CEQA Guidelines §15064.5(a). If any find is determined to be significant by the archaeologist, the City shall meet with the archaeologist to determine the appropriate course of action. If necessary, a Treatment Plan prepared by an archeologist outlining recovery of the resource, analysis, and reporting of the find shall be prepared. The Treatment Plan shall be reviewed and approved by the City prior to resuming construction.

MM 4.5.3 In the event that human remains are encountered during construction activities, the City shall comply with §15064.5 (e) (1) of the CEQA Guidelines and PRC §7050.5. All project-related ground disturbance within 100 feet of the find shall be halted until the County coroner has been notified. If the coroner determines that the remains are Native American, the coroner will notify the NAHC to identify the most likely descendants of the deceased Native Americans. Project-related ground disturbance in the vicinity of the find shall not resume until the process detailed in §15064.5 (e) has been completed.

NOISE

MM 4.13.1 The emergency back-up generator shall be placed inside an enclosure or behind a noise barrier if necessary in order to achieve compliance with the City's noise level standards. Noise attenuation requirements shall be identified by the project engineer and confirmed by the City Administrator or his/her designee prior to installation of the generator.

MM 4.13.2 Construction activities (excluding activities that would result in a safety concern to the public or construction workers) shall be limited to between the daytime hours of 7:00 A.M.

and 7:00 P.M., Monday through Saturday. Construction activities shall be prohibited on Sundays and federal/state recognized holidays. Exceptions to these limitations may be approved by the City Administrator or his/her designee for activities that require interruption of utility services to allow work during low demand periods, or to alleviate traffic congestion and safety hazards.

MM 4.13.3 Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

MM 4.13.4 Stationary construction equipment (generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses.

TRIBAL CULTURAL RESOURCES

Implementation of **Mitigation Measures MM 4.5.1, 4.5.2 and 4.5.3.**

SECTION 2.0 CEQA DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ **I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION has been 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 significant effect(s) on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An 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.

_____ _____

Frank Kennedy Date
City of Williams City Administrator

SECTION 3.0 PROJECT DESCRIPTION

3.1 PROJECT BACKGROUND, NEED, AND OBJECTIVES

Established in 1876, the City of Williams (City) owns water distribution and treatment facilities operated by the Public Works Department. The majority of the existing distribution system was constructed in 1927 and consisted of 4-inch and 6-inch cast iron water mains, with later construction utilizing asbestos cement (AC) and polyvinyl chloride (PVC) mains. The City currently encompasses ±3,200 acres (5 square miles) and the City's sphere of influence (SOI) encompasses ±5,200 acres (8.1 square miles). According to the U.S. Census Bureau, the City's population in 2019 was approximately 5,408.

The water system currently consists of two active permitted wells (Wells 8 and 10), one well currently out of service due to severe silt and sanding (Well 9), two disconnected wells (Wells 3 and 6), one 100,000-gallon elevated steel storage tank, one 1-million-gallon storage tank, one booster pump station, and approximately 22.5 miles of 2-inch to 16-inch water distribution mains. There were 1,384 active service connections in 2015, comprised of 1,266 single-family residential and 118 commercial connections. A large number of the existing water meters within the City have been replaced and upgraded to facilitate automatic meter reading.

The proposed improvements are needed for the following reasons:

Well 11

The City's sole source of potable water supply is groundwater. The groundwater source has been historically reliable and of good quality, with the exception of high manganese (Mn) concentrations in all of the City's wells. Mn in the water can produce an unpleasant taste and odor and can also cause stains on laundry, house fixtures, and concrete, and the City has received numerous complaints from customers in the City's water service area. Due to sanding and issues with water quality, Wells 3 and 6 have been permanently disconnected from the system. Sodium hypochlorite is used at all of the wells for continuous disinfection and Mn filters were added to Well 9 in 2014. A sequestering agent (orthophosphate) is also injected at Wells 8 and 10 to treat Mn. Wells 8 and 9 contain sand separators to prevent sand from entering the water distribution system.

In 2021, Well 9 was taken offline due to severe silt and sanding issues and an increasing drawdown trend in historical pumping levels. Although the City is in the process of investigating cost-effective solutions to extend the remaining life of Well 9, it appears that issues with sanding and water quality may lead to Well 9 being permanently disconnected from the water system. Disconnection of Well 9 would leave Well 8 and 10 to meet water system demands; however, Well 10 is located on the east side of town and system pressures are low once flows cross Interstate 5 (I-5) and go through commercial and industrial areas on the west side of I-5.

With disconnection of Well 9, the effective source capacity of the City is slightly below the current Maximum Daily Demand (MDD) of 1.7 MGD, depending on how much Well 8 can produce at a given time due to fluctuations in groundwater levels. Furthermore, with Well 9 offline, fire flows cannot be met even during typical years without MDD or drought conditions. Additionally, the City is currently experiencing in-fill growth such that the effective source capacity will not be adequate to meet anticipated near-term future MDD.

Construction of a new well (Well 11) with Mn filtration would allow the City to utilize Wells 8 and 10 in standby mode only, which would minimize the need for orthophosphate treatment and permanently reduce Mn concentrations in the water system. The new well would also increase system pressures, improve fire flows in southwestern areas of the City, and allow the City to meet current MDD.

Water Distribution System

The water services and mains in the area of E Street, generally between Venice Boulevard and 9th Street, along Venice Boulevard, and in the Westgate area are severely corroded and leaking. During a recent water meter replacement project, the contractor was unable to replace some of the meters and services in this area because the services would blow when the contractor started work near them due to the dilapidated pipes.

According to the City's 2013 Water System Master Plan, the areas in which improvements are proposed have undersized pipes and are unable to meet required fire flows or maintain adequate pressures or velocities during MDD. Water meters are aging and have met their useful service lives; new meters will provide more accurate readings and improved water service leak detection. Fire hydrants need to be replaced to meet current standards for fire protection.

The purpose of the proposed project is to replace aging infrastructure, improve fire flows and fire protection, improve efficiency, and to ensure a safe and reliable potable water supply for customers in the City of Williams' water service area. A detailed description of the improvements is provided in Section 3.2 (Project Components/Physical Improvement).

3.2 PROJECT COMPONENTS / PHYSICAL IMPROVEMENTS

This section describes the proposed improvements that are the subject of this Initial Study. As shown in **Figures 2 and 3**, the project includes the following components:

Distribution System

Distribution system improvements include the following:

- ±6,550 linear feet of water mains would be replaced along Venice Boulevard, Westgate Drive, E Street, F Street, 7th Street, and the alleyway located between D Street and E Street, including:
    - ±50 feet of existing 4-inch water main, ±500 feet of 6-inch water main, ±3,400 feet of 8-inch water main, and ±2,600 feet of 12-inch water main, and associated water services. The existing 6-inch water mains would be upsized to 8-inch, and the existing 8-inch water mains would be upsized to 12-inch.
- ±983 linear feet of 8-inch water main would be installed along Solano Street and the alleyway located between Solano Street and E Street. The water main would replace two dead end lines within the alleyway and provide a looped connection to the City's water mains on E Street and Venice Boulevard.
- ±80 water services would be replaced.
- ±6 water meters and meter boxes would be replaced.
- ±13 fire hydrants would be replaced, and 1 new fire hydrant would be installed.

Water mains would be installed using open-cut trenching. In paved areas, the existing pavement would be saw-cut and removed. Following installation of the pipe, the trench would be backfilled with a compacted granular material to prevent settlement, and the pavement would be replaced. In unpaved areas, the excavation would be backfilled with select native soils, and aggregate base would be replaced or the surface would be revegetated as necessary.

Well 11

Proposed improvements at the well site include the following:

A new well would be drilled to a depth of ±450 feet and would include an 18-inch diameter steel casing. A backwash tank (53,000 gallon) and well house (±1,400 square feet) would be constructed, and appurtenant equipment (e.g., pumps, motors, piping, mechanical equipment, electrical controls, etc.) would be installed inside the well house.

An oxidation-filtration system would be installed adjacent to the well to remove manganese and would be designed to discharge treated water directly to the existing on-site water tank south of the proposed well.

The oxidation-filter system would require installation of three 10-foot diameter vertical pressure filters and pneumatic actuated valves. Electric service would be extended to the well house and filtration system from an existing service on the property. Approximately 145 feet of 12-inch water main would be installed to convey treated water from the well house to an existing connection at the water tank. An emergency back-up generator would be installed that would be capable of powering the new well in the event of a power outage.

Access to the work areas would be from paved public roads and private driveways. Temporary staging of construction equipment and materials would occur in the affected road ROW throughout the project area and within the fenced well site parcel. No site preparation or grading would be required to establish the staging area.

Work is anticipated to commence in the fall of 2022 and would be completed in approximately 12 months. For purposes of this Initial Study, “study area” and “project site” shall mean the project footprint, which includes access roads, staging areas, and areas in which improvements are proposed.

SECTION 4.0 ENVIRONMENTAL IMPACT ANALYSIS

4.1 AESTHETICS

Except as provided in Public Resources Code §21099 (Transit-Oriented Infill Projects), would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
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 a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

REGULATORY CONTEXT

There are no federal regulations pertaining to aesthetics that apply to the proposed project.

STATE

California Scenic Highway Program

The California Scenic Highway Program, administered by the California Department of Transportation (Caltrans), was established in 1963 to preserve and protect the natural beauty of scenic highway corridors in the State. The Scenic Highway System includes a list of highways that have been designated as scenic highways as well as a list of highways that are eligible for designation as scenic highways. Local jurisdictions can nominate scenic highways for official designation by identifying and defining the scenic corridor of the highway and adopting a Corridor Protection Program that includes measures that strictly limit development and control outdoor advertising along the scenic corridor.

LOCAL

Section 1803.150.1 (General Environmental Standards) of the Williams Municipal Code establishes standards for light and glare. All exterior lighting fixtures (freestanding or attached) shall comply with the following requirements:

1. Outdoor lighting shall be deflected, shaded and focused away from adjacent properties and shall not be a nuisance to such adjacent properties. Where no-cut-off fixtures are allowed, areas where such fixtures are not allowed shall be protected in one or more of the following ways:

    a. The no-cut-off fixtures shall be set back a distance of two times the height of the fixture from the areas where such fixtures are not allowed; or

    b. Intervening buildings or landscaping shall buffer the view to the no-cut-off fixture from the areas where such fixtures are not allowed.

2. Outdoor lighting shall be designed so that any overspill of lighting onto adjacent properties shall not exceed three-tenths foot candle, measured vertically, and three-tenths foot candle, measured horizontally, on adjacent properties.

3. The ground level luminance ratio (the ratio between the luminance of the brightest point on the property and the darkest point on the property) shall not exceed twelve to one as measured in foot candles.

DISCUSSION OF IMPACTS

Questions A and C

Scenic vistas are defined as expansive views of highly valued landscapes from publicly accessible viewpoints. Scenic vistas include views of natural features such as mountains, hills, valleys, water courses, outcrops, and natural vegetation, as well as man-made scenic structures. Scenic resources in the project area include trees and other vegetation, open space, and farmland. The project area is visible to individuals living and working in the area and to travelers on adjacent roadways.

The proposed project would have short-term visual impacts during construction due to clearing, trenching, and staging of construction equipment and materials. However, this is a temporary impact and would cease when the project is complete.

The water transmission mains and services would be subsurface, and the water meters would be flush with the ground. The fire hydrants would replace existing hydrants and would not change the visual character of the area. Paved roads that are disturbed during installation of the pipeline would be re-paved following construction. In unpaved areas, aggregate base would be replaced or surface vegetation would be restored.

Project components that have a potential to affect the existing visual character of the area at the well site include the well house and backwash tank. Existing facilities at the site include a booster pump station and a 1 million-gallon water tank; the proposed construction would be consistent with these features. Additionally, these improvements are visually compatible with industrial and agricultural buildings in the area.

Therefore, impacts would be less than significant because the affected roads would be repaved; the above-ground structures would be visually compatible with surrounding uses and would not be prominent features in the viewshed; and, impacts during construction would be temporary and cease at completion of the project.

Question B

There are currently no officially designated State Scenic Highways in Colusa County. Therefore, there would be no impact.

Question D

Temporary lighting needed during construction activities and any safety lighting at the new well house and backwash storage tank must comply with City of Williams Municipal Code §17.03.150, which states that outdoor lighting shall be deflected, shaded, and focused away from adjacent properties and shall not be a nuisance to such adjacent properties. According to §17.03.150, criteria for finding illumination to be a public nuisance includes:

- Light trespass or glare that deprives an owner or occupant of usual and reasonable use and enjoyment of their property.
- A high frequency and/or duration of periods when light trespass or glare is sufficient to interrupt or interfere with usual and reasonable use and enjoyment of a property.

- Light trespass or glare that causes visual discomfort or impairment of visual performance in a manner that deprives any person from the usual and reasonable enjoyment of the public streets and properties of the city.

Compliance with the City's lighting standards ensures that the proposed project would not adversely affect day or nighttime views in the area. Impacts would be less than significant.

CUMULATIVE IMPACTS

Potential cumulative projects in the area include growth according to the build-out projections in the City's General Plan. As documented above, the proposed project does not include any features that would result in a significant permanent change to the visual character of the area. Exterior lighting may be needed at the well site; however, lighting would be similar to existing conditions. Additionally, if construction lighting is required, it would be temporary in nature, cease at the completion of construction, and adhere to the City of Williams lighting standards. Therefore, the proposed project's aesthetic impacts would not be cumulatively considerable.

MITIGATION

None necessary.

DOCUMENTATION

Caltrans. 2021. California State Scenic Highway Mapping System. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed October 2021.

City of Williams. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed October 2021.

_____. 2021. City of Williams Code of Ordinances, Chapter 17.03 (Environmental Standards). https://library.municode.com/ca/williams/codes/code_of_ordinances?nodeId=TIT17ZO_CH17.03ENST. Accessed October 2021.

4.2 AGRICULTURE AND FOREST RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to 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 §12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g)) or result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
d. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal regulations pertaining to agriculture or forest resources that apply to the proposed project.

STATE

California Farmland Mapping and Monitoring Program (FMMP)

The FMMP was established in 1982 to provide data to decision makers to assist them in making informed decisions for the best utilization of California's farmland. Under the FMMP, the Department of Conservation (DOC) is responsible for mapping, monitoring, and reporting on the conversion of the State's farmland to and from agricultural use. Important Farmland Maps are updated and released every two years. The following mapping categories, which are determined based on soil qualities and current land use information, are included in the FMMP: prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, grazing land, urban and built-up land, other land, and water.

Williamson Act

The Williamson Act (California Land Conservation Act of 1965) was enacted as a means to protect agricultural uses in the State. Under the Williamson Act, local governments can enter into contracts with private landowners to ensure that specific parcels are restricted to agricultural and related open space uses. In return, landowners receive reduced property tax assessments. The minimum term for a Williamson Act contract is ten years, and the contract is automatically renewed for one-year terms unless the landowner files a notice of nonrenewal or a petition for cancellation.

Forest Land and Timberland

PRC §12220(g) defines Forest Land as *"land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other*

public benefits." PRC §4526 defines timberland as *"land, other than land owned by the federal government, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."* Government Code §51104(g) defines Timberland Production Zone as *"an area which has been zoned pursuant to [Government Code] §51112 or §51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h)."*

LOCAL

The City of Williams General Plan includes the following Policy that applies to the proposed project:

Chapter 3, Land Use and Character		
Policies:	3.44	Development will occur in a manner that is compatible with the existing agricultural resources, including agricultural cropland, orchards, and ranchlands).

DISCUSSION OF IMPACTS

Questions A, B, and D

According to the *Important Farmland in California* map published by the FMMP, areas in which improvements would occur are not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. According to the City's Zoning Maps, areas in which improvements are proposed are not currently zoned for agricultural production.

The land adjacent to the proposed well site is identified as Prime Farmland; however, the project does not include any components that would interfere with or preclude future agricultural uses in the area or result in other changes in the existing environment that could result in the conversion of farmland to non-agricultural use. In addition, no properties in the project area are subject to a Williamson Act contract.

Because the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and would not conflict with agricultural zoning or a Williamson Act contract, there would be no impact.

Question C

According to the City's General Plan and Zoning Maps, the project site and surrounding area are not designated as timberland and are not zoned for timberland production. Therefore, the proposed project would have no impact on timberland or cause rezoning of timberland.

As stated under Regulatory Context above, "forest land" is defined in PRC §12220(g) as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The project site does not support ten percent cover by native trees. In addition, the project site and surrounding area are not designated as forest land. Therefore, there would be no impact.

CUMULATIVE IMPACTS

Potential cumulative projects in the area include growth according to the build-out projections in the City's General Plan. As documented above, the proposed project would have no direct or indirect impacts on agricultural lands or forest lands. Therefore, the proposed project would not contribute to cumulative impacts on agricultural lands or forest lands.

MITIGATION

None necessary.

DOCUMENTATION

City of Williams. 2012. City of Williams Zoning Map. http://www.cityofwilliams.org/document_center/Departments/Planning/Zoning%20Map/zoning-map.pdf. Accessed October 2021.

_____. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed October 2021.

_____. 2012. City of Williams Williamson Act Map. http://www.cityofwilliams.org/Figure%207.1,%20Williamson%20Act%20(May%202012).pdf. Accessed October 2021.

State of California, Department of Conservation. 2016. Important Farmland Finder. https://maps.conservation.ca.gov/dlrp/ciff/. Accessed October 2021.

4.3 AIR QUALITY

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in 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?	☐	☐	☒	☐

REGULATORY CONTEXT

FEDERAL

Federal Ambient Air Quality Standards

The U.S. Environmental Protection Agency (USEPA), under the federal Clean Air Act (CAA), establishes maximum ambient concentrations for criteria air pollutants (CAP), known as the National Ambient Air Quality Standards (NAAQSs). The NAAQSs are designed to protect the health and welfare of the populace with a reasonable margin of safety. **Table 4.3-1** identifies the seven CAPs as well as characteristics, health effects and typical sources for each CAP:

TABLE 4.3-1
Federal Criteria Air Pollutants

Pollutant	Characteristics	Primary Effects	Major Sources
Ozone (O_3)	Ozone is a colorless or bluish gas formed through chemical reactions between two major classes of air pollutants: reactive organic gases (ROG) and oxides of nitrogen (NO_X). These reactions are stimulated by sunlight and temperature; thus, ozone occurs in higher concentrations during warmer times of the year.	• Respiratory symptoms. • Worsening of lung disease leading to premature death. • Damage to lung tissue. • Crop, forest, and ecosystem damage. • Damage to a variety of materials, including rubber, plastics, fabrics, paints, and metals.	Motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.
Carbon Monoxide (CO)	Carbon monoxide is an odorless, colorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline and wood. Because CO is emitted directly from internal combustion engines, motor vehicles operating at slow speeds are the primary source of carbon monoxide.	• Chest pain in patients with heart disease. • Headache. • Light-headedness. • Reduced mental alertness.	Motor vehicle exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a reddish-brown gas formed when nitrogen (N_2) combines with oxygen (O_2). Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation and acid deposition. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere and is related to traffic density.	• Respiratory symptoms. • Damage to lung tissue. • Worsening of cardiovascular disease. • Precursor to ozone and acid rain. • Contributes to global warming and nutrient overloading which deteriorates water quality. • Causes brown discoloration of the atmosphere.	Automobile and diesel truck exhaust, petroleum-refining operations, industrial sources, aircraft, ships, railroads, and fossil-fueled power plants.
Sulfur Dioxide (SO_2)	Sulfur dioxide is a colorless, nonflammable gas that results mainly from burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries.	• Respiratory symptoms. • Worsening of cardiovascular disease. • Damage to a variety of materials, including marble, iron, and steel. • Damages crops and natural vegetation. • Impairs visibility. • Precursor to acid rain.	Petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and large ships, and fuel combustion in diesel engines.

Particulate Matter ($PM_{2.5}$ and PM_{10})	Particulate matter is a major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols that are small enough to remain suspended in the air for a long period of time. Particulate matter with a diameter of 10 microns or less (PM_{10}) is inhalable into the lungs and can induce adverse health effects. Fine particulate matter is defined as particles that are 2.5 microns or less in diameter ($PM_{2.5}$). Therefore, $PM_{2.5}$ comprises a portion of PM_{10}.	• Premature death. • Hospitalization for worsening of cardiovascular disease. • Hospitalization for respiratory disease • Asthma-related emergency room visits. • Increased symptoms, increased inhaler usage	Dust- and fume-producing construction activities, power plants, steel mills, chemical plants, unpaved roads and parking lots, woodburning stoves and fireplaces, wildfires, motor vehicles, and other combustion sources. Also a result of photochemical processes.
Lead	A heavy metal that occurs both naturally in the environment and in manufactured products.	• Impaired mental functioning in children • Learning disabilities in children • Brain and kidney damage. • Reproductive disorders. • Osteoporosis.	Lead-based industrial production (e.g., battery production and smelters), recycling facilities, combustion of leaded aviation gasoline by piston-driven aircraft, and crustal weathering of soils followed by fugitive dust emissions.

STATE

State Ambient Air Quality Standards

The California CAA establishes maximum concentrations for the seven federal CAPs, as well as the four additional air pollutants identified below. The four additional standards are intended to address regional air quality conditions, not project-specific emissions. These maximum concentrations are known as the California Ambient Air Quality Standards (CAAQSs). The California Air Resources Board (CARB) has jurisdiction over local air districts and has established its own standards for each CAP under the CAAQS. For areas within the State that have not attained air quality standards, the CARB works with local air districts to develop and implement attainment plans to obtain compliance with both federal and State air quality standards.

Visibility-Reducing Particles. Visibility-reducing particles vary greatly in shape, size, and chemical composition, and come from a variety of natural and manmade sources. Major sources include wildfires, residential fireplaces and woodstoves, windblown dust, ocean sprays, biogenic emissions, dust and fume-producing construction, industrial and agricultural operations, and fuel combustion. Primary effects include visibility impairment, respiratory symptoms, and worsening of cardiovascular disease.

Sulfate (SO_4). Sulfate is oxidized to sulfur dioxide (SO_2) during the combustion process and is subsequently converted to sulfate compounds in the atmosphere. Major sources include industrial processes and the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. Primary effects include respiratory symptoms, worsening of cardiovascular disease, damage to a variety of materials, including marble, iron, and steel, damage to crops and natural vegetation, and visibility impairment.

Hydrogen Sulfide (H_2S). Hydrogen sulfide is a colorless gas with the odor of rotten eggs. Major sources include geothermal power plants, petroleum refineries, and wastewater treatment plants. Primary effects include eye irritation, headache, nausea, and nuisance odors.

Vinyl Chloride (chloroethene). Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. It is also listed as a toxic air contaminant because of its carcinogenicity. Most vinyl chloride is used to make PVC plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites due to microbial breakdown of chlorinated solvents. Primary effects include dizziness, drowsiness, headaches, and liver damage.

Table 4.3-2 provides the federal and State ambient air quality standards:

TABLE 4.3-2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone (O_3)	8 Hour	0.070 ppm (137µg/m^3)	0.070 ppm (137µg/m^3)
	1 Hour	0.09 ppm (180 µg/m^3)	–
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 µg/m^3)	0.14
	3 Hour	–	–
	1 Hour	0.25 ppm (665 µg/m^3)	75 ppb (196 µg/m^3)
	Annual Arithmetic Mean	–	0.030 ppm
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	–
	24 Hour	50 µg/m^3	150 µg/m^3
Particulate Matter – Fine ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3
	24 Hour	–	35 µg/m^3
Sulfates	24 Hour	25 µg/m^3	–
Lead	Calendar Quarter	–	1.5 µg/m^3
	30 Day Average	1.5 µg/m^3	–
	Rolling 3-Month Average	None	0.15 µg/m^3
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	–
Vinyl Chloride (chloroethene)	24 Hour	0.01 ppm (26 µg/m^3)	–
Visibility-Reducing Particles	8 Hour	–	–

Source: CARB 2016. Notes: mg/m^3=milligrams per cubic meter; ppm=parts per million; ppb=parts per billion; µg/m^3=micrograms per cubic meter

Toxic Air Contaminants

In addition to the California CAPs, Toxic Air Contaminants (TACs) are another group of pollutants regulated under the California CAA. TACs are less pervasive in the urban atmosphere than the CAPs, but are linked to short-term (acute) and long-term (chronic or carcinogenic) adverse human health effects, including cancer, birth defects, neurological damage, and death. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), grading and demolition of structures (asbestos), and diesel-motor vehicle exhaust. Under Assembly Bill 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987, facilities found to release high volumes of toxic air pollution are required to conduct a detailed health risk assessment that estimates emission impacts to the neighboring community and recommends mitigation to minimize TACs.

LOCAL

The Colusa County Air Pollution Control District (CCAPCD) is responsible for enforcing federal and state air quality regulations in Colusa County. The CCAPCD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs, and it regulates open fires and agricultural burning. All projects in Colusa County are subject to applicable CCAPCD rules and

regulations in effect at the time of construction. Descriptions of specific rules applicable to the proposed project may include, but are not limited to:

- CCAPCD Rule 200, Nuisance, states that no person shall discharge from any non-vehicular source such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public of which cause or have a natural tendency to cause injury or damage to business or property.
- CCAPCD Rule 204, Dust and Fumes, requires all development projects to minimize fugitive dust emissions.
- CCAPCD Rule 400, Permits, states that no person shall cause or permit the construction or modification of any new source of air contaminants without first obtaining an Authority to Construct from the Air Pollution Control Officer so as to comply with applicable regulations and rules and ambient air quality standards of the District.
- CCAPCD Rule 231, Cutback and Emulsified Asphalt, provides standards for cutback and emulsified asphalt application.
- CCAPCD Rule 230, Architectural Coatings, provides standards for architectural coatings and solvents.

Colusa County is currently designated as a non-attainment area for State PM_{10} standards; the County is designated as an attainment or unclassified area for all other federal and State ambient air quality standards.

The CCAPCD along with other air districts in the Northern Sacramento Valley Air Basin (NSVAB), jointly prepared an Air Quality Attainment Plan (AQAP) for the purpose of achieving and maintaining healthful air quality throughout the air basin. The Northern Sacramento Valley Planning Area (NSVPA) 2018 Triennial AQAP constitutes the region's State Implementation Plan (SIP). The NSVPA 2018 AQAP includes updated control measures for the three-year period of 2019 through 2021. Colusa County has determined that the County's primary emphasis in implementing the 2018 Attainment Plan is to attempt to reduce emissions from mobile sources through public education programs.

Colusa County has not adopted air quality thresholds for emissions of Reactive Organic Gases (ROG), Oxides of Nitrogen (NO_X) and Particulate Matter, 10 microns in size (PM_{10}) to determine the level of significance for projects subject to CEQA review. However, as shown in **Table 4.3-3**, CCAPCD staff recommended that project use CCAPCD Rule 430 (New Source Review) Best Available Control Technology (BACT) thresholds as CEQA significance thresholds for criteria pollutant emissions (Casey Ryan, CCAPCD, personal communication).

TABLE 4.3-3
Thresholds of Significance for Criteria Pollutants of Concern

Pollutant	Daily (lbs per day)
CO	500
SO_x	80
PM_{10}	80
$PM_{2.5}$	-
ROG	25
NOx	25

Source: 2019 Colusa County APCD Rules and Regulations; Reg. IV, Rule 430

DISCUSSION OF IMPACTS

Questions A and B

As discussed under Regulatory Context, for areas within the State that have not attained air quality standards, the CARB works with local air districts to develop and implement attainment plans to obtain compliance with both federal and State air quality standards. The Northern Sacramento Valley Planning Area (NSVPA) 2018 Triennial Air Quality Attainment Plan serves as the air quality plan for the region. As discussed above, Colusa County is currently designated as a non-attainment area for State PM_{10} standards; the County is designated as an attainment or unclassified area for all other federal and State ambient air quality standards.

Construction Emissions

Project emissions were estimated using Version 2020.4.0 of the California Emissions Estimator Model (CalEEMod). CalEEMod provides default values when site-specific inputs are not available. CalEEMod does not directly calculate ozone emissions. Instead, the emissions associated with ozone precursors (ROG and NO_X) are calculated. For the proposed project, site-specific inputs and assumptions include, but are not limited to, the following:

- Emissions from construction are based on all construction-related activities associated with the proposed uses, including but not limited to grading, use of construction equipment, material hauling, trenching, and re-paving.
- Construction would start in October 2022 and occur over a period of approximately one year.
- Total land disturbance would be approximately 1.2 acres; 5 (CY) of material would be imported; 165 CY would be exported.
- The total area to be paved/re-paved would be 0.73 acres.
- The total weight of demolition debris (pavement) to be removed from the project site would be approximately 500 tons.
- The total area receiving architectural coatings would be 3,870 square feet.

Output files, including all site-specific inputs and assumptions, are provided in **Appendix A**. The proposed project would result in the temporary generation of ROG, NO_X, PM_{10}, and other regulated pollutants during construction. ROG and NO_X emissions are associated with employee vehicle trips, delivery of materials, and construction equipment exhaust. PM_{10} would be generated during site preparation, excavation, paving, and from exhaust associated with construction equipment. **Table 4.3-4** shows the highest daily levels of project construction emissions regardless of construction phase.

TABLE 4.3-4
Projected Construction Emissions

Pollutants of Concern					
ROG	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**SO_2**
Maximum lbs/day	Maximum lbs/day	Maximum lbs/day	Maximum lbs/day	Maximum lbs/day	Maximum lbs/day
2.87	28.16	7.48	4.49	19.2	0.04

Source: CalEEMod, 2021.

As shown in **Table 4.3-4**, construction of the proposed project would exceed the County's thresholds for NO_X. However, as recommended by the CCAPCD, **Mitigation Measure (MM) 4.3.1** requires the use of construction equipment that complies with Tier 4 emissions standards. As shown in **Appendix A**, implementation of **MM 4.3.1** would reduce construction-related NO_X emissions from 28.16 pounds per day to 3.75 pounds per day. Therefore, construction-related

emissions would be below the CCAPCD significance thresholds and the project would comply with applicable CCAPCD rules and regulations. Additionally, all development projects within the County are required to minimize fugitive dust emissions; therefore, **MM 4.3.2** would minimize emissions by implementing BMP's for dust control during construction and contribute to a reduction in cumulative impacts.

Operational Emissions

Operation of the new well (pumps, motors, lights, filtration system, etc.) and backwash tank would require electric service to be extended to the well house and filtration system from the existing service on the property. This would result in indirect emissions associated with the generation of electricity. Electricity for the proposed project would be provided by PG&E. According to PG&E's 2020 Integrated Resource Plan (IRP), PG&E is pursuing a range of air pollutant mitigation strategies to improve air quality, particularly in disadvantaged communities. The IRP recognizes the transportation sector as emitting the majority of the State's NO_X and PM_{10} and identifies investing in lower-emission vehicles as a mitigation strategy. PG&E estimates the acquisition of over two million light-duty electric vehicles (EVs) in PG&E's service territory by 2030, which would result in an estimated 1,700 MT of avoided NO_X and 250 MT of avoided $PM_{2.5}$ emissions; indirect impacts would be less than significant.

The proposed project would not directly or indirectly increase the population or vehicle miles traveled that would result in a permanent increase in ROG or NO_X emissions. The project does not include any other components that would increase long-term operational emissions above existing emissions.

For both construction and operational emissions, the proposed project would not result in significant impacts associated with ozone (O_3), lead (Pb), hydrogen sulfide (H_2S), vinyl chloride, or visibility reducing particles as discussed below.

Ozone. CalEEMod does not directly calculate ozone emissions. Instead, the emissions associated with ozone precursors (ROG and NO_X) are calculated. Because project construction would generate relatively low amounts of both ROG and NO_x with implementation of **MM 4.3.1**, and the increase in operational emissions would be minimal, the potential for ozone production/emissions is less than significant.

Lead. Elevated levels of airborne lead at the local level are usually found near industrial operations that process materials containing lead, such as smelters and battery manufacturing/ recycling facilities. As these conditions are not applicable to the proposed project, there is no potential for lead emissions.

Hydrogen Sulfide. Hydrogen sulfide is formed during the decomposition of organic material in anaerobic environments, including sewage treatment processes. The proposed project would not result in an increase in wastewater generation; therefore, there is not potential for an increase in hydrogen sulfide emissions.

Vinyl Chloride. Vinyl chloride is used to manufacture polyvinyl chloride (PVC) plastic and other vinyl products. Additionally, vinyl chloride is produced during the microbial breakdown of chlorinated solvents (e.g., engine cleaner, degreasing agent, adhesive solvents, paint removers, etc.). The potential for vinyl chloride exposure is primarily limited to areas in close proximity to PVC production facilities. Because PVC manufacturing facilities are absent from the project area, and project implementation would not result in increased use of chlorinated solvents, there is no potential for vinyl chloride emissions.

Visibility-Reducing Pollutants. Visibility-reducing pollutants generally consist of sulfates, nitrates, organics, soot, fine soil dust, and coarse particulates. These pollutants contribute to the regional haze that impairs visibility, in addition to affecting public health. According to the California Regional Haze Management Plan, natural wildfires and biogenic emissions are the primary contributors to visibility-reducing pollutants. For the proposed project, visibility-reducing pollutants (e.g., $PM_{2.5}$ and PM_{10}), would be generated only during construction activities.

Because only relatively low amounts of particulates would be generated, potential impacts with respect to visibility-reducing pollutants are less than significant.

Compliance with applicable State and local regulations, including but not limited to those identified under Regulatory Context above, and implementation of **MM 4.3.1** and **MM 4.3.2** ensure that the project would not exceed the CCAPCD thresholds during construction or operation. Therefore, the project would not conflict with or obstruct implementation of the NSVPA 2018 AQAP and would not result in a cumulatively considerable net increase in ozone precursors (ROG and NO_X). Impacts would be less than significant.

Question C

See discussion under Questions A and B. Sensitive receptors are individuals or groups of people that are more affected by air pollution than others, including young children, elderly people, and people weakened by disease or illness. Locations that may contain high concentrations of sensitive receptors include residential areas, schools, playgrounds, childcare centers, hospitals, convalescent homes, and retirement homes. As stated above, the proposed project does not have any components that would result in significant long-term operational emissions. The proposed project includes construction activities adjacent to single-family residences on Westgate Drive, Venice Boulevard, D Street, E Street, F Street, and 7th Street, and Solano Street, as well as along the alleyway between D Street and E Street, west of 11th Street, and the alleyway between Solano Street and E Street, west of Venice Boulevard. Construction activities would also occur near Williams Elementary School, which abuts the E Street work corridor; and near Williams Junior/Senior High School and Williams Upper Elementary School, which are just northwest of the water main improvements proposed within the alleyway between D Street and E Street.

As discussed above, the proposed project would generate PM_{10} and other pollutants during construction. Although these emissions would cease with completion of construction work, sensitive uses adjacent to the construction area could be exposed to elevated dust levels and other pollutants. Compliance with federal, state, and local regulations, and implementation of **Mitigation Measures MM 4.3.1 and 4.3.2** would reduce impacts to a less-than-significant level.

Question D

The project does not include any components that would result in the generation of long-term odors or similar emissions adversely affecting a substantial number of people. Construction activities that have the potential to emit odors and similar emissions include operation of diesel equipment, generation of fugitive dust, and paving (asphalt). Odors and similar emissions from construction are intermittent and temporary, and generally would not extend beyond the construction area. Due to the temporary and intermittent nature of construction odors, impacts during construction would be less than significant.

CUMULATIVE IMPACTS

By its very nature, air pollution is largely a cumulative impact. If a project's individual emissions contribute toward exceedance of the NAAQS or the CAAQS, then the project's cumulative impact on air quality would be considered significant. In developing attainment designations for criteria pollutants, the USEPA considers the region's past, present, and future emission levels. In addition, local air districts determine suitable significance thresholds based on an area's designated nonattainment status, which also considers the region's past, present, and future emissions levels.

The proposed project combined with future development within the project area could lead to cumulative impacts to air quality. However, as stated under Regulatory Context, all development projects are required to minimize fugitive dust emissions in order to reduce cumulative impacts. In addition, as discussed above, **Mitigation Measures 4.3.1 and 4.3.2** would ensure that emissions resulting from the proposed project would not exceed CCAPCD thresholds, and construction would be in conformance with CARB and the applicable SIP developed to address cumulative emissions of criteria air pollutants in the

NSVAB. Therefore, the proposed project would have a less-than-significant cumulative impact on local and regional air quality with implementation of **Mitigation Measures MM 4.3.1 and MM 4.3.2**.

MITIGATION

MM 4.3.1 In order to minimize emissions during construction, the City shall ensure through contractual obligations that all off-road mobile construction equipment (e.g., cranes, excavators, graders, dozers, etc.) shall be California Air Resources Board (CARB) Tier 4 Certified.

MM 4.3.2 The following measures shall be implemented throughout construction:

i. All material excavated, stockpiled, or graded shall be covered or sufficiently watered to prevent fugitive dust from leaving property boundaries and causing a public nuisance or a violation of ambient air quality standards. Watering shall occur at least twice daily with complete site coverage, preferably in the mid-morning and after work is completed each day.

j. All material transported offsite shall be either sufficiently watered or securely covered to prevent a public nuisance.

k. All areas (other than paved roads) with vehicle traffic shall be watered periodically or have dust palliatives applied for stabilization of dust emissions.

l. All on-site vehicles shall be limited to a speed of 15 miles per hour on unpaved roads.

m. All land clearing, grading, earth moving, and excavation activities on the project site shall be suspended when winds are causing excessive dust generation.

n. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of free board in accordance with the requirements of Section 23114 of the California Vehicle Code. This provision is enforced by local law enforcement agencies.

o. Paved streets in and adjacent to the construction site shall be swept or washed at the end of the day to remove excessive accumulations of silt and/or mud resulting from activities on the development site.

p. When not in use, motorized construction equipment shall not be left idling for more than five minutes.

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4.4 BIOLOGICAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community, including oak woodland, identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands, (including, but not limited to, marsh, vernal pool, coastal wetlands, 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?	☐	☐	☐	☒

REGULATORY CONTEXT

FEDERAL

Federal Clean Water Act

Section 404

Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into wetlands and waters of the U.S. The USACE requires that a permit be obtained prior to the placement of structures within, over, or under navigable waters and/or prior to discharging dredged or fill material into waters below the ordinary high-water mark (OHWM). There are several types of permits issued by the USACE that are based on the project's location and/or level of impact. Regional general permits are issued for recurring activities at a regional level. Nationwide permits (NWPs) authorize a wide variety of minor activities that have minimal effects. Projects that are not covered under a regional general permit and do not qualify for a NWP are required to obtain a standard permit (e.g., individual permit or letter of permission).

Section 401

Under Section 401 of the CWA, a project requiring a USACE Section 404 permit is also required to obtain a State Water Quality Certification (or waiver) to ensure that the project will not violate established State water quality standards. The RWQCB regulates waters of the State and has a policy of no-net-loss of wetlands. The RWQCB typically requires mitigation for impacts to wetlands before it will issue a water quality certification.

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 requires that all federal agencies ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of critical habitat. Projects that would result in "take" of any federally listed species are required to obtain authorization from National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project.

Federal Migratory Bird Treaty Act

Under the Migratory Bird Treaty Act (MBTA) of 1918, as amended, migratory bird species listed in CFR Title 50, §10.13, including their nests and eggs, are protected from injury or death, and any project-related disturbances. The MBTA applies to over 1,000 bird species, including geese, ducks, shorebirds, raptors, and songbirds, some of which were near extinction before MBTA protections were put in place in 1918. The MBTA provides protections for nearly all native bird species in the U.S., including non-migratory birds.

Fish and Wildlife Conservation Act

Under the Fish and Wildlife Conservation Act of 1980, as amended, the USFWS maintains lists of migratory and non-migratory birds that, without additional conservation action, are likely to become candidates for listing under the FESA. These species are known as Birds of Conservation Concern and represent the highest conservation priorities.

Bald and Golden Eagle Protection Act

This Act provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds and their occupied and unoccupied nests.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), also known as the Sustainable Fisheries Act, requires the identification of Essential Fish Habitat (EFH) for federally

managed fishery species and implementation of appropriate measures to conserve and enhance EFH that could be affected by project implementation. All federal agencies must consult with NMFS on projects authorized, funded, or undertaken by that agency that may adversely affect EFH for species managed under the MSFCMA.

STATE

California Endangered Species Act

Under the California Endangered Species Act (CESA), the Fish and Game Commission is responsible for listing and delisting threatened and endangered species, including candidate species for threatened or endangered status. CDFW provides technical support to the Commission, and may submit listing petitions and assist with the evaluation process. CDFW maintains documentation on listed species, including occurrence records. In addition, CDFW maintains a list of fully protected species, most of which are also listed as threatened or endangered. CDFW also maintains a list of species of special concern (SSC). SSC are vulnerable to extinction but are not legally protected under CESA; however, impacts to SSC are generally considered significant under CEQA.

CESA prohibits the take of State-listed threatened and endangered species, but CDFW has the authority to issue incidental take permits under special conditions when it is demonstrated that impacts are minimized and mitigated. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take. One exception allows the collection of fully protected species for scientific research.

California Fish and Game Code §1600-1616 (Streambed Alteration)

California Fish and Game Code §1600 *et seq.*, requires that a project proponent enter into a Streambed Alteration Agreement (SAA) with CDFW prior to any work that would divert or obstruct the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; and/or deposit or dispose of material into any river, stream, or lake. An SAA will typically include conditions that minimize/avoid potentially significant adverse impacts to riparian habitat and waters of the state.

California Fish and Game Code §3503 and 3503.5 (Nesting Bird Protections)

These sections of the Code provide regulatory protection to resident and migratory birds and all birds of prey within the State and make it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Code.

California Fish and Game Code §1900-1913 (Native Plant Protection Act)

The Native Plant Protection Act (NPPA) includes measures to preserve, protect, and enhance native plants that are listed as rare and endangered under the CESA. The NPPA states that no person shall take, possess, sell, or import into the state, any rare or endangered native plant, except in compliance with provisions of the Act.

Oak Woodlands Conservation Act

The State of California provides for oak protection through the Oak Woodlands Conservation Act (Act), last amended in 2005. The Act applies only when the lead agency is a county and the project is located in an unincorporated county area. The Act requires a determination of whether the project may result in the conversion of oak woodlands that will have a significant effect on the environment as well as implementation of oak woodland mitigation measures, if necessary.

LOCAL

The City of Williams General Plan includes the following Policies and Actions that apply to the proposed project:

Chapter 7, Open Space and Conservation		
Policies:	7.17	The preservation and protection of rare, threatened, or endangered species within the planning area, including candidate species and species of special concern, warrants design consideration when developing new land.
	7.18	Animal corridors along waterways, tree groves, and grasslands shall be developed to ensure safe animal travel.
	7.22	Preservation and replacement measures will be encouraged for existing vegetation, with special emphasis on mature shade trees.
	7.27	In the removal and relocation of plants and trees, special consideration will be given to endangered species.
Actions:	7.ee	Promote and support Habitat Conservation Plans between landowners and the U.S. Fish and Wildlife Service. Habitat Conservation Plans (HCP) are long-term agreements designed to offset any harmful effects that a proposed activity might have on federally-listed threatened and endangered species.
	7.uu	Prohibit the re-location or removal of endangered species unless replacement provisions are in place.
	7.vv	Discourage the introduction of invasive species and prevent the spread of non-native invasive species that have become established.

DISCUSSION OF IMPACTS

Questions A and B

The evaluation of potential impacts on candidate, sensitive, and/or special-status species entailed records searches and field evaluations conducted by ENPLAN. **Appendix B** includes the following:

- California Natural Diversity Database (CNDDB) Query Summary
- California Native Plant Society (CNPS) Query Summary
- U.S. Fish and Wildlife Service List of Threatened and Endangered Species and Critical Habitats
- National Marine Fisheries Service List of Threatened and Endangered Species, Critical Habitats, and Essential Fish Habitat
- ENPLAN's evaluation of the potential for special-status species to occur on the project site.

The records searches included a review of California Natural Diversity Data Base (CNDDB) records for special-status plants and wildlife; California Native Plant Society records for special-status plant species; federal records for listed, proposed, and candidate plant and wildlife species under jurisdiction of the USFWS and NMFS; critical habitat data maintained by the USFWS and NMFS; and essential fish habitat (EFH) data maintained by the NMFS.

To determine the presence/absence of special-status plant and animal species in the study area, an ENPLAN biologist conducted botanical and wildlife field evaluations on April 12, 2020. The field evaluations focused on the well site because the water line corridors have been previously converted to urban habitat with a very low potential for special-status species. Some of the special-status species potentially occurring in the study area would not have been evident at the time the fieldwork was conducted; however, determination of their potential presence could readily be made based on observed habitat characteristics.

Special-Status Plant Species

Review of the USFWS species list for the project area did not identify any federally listed or candidate plant species as potentially being affected by the proposed project. The project site does not contain designated critical habitat for federally listed plant species.

Review of CNDDB records showed that no special-status plant species have previously been reported in the project site. Seven special-status plants have been broadly mapped as potentially occurring within the records-search radius: California alkali grass, Coulter's goldfields, Ferris' milk-fetch, palmate-bracted bird's-beak, San Joaquin spearscale, vernal pool smallscale, and water star-grass. The CNPS Inventory identifies one non-special status plant within the Williams quadrangle: Perry's rough tarplant.

The potential for each special-status plant species to occur in the project site is evaluated in the Potential to Occur table in **Appendix B**. No special-status plant species were observed during the botanical survey, nor are any expected to be present. Therefore, the proposed project would have no impact on special-status plant species.

Special-Status Animal Species

Review of the USFWS species list for the project area identified the following federally listed animal species as potentially being affected by the proposed project: northern spotted owl, giant garter snake, California red-legged frog, California tiger salamander, delta smelt, monarch butterfly, valley elderberry longhorn beetle, conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. The USFWS does not identify any designated critical habitat in the study area for any federally listed animal species.

Review of CNDDB records showed that no special-status animal species have been previously reported in the project site. Six special-status animals have been mapped as potentially occurring within the records-search radius: American badger, burrowing owl, giant garter snake, Swainson's hawk, tricolored blackbird, and vernal pool tadpole shrimp.

NMFS records identify that the Central Valley spring-run Chinook salmon, evolutionary significant unit (ESU) (federally threatened); Sacramento River winter-run (SRWR) Chinook salmon ESU (federally endangered); and California Central Valley (CCV) steelhead, distinct population segment (DPS) (federally threatened) occur in the Williams quadrangle. Essential Fish Habitat (EFH) is identified in the Williams quadrangle for Chinook salmon; however, there are no fish bearing streams within or adjacent to the project boundary. Therefore, there would be no direct or indirect effects on fish or EFH.

The potential for each special-status animal species to occur in the project site is evaluated in **Appendix B**. As documented in the BSR, none of these special-status animal species were observed during the field survey; however, one elderberry shrub was observed during the field evaluation. Elderberries are the obligate larval host plant for the federally listed valley elderberry longhorn beetle. The shrub is located southwest of the existing water tank, outside the chain-link fencing surrounding the well site. The stem is approximately three inches in diameter at the base, but breaks into several smaller stems just above ground level; no beetle exit holes were observed. The shrub is over 180 feet (55 meters) from the planned work area. Under current federal guidelines (USFWS, 2017), consultation with the USFWS is needed only if work would occur within 50 meters (165 feet) of an elderberry.

Birds of Conservation Concern

The project area is located within the Pacific Flyway, and it is possible that birds could nest in or adjacent to the study area. Nesting birds, if present, could be directly or indirectly affected by construction activities. Direct effects could include mortality resulting from tree removal and/or construction equipment operating in an area with an active nest with eggs or chicks. Indirect effects could include nest abandonment by adults in response to loud noise levels or human encroachment, or a reduction in the amount of food available to young birds due to changes in feeding behavior by adults.

Construction activities would occur in surfaced roadways, disturbed road shoulders, and the City-owned water tank parcel, which is nearly denuded, currently used for stockpiling and staging activities, and previously supported a drive-in theater. Given the current habitat characteristics, the proposed project would not directly affect nesting birds because no nesting habitat would be affected. Indirect effects to nearby nesting habitats, such as nest abandonment by adults in response to loud noise levels, are likewise not expected because birds that may nest adjacent to roadways or the tank site would be accustomed to periodic loud noises and other human-induced disturbances.

Introduction and Spread of Noxious Weeds

The introduction and spread of noxious weeds during construction activities has the potential to adversely affect sensitive habitats. Each noxious weed identified by the California Department of Agriculture receives a rating which reflects the importance of the pest, the likelihood that eradication or control efforts would be successful and the present distribution of the pest within the state. Noxious weeds observed in the project area are of widespread distribution in the County, and further spread of these weeds is not anticipated. However, other noxious weeds could be introduced into the project area during construction if unwashed construction vehicles are not properly washed before entering the project site.

Soil import/export and use of certain erosion-control materials such as straw can also result in the spread of noxious weeds. As required by **MM 4.4.1,** the potential for introduction and spread of noxious weeds can be avoided/minimized by using only certified weed-free erosion control materials, mulch, and seed; limiting any import or export of fill material to material that is known to be weed free; and requiring the construction contractor to thoroughly wash all construction vehicles and equipment at a commercial wash facility before entering and upon leaving the job site. Implementation of **MM 4.4.1** reduces potential impacts related to the introduction and spread of noxious weeds to a less-than-significant level.

With implementation of **MM 4.4.1** and BMPs for sediment control and spill prevention, direct and indirect impacts to special-status species and their habitats would be less than significant.

Question C

According to the National Wetlands Inventory maintained by the USFWS, one water feature has been previously reported on the study site. The feature is an irrigation ditch on the south side of Theatre Road, and is designated on the NWI map as Riverine; Lower Perennial; Aquatic Bed; Floating Vascular; Permanently Flooded; Excavated (R2AB4Hx). ENPLAN conducted a field investigation on April 12, 2020, and confirmed the presence of this ditch and an irrigation lateral immediately east of the well site. No wetlands or other waters were identified on the well site.

Unlined, constructed drainage ditches are located in some of the affected road ROWs. The constructed ditches intercept sheet flow and roadside runoff. Water carried by the constructed features dissipates after a short distance or is directed to storm drains.

Roadside drainage ditches are not subject to federal jurisdiction. However, the State of California has jurisdiction over all surface waters, including constructed ditches. Because replacement of water mains and/or service connections may occur within the constructed ditches, the Central Valley Water Board was contacted to determine if permits would be required for the proposed activities pursuant to the Porter-Cologne Water Quality Control Act. The Central Valley Water Board determined that it would not require Waste Discharge Requirements for the proposed project provided that the City of Williams implements best management practices to minimize and avoid water quality impacts and restores all areas of temporary impacts to pre-construction conditions upon project completion (L. Coster, Central Valley Regional Quality Control Board, pers. comm.).

Project implementation would have no impact on wetlands. Potential impacts on downstream waters would be negligible because the City of Williams must obtain coverage under the Storm Water Construction General Permit, and implement best management practices for erosion control and spill prevention during construction.

Question D

The study area contains no fish-bearing streams; therefore, the proposed activities would not adversely affect fish movement. The majority of work would occur in and adjacent to paved or graveled areas within road ROWs that have minimal potential to serve as wildlife migration corridors. In addition, the well site is fenced and does not serve as a wildlife migration corridor. Temporary impacts to wildlife could occur due to increased human activity and increased noise levels associated with construction; however, this is a temporary impact and would cease uopn completion of the project. Further, the project does not include installation of additional fencing or other permanent structures that could impede the movement of wildlife in the long term. Therefore, the potential for long-term impacts on the movement of wildlife species is less than significant.

Question E

As identified under Regulatory Context, the City's General Plan includes policies and programs related to the conservation of natural resources, including prevention of the spread of non-native invasive species. With implementation of **MM 4.4.1** ensures the proposed project would be fully consistent with local policies that protect biological resources. Therefore, impacts would be less than significant.

Question F

A Habitat Conservation Plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the Federal Endangered Species Act (FESA) when a project results in the "take" of threatened or endangered wildlife. Regional HCPs address the "take" of listed species at a broader scale to avoid the need for project-by-project permitting. A Natural Community Conservation Plan (NCCP) is a state planning document administered by CDFW. There are no HCPs, NCCPs or other habitat conservation plans that apply to the proposed project. Therefore, there would be no impact.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the project area, including growth resulting from build-out of the City's General Plan, are anticipated to permanently remove plant and wildlife resources. Continued conversion of existing open space to urban development may result in the loss of sensitive plant and wildlife species native to the region, habitats for such species, wetlands, wildlife migration corridors, and nursery sites. The conversion of plant and wildlife habitat on a regional level as a result of cumulative development would potentially result in a regionally significant cumulative impact on special-status species and their habitats.

The proposed project focuses on the replacement of existing facilities, in previously disturbed areas that provide negligible wildlife habitat. With implementation of **MM 4.4.1**, the proposed project's contribution to cumulative regional impacts to biological resources would be less than significant.

MITIGATION

MM 4.4.1 The potential for introduction and spread of noxious weeds shall be avoided/minimized by:

d. Using only certified weed-free erosion control materials, mulch, and seed;

e. Limiting any import or export of fill material to material that is known to be weed free; and

f. Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the job site and upon leaving the job site.

DOCUMENTATION

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4.5 CULTURAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

REGULATORY CONTEXT

FEDERAL

Section 106 of the National Historic Preservation Act (NHPA)

Section 106 of the NHPA and its implementing regulations require federal agencies to take into account the effects of their activities and programs on historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such a property (NHPA Sec. 301[5]). A resource is considered eligible for listing in the NRHP if it meets the following criteria as defined in CFR Title 36, §60.4:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- *That are associated with events that have made a significant contribution to the broad patterns of our history;*
- *That are associated with the lives of persons significant in our past;*
- *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
- *That has yielded, or may be likely to yield, information important to prehistory or history.*

Sites younger than 50 years, unless of exceptional importance, are not eligible for listing in the NRHP. In addition to meeting at least one of the criteria outlined above, the property must also retain enough integrity to enable it to convey its historic significance. To retain integrity, a property will always possess several, and usually most, of the seven aspects of integrity noted above. If a site is determined to be an eligible or historic property, impacts are assessed in terms of "effects." An undertaking is considered to have an adverse effect if it results in any of the following:

1. Physical destruction or damage to all or part of the property;
2. Alteration of a property;
3. Removal of the property from its historic location;
4. Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
5. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features; and
6. Neglect of a property that causes its deterioration; and the transfer, lease, or sale of the property.

If a project will adversely affect a historic property, feasible mitigation measures must be incorporated.

STATE

California Environmental Quality Act (CEQA)

CEQA requires that projects financed by or requiring the discretionary approval of public agencies in California be evaluated to determine potential adverse effects on historical and archaeological resources (California Code of Regulations [CCR], §15064.5). Historical resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. Pursuant to §15064.5 of the CCR, a property may qualify as a historical resource if it meets any of the following criteria:

1. The resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR).
2. The resource is included in a local register of historic resources, as defined in §5020.1(k) of the Public Resources Code (PRC), or is identified as significant in a historical resources survey that meets the requirements of §5024.1(g) of the PRC (unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant).
3. The lead agency determines that the resource may be a historical resource as defined in PRC §5020.1(j), or §5024.1, or may be significant as supported by substantial evidence in light of the whole record. Pursuant to PRC §5024.1, a resource may be eligible for inclusion in the CRHR if it:
    - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    - Is associated with the lives of persons important in our past;

- Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

Resources must retain integrity to be eligible for listing on the CRHR. Resources that are listed in or formally determined eligible for listing in the NRHP are included in the CRHR, and thus are significant historical resources for the purposes of CEQA (PRC §5024.1(d)(1)). A unique archaeological resource means an artifact, object, or site that meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

LOCAL

The City of Williams General Plan includes the following Program that applies to the proposed project:

Chapter 9, Housing Element		
Program	7.1	Tribal Outreach/Consultation The City will circulate projects for review and comment by the Yocha Dehe Wintun Nation that involve excavation of land that are subject to CEQA (negative declaration/mitigated negative declaration, or Environmental Impact Report). The City will include tribal monitoring for larger type projects at the request of the Yocha Dehe Wintun Nation. The City all also allow the Yocha Dehe Wintun Nation to conduct periodic sensitivity training with City staff to help improve coordination efforts between the City and Yocha Dehe Wintun Nation.

DISCUSSION OF IMPACTS

Questions A and B

ENPLAN conducted a cultural resources evaluation for the proposed project. The evaluation included included a records search, Native American consultation, and field evaluation, as described below. Initial work focused on the proposed new well. The project boundaries were subsequently expanded to include water distribution system improvements, and additional work was initiated at that time. The entire Area of Potential Effects (APE) was surveyed to identify cultural or historical resources that would be potentially affected by the proposed project.

Area of Potential Effects (APE)

The APE boundaries were devised in consultation with PACE Engineering, based on the project design. The APE includes areas for staging and construction access, as well as sufficient area for construction. The vertical APE (i.e., associated with the potential for buried cultural resources) is based on the engineering design of the project and reflects the planned depths of the excavations associated with the project. The maximum depth of excavation for the well is 450 feet. The remainder of the improvements would have a maximum excavation depth of five feet.

Records Search

The records search included review of records at the Northwest Information Center of the California Historical Resources Information System at California State University, Sonoma (NWIC) as well as

review of the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Inventory of Historic Resources (CIHR), California Historical Landmarks, California Points of Historical Interest, Native American Heritage Commission (NAHC), historical maps, and pertinent information at the Colusa County Library. Research at the NWIC was conducted on January 6, 2020, and covered an approximate half-mile radius around the APE for the well site for previously recorded archaeological sites and for previously conducted surveys. The size and scope of the search area was determined to be sufficient based on the results.

The initial records search indicated that no surveys for cultural resources have been conducted within a half-mile radius of the well site APE, and no archaeological sites or isolates have been recorded within a half-mile radius of the APE. However, eight historical buildings were identified within a one-mile radius of the well site APE.

Review of the NRHP, the CRHR, California Historical Landmarks, and California Points of Historical Interest did not identify any historical properties within a half-mile radius of the well site. The CIHR indicates that the Sacramento Valley Museum is located east of the intersection of E Street and Venice Boulevard and is adjacent to the APE for the distribution system improvements. The museum, housed in the original Williams High School (built ca. 1911), showcases important historical events that occurred in the Sacramento Valley through photos, documents, textiles, etc.

An extended records search was requested when the project proposal was modified to include water line replacements. However, due to unprecedented delays at the Information Center, no response has yet been received.

Native American Consultation

In response to ENPLAN's request for information, on November 12, 2019, the NAHC conducted a search of its Sacred Lands File. The search did not reveal any known Native American sacred sites or cultural resources in the project area. The NAHC also provided contact information for several Native American representatives and organizations.

On November 22, 2019, ENPLAN contacted the Native American representatives identified by the NAHC with a request to provide comments on the proposed project. A response was received from Craig Marcus, Tribal Administrator of the Estom Yumeka Maidu Tribe of the Enterprise Rancheria, on December 3, 2020. Mr. Marcus stated they had no comment at the time regarding the proposed project since the project is outside of the Tribe's ancestral territory. Follow-up e-mails and telephone calls were placed on December 12, 2019. No other comments or concerns were reported by any Native American representative or organization.

Following modification of the project proposal to include the water line replacements, a subsequent request for comments was sent to the same Native American contacts. The Cachil Dehe Band of Wintun Indians of the Colusa Indian Community responded on March 15, 2022, stating that they did not have the capacity to consult on this project, and deferred to the Yocha Dehe Wintun Nation for future correspondence. The Yocha Dehe Wintun Nation responded on March 22, 2022, and recommended that pre-project cultural sensitivity training be provided for construction personnel.

Also see discussion under Section 4.18 (Tribal Cultural Resources).

Field Survey

Archaeological fieldwork took place on December 9, 2019, December 18, 2021, and April 10, 2022. No cultural resources were observed in the APE.

Conclusions

The cultural resources evaluation concluded that there are no known cultural resources in the APE, but there is always some potential for buried resources to be present. **Mitigation Measure MM 4.5.1** provides for the training of construction personnel to ensure that they would be capable of recognizing basic types of cultural resources and be able to respond appropriately to such unexpected discoveries. **Mitigation Measure MM 4.5.2** addresses the procedures to be followed in

case of an inadvertent discovery of cultural resources. With these measures, the potential for adverse effects to unknown/buried cultural resources is less than significant.

Question C

The project area does not include any known cemeteries, burial sites, or human remains. However, it is possible human remains may be unearthed during construction activities. **Mitigation Measure 4.5.3** ensures if human remains are discovered, there shall be no further excavation or disturbance of the site until the County coroner has been contacted and has made the necessary findings as to origin and disposition in accordance with §15064.5(e) of the CEQA Guidelines. Therefore, impacts are less than significant.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the project area have the potential to impact cultural resources. Archaeological and historic resources are afforded special legal protections designed to reduce the cumulative effects of development. Cumulative projects and the proposed project are subject to the protection of cultural resources afforded by the CEQA Guidelines §15064.5 and related provisions of the PRC. In addition, projects with federal involvement would be subject to Section 106 of the NHPA.

Given the non-renewable nature of cultural resources, any impact to protected sites could be considered cumulatively considerable. As discussed above, **Mitigation Measures MM 4.5.1, 4.5.2, and MM 4.5.3** address the inadvertent discovery of cultural resources and/or human remains during construction. Because all development projects in the State are subject to the same measures pursuant to PRC §21083.2 and CEQA Guidelines §15064.5, the proposed project's cumulative impact to cultural resources is less than significant.

MITIGATION

MM 4.5.1 Prior to commencement of any earth disturbance (e.g., clearing, grading, trenching, etc.), all construction personnel participating in the earth-disturbing activities and their supervisors shall receive training regarding cultural and tribal cultural resources that may be present on the project site. Training shall be provided by the Yocha Dehe Wintun Nation or, if tribal representatives are not available, by a qualified archaeologist. At a minimum, the training shall include a discussion of pertinent laws protecting cultural and tribal cultural resources, examples of resources that could be encountered during project construction, and procedures to be followed if resources are found. The latter shall include familiarity with conditions requiring pause of work, notifications to be made if cultural materials or human remains are encountered, and dignity/respect training.

If new personnel are added to the project, the City shall ensure that they receive the mandatory training before starting work. The initial training session may be videotaped and presented to new personnel to satisfy the sensitivity training requirement. If individuals can provide documentation of cultural resources training within the past two years, recertification is not required.

MM4.5.2 In the event of any inadvertent discovery of cultural resources (i.e., burnt animal bone, midden soils, projectile points or other humanly modified lithics, historic artifacts, etc.), all work within 50 feet of the find shall be halted until a professional archaeologist can evaluate the significance of the find in accordance with PRC §21083.2(g) and §21084.1, and CEQA Guidelines §15064.5(a). If any find is determined to be significant by the archaeologist, the City shall meet with the archaeologist to determine the appropriate course of action. If necessary, a Treatment Plan prepared by an archeologist outlining recovery of the resource, analysis, and reporting of the find shall be prepared. The Treatment Plan shall be reviewed and approved by the City prior to resuming construction.

MM 4.5.3 In the event that human remains are encountered during construction activities, the City shall comply with §15064.5 (e) (1) of the CEQA Guidelines and PRC §7050.5. All project-related

ground disturbance within 100 feet of the find shall be halted until the County coroner has been notified. If the coroner determines that the remains are Native American, the coroner will notify the NAHC to identify the most likely descendants of the deceased Native Americans. Project-related ground disturbance in the vicinity of the find shall not resume until the process detailed in §15064.5 (e) has been completed.

DOCUMENTATION

City of Williams. 2020. City of Williams Chapter 9 (Element No. 7). https://cms7files1.revize.com/williamsca/Williams%20HE%20HCD%20Draft%206-18-20.pdf. Accessed March 2022.

ENPLAN. 2021. Cultural Resources Inventory Report: Well 11 Improvement Project, Williams, Colusa County, California. Confidential document on file at ENPLAN.

4.6 ENERGY

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

REGULATORY CONTEXT

There are no federal or local regulations pertaining to energy that apply to the proposed project.

STATE

California Environmental Quality Act (CEQA)

Section 15126.2(b) of the CEQA Guidelines states that if analysis of a project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the effects must be mitigated. Considerations may include building code compliance, the project's size, location, orientation, equipment use, and any renewable energy features of the project. The energy use analysis may be included in related analyses of air quality, GHG emissions, transportation, and utilities at the discretion of the lead agency.

DISCUSSION OF IMPACTS

Questions A and B

The proposed project includes replacement of water mains and lines that have a history of significant leaks and failures. Repairing leaks will eliminate the need for City staff to frequently fix the lines, resulting in a slight reduction in energy use associated with maintenance vehicles.

Energy use associated with the new well and backwash tank would be limited to electricity used to power pumps and motors in the wellhouse, electricity used for lighting, and fuel for the generator, which would be operated only in the event of an emergency. National Electrical Manufacturers Association (NEMA) premium motors would be used, which would reduce electrical consumption.

Therefore, energy used for operation of the well and backwash tank would not be considered wasteful, inefficient, or unnecessary.

Energy consumption during construction would occur from diesel and gasoline used for construction equipment, haul trucks, and construction workers travelling to and from the work site. The project would comply with State regulations that require the use of fuel-efficient equipment and that restrict idling of vehicles when not in use. Compliance with existing State regulations ensures that impacts would be less than significant.

CUMULATIVE IMPACTS

Completion of the proposed project and other potential cumulative projects in the region, including growth resulting from build-out of the City's General Plan, could result in potentially significant impacts due to the wasteful, inefficient, or unnecessary consumption of energy resources. However, all new development projects in the State are required to comply with State regulations that require the use of fuel-efficient equipment during construction. Therefore, the proposed project's cumulative impacts on energy resources would be less than significant.

MITIGATION

Implementation of **Mitigation Measure MM 4.3.2(h).**

DOCUMENTATION

California Air Resources Board. 2016. In-Use Off-Road Diesel-Fueled Fleets Regulation Overview. https://ww3.arb.ca.gov/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf. Accessed October 2021.

_____. 2016. Mobile Source Strategy. https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.pdf. Accessed October 2021.

4.7 GEOLOGY AND SOILS

Would the project:

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

REGULATORY CONTEXT

FEDERAL

National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction (NEHR) Act was passed in 1977 to reduce the risks to life and property from future earthquakes in the United States. The Act established the National Earthquake Hazards Reduction Program, which was most recently amended in 2004. The Federal Emergency Management Agency (FEMA) is designated as the lead agency of the program. Other NEHR Act agencies include the National Institute of Standards and Technology, National Science Foundation, and the U.S. Geological Survey (USGS).

STATE

California Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (PRC §2621 *et seq.*) was passed in 1972 to reduce the risk to life and property from surface faulting in California. The Act prohibits the siting of most structures intended for human occupancy on the surface trace of active faults. Before a project can be permitted in

a designated Alquist-Priolo Fault Study Zone, a geologic investigation must be prepared to demonstrate that proposed buildings would not be constructed across active faults.

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act (SHMA) of 1990 (PRC §2690–2699.6) addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction and seismically induced landslides. The SHMA also addresses expansive soils, settlement, and slope stability. Under the SHMA, cities and counties may withhold development permits for sites within seismic hazard areas until geologic/geotechnical investigations have been completed and measures to reduce potential damage have been incorporated into development plans.

California Building Standards Code

Title 24 of the CCR, also known as the California Building Standards Code (CBSC), provides minimum standards for building design and construction, including excavation, seismic design, drainage, and erosion control. The CBSC is based on the International Building Code (IBC) used widely throughout the country. The CBSC has been modified for California conditions to include more detailed and/or more stringent regulations.

LOCAL

The City of Williams General Plan includes the following Policy that apply to the proposed project:

Chapter 4, Public Safety		
Policy:	4.17	Geotechnical investigation will be required by the City for any development proposed to occur in an area of known subsidence for which engineering modifications may be necessary to mitigate or eliminate adverse impacts.

DISCUSSION OF IMPACTS

Question A

i and ii)

The Alquist-Priolo Earthquake Fault Zoning Maps show that the closest Special Study Zone is the Jericho Valley Fault Zone, approximately 24.5 miles southwest of the project site. The nearest potentially active faults are located 22 miles west of the project area in the Resort Fault Zone and 19 miles east of the project area in the Willows Fault Zone. Although these fault lines would produce low to moderate ground shaking, earthquake activity has not been a serious hazard in the County's history.

Structural components that would be at risk of damage due to an earthquake include the 53,000-gallon backwash tank and the well house; however, improvement plans for the proposed project would be prepared by a registered professional engineer to ensure that appropriate design and construction methods are implemented to reduce or eliminate potential impacts. Further, the project does not include any components that would increase the likelihood of a seismic event or increase the exposure of people to risks associated with a seismic event; therefore, there would be no impact.

iii)

Liquefaction results from an applied stress on the soil, such as earthquake shaking or other sudden change in stress condition, and is primarily associated with saturated, cohesionless soil layers located close to the ground surface. During liquefaction, soils lose strength and ground failure may occur. This is most likely to occur in alluvial (geologically recent, unconsolidated sediments) and stream channel deposits, especially when the groundwater table is high.

As shown in **Table 4.7-1**, due to soil type, it is possible that liquefaction could occur in some areas; however, improvement plans for the proposed project would be prepared by a registered professional engineer to ensure special design and/or construction methods are implemented to reduce or eliminate potential impacts. With implementation of standard engineering design measures, the potential for liquefaction is less than significant.

Table 4.7-1
Soil Types and Characteristics

Soil Name/ Location	Landform and Parent Material	Drainage	Surface Runoff	Permeability	Shrink-Swell Potential
Hustabel sandy loam, 0 to 1 percent slopes *Water main corridor*	Alluvial fans; alluvium	Moderately well drained	Negligible	Moderately high	Low
Westfan loam, 0 to 2 percent slopes *Well site and water main corridor*	Alluvial fans; alluvium	Well drained	Very low	Moderately high	Moderate

Sources: U.S. Department of Agriculture, Natural Resources Conservation Service, 2021; USDA, Soil Conservation Service and Forest Service, Soil Survey of Colusa County, California, 2006.

iv)

A landslide is a mass of rock, earth, or debris moving down a slope. Landslides are most likely to occur in steep areas with weak rocks where the soil is saturated from heavy rains or snowmelt. Earthwork that alters the shape of a slope or imposes new loads on an existing slope could increase the potential for landslides. The 2018 Colusa County Local Hazard Mitigation Plan Update does not identify landslides as a potential hazard within the County, and the topography within the project area is relatively flat with little risk of landslides. Therefore, impacts would be less than significant.

Question B

Construction of the proposed project would involve excavation, grading, and installation of project components, which would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events. This could generate accelerated runoff, localized erosion, and sedimentation. In addition, construction activities could expose soil to wind erosion that could adversely affect on-site soils and the revegetation potential of the area.

As noted in Section 1.8 (Regulatory Requirements), the City is required to obtain coverage under the NPDES permit for *Discharges of Storm Water Runoff Associated with Construction Activity* by submitting a Notice of Intent to the SWRCB. The permitting process requires the development and implementation of an effective SWPPP that includes BMPs to reduce pollutants as well as any additional controls necessary to meet water quality standards. Measures that may be implemented to minimize erosion include, but are not limited to, limiting construction to the dry season; use of straw wattles, silt fences, and/or gravel berms to prevent sediment from discharging off-site; and revegetating temporarily disturbed sites upon completion of construction.

In addition, as further discussed in Section 4.10 (Hydrology and Water Quality), dischargers not covered by a Phase I or II municipal separate storm sewer system (MS4) permit or approved Storm Water Management Plan must comply with post-construction standards identified in the SWRCB Construction General Permit. Post-construction standards include the requirement to implement structural and/or non-structural measures to reduce runoff, thereby minimizing the potential for erosion. Because BMPs for erosion and sediment control would be implemented in accordance with existing requirements, the potential for soil erosion and loss of topsoil would be less than significant.

Questions C and D

See discussion under Question A(iii) and (iv) and Question B above. Unstable soils consist of loose or soft deposits of sands, silts, and clays. In the project area, unstable soils can occur near streams and creeks. Some soils have a potential to swell when they absorb water and shrink when they dry out. These expansive soils generally contain clays that expand when moisture is absorbed into the crystal structure. As shown in **Table 4.7-1**, none of the soils in the project area has a high shrink-swell potential. In addition, improvement plans for the proposed project would be prepared by a registered professional engineer to ensure that appropriate design and construction methods are implemented to avoid or adequately minimize potential impacts. Therefore, impacts would be less than significant.

Question E

The proposed project does not include the installation or use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impact.

Question F

Paleontological resources include fossils and the deposits that contain fossils. Fossils are evidence of ancient life preserved in sediments and rock, such as the remains of animals, animal tracks, plants, and other organisms. Fossils are found primarily embedded in sedimentary rocks, mostly shale, limestone, and sandstone. With rare exceptions, metamorphic and igneous rocks have undergone too much heat and pressure to preserve fossils; however, when ash from volcanic eruptions buries the surrounding area, the ash sometimes encapsulates organisms.

According to the California Geological Survey, the geology of the project area consists of Pleistocene-Holocene alluvium, lake, playa, and terrace deposits. Pleistocene-aged rocks are old enough to contain paleontological resources; however, there is no record of paleontological resources in the project area (U.C. Berkeley, 2021), and the project area has no unique geological features. Further, the majority of work would be conducted in previously disturbed areas and the potential for the inadvertent discovery of paleontological resources is low. Therefore, impacts would be less that significant.

CUMULATIVE IMPACTS

Completion of the proposed project and other potential cumulative projects in the region could result in increased erosion and soil hazards and could expose additional structures and people to seismic hazards. As discussed above, development projects that result in earth disturbance over one acre are required to obtain coverage under the NPDES permit for *Discharges of Storm Water Runoff Associated with Construction Activity* by submitting a Notice of Intent to the SWRCB along with an effective SWPPP that includes BMPs to minimize erosion. In addition, pursuant to existing State regulations, incorporation of standard seismic safety and engineering design measures is required for all public utility projects. Therefore, the proposed project's cumulative impacts are less than significant.

MITIGATION

None necessary.

DOCUMENTATION

California Department of Conservation. 2021. Alquist-Priolo Earthquake Fault Zoning Act. http://www.conservation.ca.gov/CGS/rghm/ap/. Accessed October 2021.

_____. 2015. Fault Activity Map of California. http://maps.conservation.ca.gov/cgs/fam/. Accessed October 2021.

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Colusa County. 2018. Colusa County Local Hazard Mitigation Plan Update. https://www.countyofcolusa.org/DocumentCenter/View/11098/Colusa-County-LHMP-Update-Complete?bidId=. Accessed October 2021.

State of California, Water Resources Control Board. 2013. Construction General Permit (2009-009-DWQ). http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_complete.pdf. Accessed October 2021.

U.C. Berkeley, Museum of Paleontology. 2021. Fossil Index. https://ucmpdb.berkeley.edu/. Accessed October 2021.

U.S. Department of Agriculture, Natural Resource Conservation Service. 2021. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed October 2021.

_____. 2006. Soil Survey of Colusa County, California. https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA011/0/colusaCA.pdf. Accessed October 2021.

4.8 GREENHOUSE GAS EMISSIONS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no local regulations pertaining to greenhouse gas emissions that apply to the proposed project.

FEDERAL

U.S. Environmental Protection Agency

On April 2, 2007, in *Massachusetts v. EPA,* 549 U.S. 497 (2007), the Supreme Court found that greenhouse gas emissions (GHGs) are air pollutants covered by the federal Clean Air Act (CAA). In reaching its decision, the Court also acknowledged that climate change is caused, in part, by human activities. The Supreme Court's ruling paved the way for the regulation of GHG emissions by the USEPA under the CAA. The USEPA has enacted regulations that address GHG emissions, including, but not limited to, mandatory GHG reporting requirements, carbon pollution standards for power plants, and air pollution standards for oil and natural gas production.

STATE

California Executive Order (EO) S-3-05

EO S-03-05 was signed by the Governor on June 1, 2005, and established the goal of reducing statewide GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Assembly Bill 32 (Global Warming Solutions Act of 2006)

As required by AB 32 (2006), CARB adopted the initial Climate Change Scoping Plan in 2008 that identified the State's strategy to achieve the 2020 GHG emissions limit via regulations, market-based mechanisms, and other actions. AB 32 requires that the Scoping Plan be updated every five years. CARB's first update to the Climate Change Scoping Plan (2014) addressed post-2020 goals and identified the need for a 2030 mid-term target to establish a continuum of actions to maintain and continue reductions. Executive Order B-30-15 (2015) extended the goal of AB 32 and set a GHG reduction goal of 40 percent below 1990 levels by 2030. In December 2017, CARB adopted the second update to the Scoping Plan that includes strategies to achieve the 2030 mid-term target and substantially advance toward the 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels.

The 2017 Scoping Plan Update recommends that local governments aim to achieve a community-wide goal of no more than 6 MT CO_2e per capita by 2030 and no more than 2 MT CO_2e per capita by 2050, which is consistent with the State's long-term goals.

Senate Bill 32/Assembly Bill 197

These two bills were signed into legislation on September 8, 2016. As set forth in EO B-30-15, SB 32 requires CARB to reduce GHG emissions to 40 percent below the 1990 levels by 2030. AB 197 requires that GHG emissions reductions be achieved in a manner that benefits the state's most disadvantaged communities. AB 197 requires CARB to prioritize direct GHG emission reductions in a manner that benefits the state's most disadvantaged communities and to consider social costs when adopting regulations to reduce GHG emissions. AB 197 also provides more legislative oversight of CARB by adding two new legislatively appointed non-voting members to the CARB Board and limiting the term length of Board members to six years.

Renewables Portfolio Standard

In 2002, SB 1078 was passed to establish the State's Renewables Portfolio Standard (RPS) Program, with the goal of increasing the amount of electricity generated and sold to retail customers from eligible renewable energy resources. The initial goal was to increase the percentage of renewable energy in the state's electricity mix to 20 percent of retail sales by 2017. SB 350 (2015) codified a target of 50 percent renewable energy by 2030, and requires California utilities to develop integrated resource plans that incorporate a GHG emission reduction planning component beginning January 1, 2019. SB100 (2018) codified targets of 60 percent renewable energy by 2030 and 100 percent renewable energy by 2045.

California Executive Order B-55-18

EO B-55-18 was issued by the Governor on September 10, 2018. It sets a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets.

Senate Bill 375 (Sustainable Communities and Climate Protection Act of 2008)

Under SB 375, the CARB sets regional targets for the reduction of GHG emissions from passenger vehicles and light duty trucks. Each Metropolitan Planning Organization (MPO) in the State, or Regional Transportation Planning Agency for regions without a MPO, must include a Sustainable Communities Strategy in the applicable Regional Transportation Plan that demonstrates how the region will meet the GHG emissions reduction targets.

Mobile Source Strategy

CARB's Mobile Source Strategy, adopted in 2016, describes the State's strategy for containing air pollutant emissions from vehicles, and quantifies growth in vehicle miles traveled that is compatible with achieving state climate targets. The Strategy demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risks from transportation emissions, and reduce petroleum consumption over the next fifteen years.

Senate Bill 210 (2019), Heavy-Duty Vehicle Inspection and Maintenance Program

Under SB 210, heavy-duty diesel trucks will have to pass a smog check to ensure vehicle emission controls are maintained in order to register or operate in California. Upon implementation of the Program, CARB must provide mechanisms for out-of-state owners of heavy-duty vehicles to establish and verify compliance with State regulations for heavy-duty diesel trucks prior to entering the State.

Senate Bill 44 (2019), Medium- and Heavy-Duty Vehicles: Comprehensive Strategy

SB 44 requires CARB to update the State's Mobile Source Strategy no later than January 1, 2021, to include a comprehensive strategy to reduce emissions from medium- and heavy-duty vehicles in order to meet federal ambient air quality standards and reduce GHG emissions from this sector. The Bill also requires CARB to establish emission reduction goals for 2030 and 2050 for medium- and heavy-duty vehicles.

CEQA Guidelines

§15064.4 of the California Environmental Quality Act (CEQA) Guidelines states that the lead agency should focus its GHG emissions analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A lead agency has the discretion to determine whether to use a model or methodology to quantify GHG emissions or to rely on a qualitative or performance-based standard.

The GHG analysis should consider: 1) the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting, 2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project, and 3) the extent to which the project complies with any regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an Environmental Impact Report (EIR) must be prepared for the project. To determine transportation-generated greenhouse gas emissions in particular, lead agencies may determine that it is appropriate to use the same method used to determine the transportation impacts associated with a project's VMT.

In *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) 62 Cal.4th 204, which involved the Newhall Ranch project, the California Supreme Court concluded that a legally appropriate approach to assessing the significance of GHG emissions was to determine whether a project was consistent with "*'performance based standards' adopted to fulfill 'a statewide . . . plan for the reduction or mitigation of greenhouse gas emissions' (CEQA Guidelines §15064.4(a)(2), (b)(3)… §15064(h)(3) [determination that impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including 'plans or regulations for the reduction of greenhouse gas emissions'].)"* (62 Cal.4th at p. 229.)

Greenhouse Gases Defined

Table 4.8-1 provides descriptions of the GHGs identified in California Health and Safety Code §38505(g).

TABLE 4.8-1
Greenhouse Gases

Greenhouse Gas	Description
Carbon dioxide (CO_2)	Carbon dioxide (CO_2) is the primary greenhouse gas emitted through human activities. In 2014, CO_2 accounted for about 80.9 percent of all U.S. greenhouse gas emissions from human activities. The main human activity that emits CO_2 is the combustion of fossil fuels (coal, natural gas, and oil) for energy and transportation, although certain industrial processes and land-use changes also emit CO_2.
Methane (CH_4)	Methane (CH_4) is the second most prevalent greenhouse gas emitted in the United States from human activities. Methane is emitted by natural sources such as wetlands, as well as human activities such as the raising of livestock; the production, refinement, transportation, and storage of natural gas; methane in landfills as waste decomposes; and in the treatment of wastewater.
Nitrous oxide (N_2O)	In 2014, nitrous oxide (N_2O) accounted for about 6 percent of all U.S. greenhouse gas emissions from human activities. Nitrous oxide is naturally present in the atmosphere as part of the Earth's nitrogen cycle. Human activities such as agricultural soil management (adding nitrogen to soil through use of synthetic fertilizers), fossil fuel combustion, wastewater management, and industrial processes are also increasing the amount of N_2O in the atmosphere.
Hydrofluorocarbons (HFCs)	Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products such as refrigerants, aerosol propellants, solvents, and fire retardants. They are released into the atmosphere through leaks, servicing, and disposal of equipment in which they are used.
Perfluorocarbons (PFCs)	Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F_4). Perfluorocarbons are produced as a byproduct of various industrial processes associated with aluminum production and the manufacturing of semiconductors.
Sulfur hexafluoride (SF_6)	Sulfur hexafluoride (SF_6) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF_6 is primarily used in magnesium processing and as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF_6 produced worldwide.
Nitrogen trifluoride (NF_3)	Nitrogen trifluoride is a colorless, odorless, nonflammable gas that is highly toxic by inhalation. It is one of several gases used in the manufacture of liquid crystal flat-panel displays, thin-film photovoltaic cells and microcircuits.

DISCUSSION OF IMPACTS

Question A

Gases that trap heat in the atmosphere create a greenhouse effect that results in global warming and climate change. These gases are referred to as greenhouse gases (GHGs). As described in **Table 4.8-1,** some GHGs occur both naturally and as a result of human activities, and some GHGs are exclusively the result of human activities.

The atmospheric lifetime of each GHG determines reflects how long the gas stays in the atmosphere before natural processes (e.g., chemical reactions) remove it. A gas with a long lifetime can exert more warming influence than a gas with a short lifetime. In addition, different GHGs have different

effects on the atmosphere. For this reason, each GHG is assigned a global warming potential (GWP) which is a measure of the heat-trapping potential of each gas over a specified period of time. Gases with a higher GWP absorb more heat that gases with a lower GWP, and thus have a greater effect on global warming and climate change. The GWP metric is used to convert all GHGs into CO_2 equivalent (CO_2e) units, which allows policy makers to compare impacts of GHG emissions on an equal basis. The GWPs and atmospheric lifetimes for each GHG are shown in **Table 4.8-2**.

Table 4.8-2
Greenhouse Gases: Global Warming Potential and Atmospheric Lifetime

GHG	GWP (100-year time horizon)	Atmospheric Lifetime (years)
CO_2	1	50 -200
CH_4	25	12
N_2O	298	114
HFCs	Up to 14,800	Up to 270
PFCs:	7,390-12,200	2,600 – 50,000
SF_6	22,800	3,200
NF_3	17,200	740

Sources: *U.S. Environmental Protection Agency, 2020.*

Thresholds of Significance

Neither the City nor County have adopted numerical thresholds of significance or performance-based standards for GHG emissions. As stated under Regulatory Context, §15064.4 of the CEQA Guidelines gives lead agencies the discretion to determine whether to use a model or other method to quantify GHG emissions and/or to rely on a qualitative or performance-based standard.

For a quantitative analysis, a lead agency could determine a less-than-significant impact if a project did not exceed an established numerical threshold. For a qualitative/performance-based threshold, a lead agency could determine a less-than-significant impact if a project complies with State, regional, and/or local programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

If a qualitative approach is used, lead agencies should still quantify a project's construction and operational GHG emissions to determine the amount, types, and sources of GHG emissions resulting from the project. Quantification may be useful in indicating to the lead agency and the public whether emissions reductions are possible, and if so, from which sources. For example, if quantification reveals that a substantial portion of a project's emissions result from mobile sources (automobiles), a lead agency may consider whether design changes could reduce the project's vehicle miles traveled (OPR, 2018).

Project GHG Emissions

GHG emissions for the proposed project were estimated using the CalEEMod.2020.4.0 software. CalEEMod is a statewide model designed to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

Site-specific inputs and assumptions for the proposed project include, but are not limited to, the following. Output files, as well as site-specific inputs and assumptions, are provided in **Appendix A**.

- Emissions from construction are based on all construction-related activities associated with proposed and future uses, including but not limited to grading, use of construction equipment, material hauling, trenching, and site preparation.
- Demolition activities would generate approximately 500 tons of solid waste, mainly pavement that is removed to accommodate the proposed improvements.
- 1.2 cubic yards (CY) of soil would be imported and 165 CY of soil would be exported.
- Construction would commence in the fall of 2022 and would be completed in approximately 12 months.

Estimated GHG emissions for the proposed project are shown in **Table 4.8-3.** As indicated, construction emissions are amortized over the life of the project, defined as 30 years, and added to the operational emissions.

TABLE 4.8-3
Estimated Annual Greenhouse Gas Emissions (Metric Tons)

Source	Carbon Dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)	Carbon Dioxide Equivalent (CO_2e)
Energy	3.66	Trace	Trace	3.69
Construction (Amortized over 30 years)	11.26	0.002	Trace	11.34
Total	14.92	0.002	Trace	15.03

Source: CalEEMod, 2021. Note: Total values may not add due to rounding (see Appendix A).

Conclusions

As stated above, neither the City nor the County have adopted numerical thresholds for GHG emissions. Numerical thresholds that been referenced for other projects in the north state range from 900 MT per year CO_2e (Tehama County) to 1,100 MT per year CO_2e for both construction and operational emissions and 10,000 MT per year CO_2e for stationary sources (various communities in the Sacramento Valley and Northeast Plateau air basins). As indicated in **Table 4.8-3**, the project's GHG emissions are negligible in comparison to these thresholds.

As documented in Section 4.14 (Population and Housing), the project does not include an increase in capacity in the City's water system that could potentially lead to population growth. As documented in Section 4.17 (Transportation), the project does not include any components that would increase post-construction VMT or result in mobile source emissions over existing levels.

The project's increase in operational emissions over existing levels would be attributed to indirect emissions associated with use of electricity to operate the new well and backwash tank. As stated in Section 4.6 under Questions A and B, energy use would be limited to electricity used to power pumps and motors, electricity used for lighting, and fuel for the generator, which would be operated only in the event of an emergency.

NEMA premium motors would be used to minimize electrical consumption. Further, the project includes replacement of water mains and lines that have a history of significant leaks and failures. Repairing leaks will eliminate the need for City staff to frequently fix the lines, resulting in a reduction in energy use associated with maintenance vehicles.

In addition, as described under Regulatory Context, the State has adopted numerous policies that call for the development of additional State regulations to reduce GHG emissions to achieve the State's established targets. The State's RPS program was enacted to increase the amount of electricity generated and sold to retail customers from eligible renewable energy resources. The

RPS, as amended, establishes a target of 60 percent renewable energy by 2030 and 100 percent renewable energy by 2045.

Electricity for the proposed project would be provided by PG&E, a company based in San Francisco, California, that provides electric service to a 70,000-square-mile service area in Northern and Central California. According to PG&E's 2020 Integrated Resource Plan (IRP), PG&E must comply with California Public Utilities Commission RPS requirements for the State. PG&E's 2020 IRP demonstrates that PG&E will meet applicable targets for year 2030. Emissions reductions would be achieved by adding renewable energy sources, leveraging new technology, investing in lower-emissions vehicles, and building a more sustainable supply chain.

Therefore, impacts would be less than significant because contractors would be required to comply with State regulations that require the use of fuel-efficient equipment during construction; indirect GHG emissions from the production of electricity will continue to decrease through implementation of State regulations that require electricity to be generated from renewable energy sources; no long-term increase in VMT would occur as a result of the project; and the project does not have growth-inducing impacts that could result in increased GHG emissions.

Question B

See discussion under Regulatory Context and Question A above. There are no adopted local plans associated with GHG emissions. The City of Williams would ensure compliance with applicable State regulations adopted for the purpose of reducing GHG emissions through contractual obligations. Therefore, the project would not conflict with a plan, policy, or regulation adopted for the purpose of reducing GHG emissions; there would be no impact.

CUMULATIVE IMPACTS

GHG emissions and global climate change are, by nature, cumulative impacts. Unlike criteria pollutants, which are pollutants of regional and local concern, GHGs are global pollutants and are not limited to the area in which they are generated. As discussed under Regulatory Context above, the State legislature has adopted numerous programs and regulations to reduce statewide GHG emissions. As the use of renewable energy sources for electricity generation increases in accordance with existing State regulations, GHG emissions associated with the use of electricity will continue to decrease. Because the project will comply with regulations adopted to reduce GHG emissions and construction-related GHG emissions would be temporary and cease at completion of the project, the project's contribution to cumulative GHG emissions would be less than significant.

MITIGATION

None necessary.

DOCUMENTATION

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4.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 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 §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 area or, where such a plan has not been adopted, within two miles of a public airport or a 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?	☐	☐	☒	☐

REGULATORY CONTEXT

FEDERAL

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) is the primary federal law for the regulation of solid waste and hazardous waste in the United States and provides for the "cradle-to-grave" regulation that requires businesses, institutions, and other entities that generate hazardous waste to track such waste from the point of generation until it is recycled, reused, or properly disposed of. The U.S. Environmental Protection Agency (USEPA) has primary responsibility for implementing the RCRA.

USEPA's Risk Management Plan

Section 112(r) of the federal CAA (referred to as the USEPA's Risk Management Plan) specifically covers "extremely hazardous materials" which include acutely toxic, extremely flammable, and highly explosive substances. Facilities involved in the use or storage of extremely hazardous materials must implement a Risk Management Plan (RMP), which requires a detailed analysis of potential accident factors and implementation of applicable mitigation measures.

Federal Occupational Safety and Health Administration (OSHA)

The Occupational Safety and Health Act (OSHA) prepares and enforces occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure.

U.S. Department of Transportation

The United States Department of Transportation regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

STATE

California Code of Regulations (CCR), Title 22, Definition of Hazardous Material

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22, §66260.10, of the CCR as: *"A substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed."*

Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the RCRA and the State Hazardous Waste Control Law. Both laws impose "cradle-to-grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

California Occupational Safety and Health Administration (Cal/OSHA)

The California Occupational Safety and Health Administration (Cal/OSHA) has primary responsibility for developing and enforcing state workplace safety regulations, including requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation.

Regional Water Quality Control Board

The SWRCB and RWQCBs regulate hazardous substances, materials, and wastes through a variety of state statutes, including the Porter-Cologne Water Quality Control Act and underground storage tank cleanup laws. The Regional Boards regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. Any person proposing to discharge waste within the State must file a report of waste discharge with the appropriate regional board. The proposed project is located within the jurisdiction of the CVRWQCB.

Hazardous Materials Emergency Response/Contingency Plan

Chapter 6.95, §25503, of the California Health and Safety Code requires businesses that handle/store a hazardous material or a mixture containing a hazardous material to establish and implement a Business Plan for Emergency Response (Business Plan). A Business Plan is required when the amount of hazardous materials exceeds 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases. A Business Plan is also required if federal thresholds for extremely hazardous substances are exceeded. The Business Plan includes procedures to deal with emergencies following a fire, explosion, or release of hazardous materials that could threaten human health and/or the environment.

California Accidental Release Prevention Program (CalARP)

The goal of the California Accidental Release Prevention Program (CalARP) is to prevent accidental releases of substances that pose the greatest risk of immediate harm to the public and the environment. Facilities are required to prepare a Risk Management Plan in compliance with CCR Title 19, Division 2, Chapter 4.5, if they handle, manufacture, use, or store a federally regulated substance in amounts above established federal thresholds; or if they handle a state regulated substance in amounts greater than state thresholds and have been determined to have a high potential for accident risk.

LOCAL

The City of Williams General Plan includes the following Policies that apply to the proposed project:

Chapter 4, Public Safety		
Policies:	4.20	The City supports the Williams Fire Protection Authority's (WFPA), efforts to lower its fire insurance rating and public protection classification (PPC) by: − improving the availability of water and the adequacy of fire flows; and − investing in an advanced communication system.
	4.23	The City will continue to work with the WFPA to plan for the provision of water infrastructure to support the fire fighting capabilities of the WFPA.
	4.35	The City will coordinate with appropriate federal, state, and regional agencies to address local sources of groundwater and soil contamination, including underground storage tanks, septic tanks, agriculture, and industrial uses.
	4.40	The City will establish hazardous materials routes, which should be listed in the National Hazardous Materials Registry managed by the U.S. Department of Transportation Federal Motor Carrier Safety Administration (FMCSA).

DISCUSSION OF IMPACTS

Questions A and B

Other than sodium hypochlorite transported to and used at the well for disinfection and diesel fuel for the backup generator, the project would not result in a permanent increase in the transport, use, or disposal of hazardous materials. The storage of chemicals associated with the water system, and installation and storage of the generator and fuel tank would occur at the wellhouse and would be in accordance with applicable federal, State, and local regulations, as would the transport and use of such chemicals and fuel.

During construction, limited quantities of hazardous substances, such as gasoline, diesel fuel, hydraulic fluid, solvents, oils, etc., may temporarily be brought into areas where improvements are proposed. There is a possibility of accidental release of hazardous substances into the environment, such as spilling petroleum-based fuels used for construction equipment. Construction contractors would be required to comply with applicable federal and state environmental and workplace safety laws. Additionally, construction contractors are required to implement BMPs for the storage, use, and transportation of hazardous materials. Therefore, impacts would be less than significant.

Question C

No schools are present within a quarter mile of the well site, where sodium hypochlorite would be used on an on-going basis for water treatment. According to the California Department of Education, the schools within a quarter mile of the planned water main replacements are the Williams Elementary School, which abuts the E Street in which water mains would be replaced, and Williams Junior/Senior High School and Williams Upper Elementary School, which are just north of the planned water main improvements in the alleyway between D Street and E Street.

As described under Questions A and B above, although sodium hypochlorite and diesel fuel would be transported to and used at the well and backup generator, and project construction would involve temporary use of relatively small quantities of materials such as gasoline, diesel fuel, hydraulic fluid, solvents, oils, etc., potential impacts associated with hazardous materials would be less than significant with compliance with existing laws and regulations; no mitigation measures are required.

Question D

The following databases were reviewed to locate hazardous waste facilities, land designated as hazardous waste property, and hazardous waste disposal sites in accordance with California Government Code §65962.5:

- List of Hazardous Waste and Substances sites from the Department of Toxic Substances Control (DTSC) EnviroStor Database.
- SWRCB GeoTracker Database.
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit.
- List of active Cease and Desist Orders and Clean-Up and Abatement Orders from the SWRCB.

Review of the above records did not identify any active clean-up sites within a 0.5-mile radius of the project site. Therefore, there would be no impact.

Question E

According to the Colusa County Airport Land Use Compatibility Plan, the project area is not located within an airport land use plan area. According to the Federal Aviation Administration, the nearest public airport is the Colusa County Airport, approximately 8.35 miles southeast of the project site. There is also a private airstrip, Williams Airport, on Husted Road, approximately one mile from

improvements on 7th Street. The proposed project does not include any components that would introduce people to the area in the long-term or create a safety hazard associated with an airport; therefore, there would be no impact.

Question F

The proposed project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. Although a temporary increase in traffic could occur during construction and could interfere with emergency response times, construction-related traffic would be minor due to the overall scale of the construction activities. Further, construction-related traffic would be spread over the duration of the construction schedule and would be minimal on a daily basis.

In addition, pursuant to Cal/OSHA requirements, temporary traffic control during completion of activities that require work in the public right-of-way is required and must adhere to the procedures, methods and guidance given in the current edition of the California Manual on Uniform Traffic Control Devices (MUTCD). Implementation of the control measures ensures that work does not interfere with emergency response vehicles or an emergency evacuation plan; therefore, impacts during construction would be less than significant.

Question G

As documented in Section 4.20 (Wildfires), the proposed project does not include any development or improvements that would increase the likelihood of wildland fires in the long-term; rather, the project would improve fire flows, which would improve fire protection and the ability to suppress fires in the area.

Equipment used during construction activities may create sparks that could ignite dry grass. Also, the use of power tools and/or acetylene torches may increase the risk of land fire hazard. In accordance with Cal/OSHA regulations (Division 1, Chapter 4, Subchapter 4, Article 36 (Fire Protection and Prevention), a fire protection program must be followed throughout all phases of construction. Implementation of the fire protection program ensures that impacts would be less than significant.

CUMULATIVE IMPACTS

As documented above, the proposed project does not include any components that would result in long-term risks associated with hazards or hazardous materials.

The transportation, storage, and use of hazardous materials during construction must be conducted in accordance with State and local regulations, and steps must be taken during construction to reduce potential impacts associated with wildland fires. These regulations ensure that impacts are less than significant and that activities do not result in impacts that would be cumulatively considerable.

MITIGATION

None necessary.

DOCUMENTATION

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4.10 HYDROLOGY AND WATER QUALITY

Would the project:

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

REGULATORY CONTEXT

FEDERAL

Clean Water Act (CWA)

The CWA (33 USC §1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality and was established to *"restore and maintain the chemical, physical, and biological integrity of the Nation's waters."* Pertinent sections of the Act are as follows:

1. Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
2. Section 401 (Water Quality Certification) requires an applicant for any federal permit that would authorize a discharge to waters of the U.S to obtain certification from the state that the discharge will comply with other provisions of the Act.
3. Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the U.S. This permit program is administered by the SWRCB and is discussed in detail below.
4. Section 404, jointly administered by the USACE and USEPA, establishes a permit program for the discharge of dredged or fill material into waters of the U.S.

Federal Anti-Degradation Policy

The federal Anti-Degradation Policy is part of the CWA (Section 303(d)) and is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that protects designated uses of water bodies (e.g., fish and wildlife, recreation, water supply, etc.). The water quality necessary to support the designated use(s) must be maintained and protected.

Safe Drinking Water Act

Under the 1974 Safe Drinking Water Act, most recently amended in 1996, USEPA regulates contaminants of concern to domestic water supply, which are those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are classified as either primary or secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially.

Federal Emergency Management Agency (FEMA)

FEMA is responsible for mapping flood-prone areas under the National Flood Insurance Program (NFIP). Communities that participate in the NFIP are required to adopt and enforce a floodplain management ordinance to reduce future flood risks related to new construction in a flood hazard area. In return, property owners have access to affordable federally-funded flood insurance policies.

National Pollutant Discharge Elimination System

Under Section 402(p) of the CWA, the USEPA established the NPDES to enforce discharge standards for both point-source and non-point-source pollution. Dischargers can apply for individual discharge permits, or apply for coverage under the General Permits that cover certain qualified dischargers. Point-source discharges include municipal and industrial wastewater, stormwater runoff, combined sewer overflows, sanitary sewer overflows, and municipal separate storm sewer systems. NPDES permits impose limits on discharges based on minimum performance standards or the quality of the receiving water, whichever type is more stringent in a given situation.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code §13000 *et seq.*) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of waters of the State. The Porter-Cologne Act applies to surface waters, wetlands, and groundwater, and to both point and non-point sources of pollution. The Act requires a

Report of Waste Discharge for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. The RWQCBs enforce waste discharge requirements identified in the Report.

State Anti-Degradation Policy

In 1968, as required under the Federal Anti-Degradation Policy, the SWRCB adopted an Anti-Degradation Policy, formally known as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (State Water Board Resolution No. 68-16). Under the Anti-Degradation Policy, any actions that can adversely affect water quality in surface or ground waters must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial use of the water, and not result in water quality less than that prescribed in water quality plans and policies.

National Pollution Discharge Elimination System

Pursuant to the federal CWA, the responsibility for issuing NPDES permits and enforcing the NPDES program was delegated to the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB). NPDES permits are also referred to as waste discharge requirements (WDRs) that regulate discharges to waters of the United States. Below is a description of relevant NPDES general permits.

Construction Activity and Post-Construction Requirements

Discharges from construction sites that disturb one acre or more of total land area are subject to the NPDES permit for *Discharges of Storm Water Runoff associated with Construction Activity* (currently Order No. 2009-009-DWQ), also known as the Construction General Permit. The permitting process requires the development and implementation of an effective Storm Water Pollution Prevention Plan (SWPPP). Coverage under the Construction General Permit is obtained by submitting a Notice of Intent (NOI) to the SWRCB and preparing the SWPPP prior to the beginning of construction. The SWPPP must include BMPs to reduce pollutants and any more stringent controls necessary to meet water quality standards. Dischargers must also comply with water quality objectives as defined in the applicable Basin Plan.

The Construction General Permit includes post-construction requirements for areas in the State not covered by a Standard Urban Storm Water Management Plan (SUSWMP) or a Phase I or Phase II MS4 Permit. These requirements are intended to ensure that the post-construction conditions at the project site do not cause or contribute to direct or indirect water quality impacts (i.e., pollution and/or hydromodification) upstream or downstream.

Where applicable, the SWPPP submitted to the SWRCB with the NOI must include a description of all post-construction stormwater management measures. The SWRCB SMARTS post-construction calculator or similar method would be used to quantify the runoff reduction resulting from implementation of the measures. The applicant must also submit a plan for long-term maintenance with the NOI. The maintenance plan must be designed for a minimum of five years and must describe the procedures to ensure that the post-construction stormwater management measures are adequately maintained.

Dewatering Activities (Discharges to Surface Waters and Storm Drains)

Construction dewatering activities that involve the direct discharge of relatively pollutant-free wastewater that poses little or no threat to the water quality of waters of the U.S. are subject to the provisions of CVRWQCB Order R5-2016-0076-01 (NPDES No. CAG995002), *Waste Discharge Requirements, Limited Threat Discharges to Surface Water*, as amended. WDRs for this order include discharge prohibitions, receiving water limitations, monitoring, and reporting, etc. Coverage is obtained by submitting a NOI to the applicable RWQCB.

Dewatering Activities (Discharges to Land)

Construction dewatering activities that are contained on land and do not discharge to waters of the U.S. are authorized under SWRCB Water Quality Order No. 2003-003-DWQ if the discharge is of a quality as good as or better than the underlying groundwater, and there is a low risk of nuisance.

Water Quality Control Plans (Basin Plans)

Each of the State's RWQCBs is responsible for developing and adopting a basin plan for all areas within its region. The Plans identify beneficial uses to be protected for both surface water and groundwater. Water quality objectives for all waters addressed through the plans are included, along with implementation programs and policies to achieve those objectives. Waste discharge requirements (WDRs) were adopted in order to attain the beneficial uses listed for the Basin Plan areas.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA), enacted in September 2014, established a framework for groundwater resources to be managed by local agencies in areas designated by the Department of Water Resources as "medium" or "high" priority basins. Basins were prioritized based, in part, on groundwater elevation monitoring conducted under the California Statewide Groundwater Elevation Monitoring (CASGEM) program.

The SGMA requires local agencies in medium- and high-priority basins to form Groundwater Sustainability Agencies (GSAs) and be managed in accordance with locally-developed Groundwater Sustainability Plans (GSPs). Medium- and high-priority basins must be managed under a GSP by January 31, 2022. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans.

LOCAL

The City of Williams General Plan includes the following Policies and Actions that apply to the proposed project:

Chapter 4, Public Safety		
Policies:	4.1	The City will require applicants for development to submit drainage studies that adhere to storm water design requirements and incorporate measures from the Storm Drainage Master Plan to prevent on- or off-site flooding.
	4.2	Future development will include adequate provisions for on- and/or off-site collection, storage, and conveyance of storm water, in accordance with the City's policies and standards.
	4.4	New development shall not cause downstream property owners, watercourses, channels, or conduits to receive storm water runoff at a higher peak flow rate than would have resulted from the same storm event occurring over the development site with the land in its natural, undeveloped condition.
Actions:	4.h	Require new development projects to provide site or project specific storm drainage solutions which are consistent with the approach outlined in the Storm Drainage Master Plan.

Chapter 7, Open Space and Conservation		
Policy:	7.21	Construction practices will minimize soil erosion with respect to wind, water, and site selection. This will impact site preparation, grading, sediment control, and structural foundations.

DISCUSSION OF IMPACTS

Question A

The proposed project has the potential to temporarily degrade water quality due to increased erosion during project construction; however, as discussed under Regulatory Context above, and in Section 4.7 under Question B, the SWRCB Construction General Permit requires implementation of an effective SWPPP that includes BMPs to control construction-related erosion and sedimentation and prevent damage to streams, watercourses, and aquatic habitat. The proposed project is subject to post-construction requirements included in the SWRCB Construction General Permit to ensure that the post-construction conditions at the project site do not cause or contribute to direct or indirect impacts from stormwater runoff (i.e., pollution and/or hydromodification) upstream or downstream.

In addition, if dewatering is required during construction, the project is subject to a CVRWQCB General Order that includes specific requirements for monitoring, reporting, and implementing BMPs for construction dewatering activities. Implementation of conditions of the required permits would help ensure that the project does not violate water quality standards or waste discharge requirements or otherwise degrade water quality. Impacts would be less than significant.

Question B

As discussed under Regulatory Context above, the SGMA established a framework for groundwater resources to be managed by local agencies in areas designated by the Department of Water Resources as medium or high priority basins. The project site is located within the Sacramento Valley Groundwater Basin – Colusa Subbasin, which is currently designated as a high priority basin (DWR, 2021). The Subbasin covers areas in both Glenn County and Colusa County. As required by the California SGMA, the Colusa Groundwater Authority (CGA) and Glenn Groundwater Authority (GGA) prepared a single GSP and adopted the GSP in December 2021. The GSP was submitted to the State Department of Water Resources for review and approval following a State public comment period that ends on April 23, 2022 (DWR, 2022).

The GSP identifies five sustainability indicators that are applicable to the Subbasin: chronic lowering of groundwater levels; reduction of groundwater storage; degraded water quality; inelastic land subsidence; and depletions of interconnected surface water. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the Subbasin.

According to the GSP, the Subbasin does not currently have undesirable results, which indicates that the Subbasin is being managed sustainably; however, localized declining groundwater levels have occurred over the past 15 to 20 years in the northwestern and southwestern portions of the Subbasin, near the cities of Orland and Arbuckle.

The GSP acknowledges that undesirable results may develop in the future. Monitoring of actual groundwater conditions over time will determine whether, when, and where implementation of projects and management actions may be needed to avoid undesirable results.

The GSP includes projects and management actions (PMAs) that were formulated primarily to address possible future changes in Subbasin conditions that could cause undesirable results, both in the near term and the long term. The PMAs include several projects that are expected to provide more than 80,000 acre-feet per year in combined gross average annual benefits that will offset groundwater pumping and support groundwater sustainability in the Subbasin. These include five groundwater recharge projects north, south, and west of the City of Williams.

According to the GSP, the City of Williams has three active public groundwater wells that have a combined supply of ±2,760 gallons per minute (3.97 million gallons per day). However, with Well 9 now off-line, the two remaining active wells have a combined capacity of ±2,000 gallons per minute (2.88 million gallons per day). With installation of Well 11, one of the active wells would typically be

operated in standby mode only, and the project would not result in an increase in the amount of groundwater pumped in the Subbasin.

In October 2020, Lawrence & Associates (L&A) completed an evaluation of groundwater quality and potential interference that proposed Well 11 may have on other groundwater production wells in the area (see **Appendix C**). The analysis was based on review of the following documents: well field assessment report prepared by Wood Rogers in 2012; driller's logs and geophysical logs for the existing production wells and the test well, and driller's logs for Wells #3 and #6; water quality data for existing production wells (1987 to 2020, where available); water quality data for the test well, sampled in March, April, and August 2020; pumping level records for Wells 8, 9, and 10; California Department of Water Resources driller's logs; and the Colusa County Groundwater Management Plan.

The L&A report states that there are ±42 domestic and ±14 production wells of record between 0.25 – 1 mile from the proposed Well 11. There are 16 domestic and 20 production wells between 1 and 2 miles of Well 11, and there are 20 domestic and 34 production wells between 2 and 3 miles of Well 11. However, it is not known how many of these wells are actively used. The nearest existing well to the proposed Well 11 is a domestic well, approximately 300 feet to the northwest. This well reportedly has problems with poor water quality during drought periods. The parcel is connected to the City's water system, but the customer reportedly still uses the well periodically.

As a result of the evaluation, L&A determined that if the new Well 11 is completed in both the uppermost (170-190 feet below ground surface) and deeper aquifer zones, there is a potential for drawdown of up to 9.5 feet at the nearby domestic well. There is unlikely to be significant interference on any of the other wells of record in the area.

The L&A evaluation concludes that wells less than 120 feet deep would not experience interference from the new Well 11 because the new well would be screened no higher than approximately 170 feet below ground surface, and the uppermost permeable zones (if present) could be sealed off. Of the wells more than 120 feet deep, all have water columns more than 100 feet in length. Interference of between zero and 9.5 feet (the maximum at 0.25 miles) would represent less than 10 percent of any of the wells' water columns. Interference of less than 10 percent of a more than 100-foot water column would not preclude a well's ability to pump.

Improvements at the well site would result in an increase of ±3,620 square feet of impervious surface, which is the footprint of the well house and backwash tank pads. The addition of impervious surfaces would decrease the area available for water penetration, thereby reducing local groundwater recharge potential. However, the increase in impervious surfaces represents a very small percentage of the entire surface area of the hydrologic region. In addition, runoff would eventually be directed to areas with pervious surfaces, and undeveloped land adjacent to the well site would continue to provide for groundwater recharge. The proposed project would not interfere with any of the proposed groundwater recharge projects identified in the GSP.

Therefore, as documented above, the project would not decrease groundwater supplies or interfere with groundwater recharge in a manner that would impede sustainable groundwater management of the basin. Impacts would be less than significant.

Question C

As stated under Question B, the project would result in an increase of ±3,620 square feet of impervious surfaces attributed to the well house and backwash tank pads. However, these improvements would not significantly alter the existing topography or drainage patterns on site and therefore, would not result in increased erosion, surface runoff, flooding on- or off-site, or otherwise degrade water quality. Further, no work would be conducted in streams or other waterways.

In addition, as discussed under Question A, BMPs would be implemented throughout construction to minimize erosion and runoff in accordance with existing regulations; therefore, impacts would be less than significant.

Question D

A tsunami is a wave generated in a large body of water (typically the ocean) by fault displacement or major ground movement. The project area is located approximately 90 miles east of the Pacific Ocean and is not in a tsunami zone. A seiche is a large wave generated in an enclosed body of water in response to ground shaking. There are no large water bodies in the Colusa Basin that would generate seiches potentially affecting the project area. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (Panels 06011C0519F and 06011C0518F, effective March 15, 2003), the project site is not located within a designated flood hazard zone. Therefore, there is no potential for release of pollutants due to inundation by seiche, tsunami, or flood.

Question E

As documented under Question A, the project must comply with applicable regulatory permit conditions, including implementation of BMPs for erosion and sediment control to prevent damage to streams, watercourses, and aquatic habitat. As documented under Question B, the project would not decrease groundwater supplies or interfere with groundwater recharge. Therefore, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

CUMULATIVE IMPACTS

The proposed project and other potential cumulative projects in the region, including growth resulting from build-out of the City's General Plan, could result in degradation of water quality, adverse impacts to groundwater supplies and groundwater recharge, and an increased risk of flooding due to additional surface runoff generated by the new development.

All projects in the State that result in land disturbance of one acre or more are required to comply with the State Water Board General Construction NPDES permit which requires implementation of BMPs to reduce pollutants and any additional controls necessary to meet water quality standards, as well as to avoid the creation of unstable slopes or filled areas that could adversely influence stormwater runoff. Projects must also comply with provisions of applicable sustainable groundwater management plans and local codes adopted for the protection of groundwater. Compliance with existing resource agency requirements ensures that the proposed project's cumulative impacts to hydrology and water quality are less than significant.

MITIGATION

None necessary.

DOCUMENTATION

California Department of Water Resources. 2022. Sustainable Groundwater Management Act Groundwater Sustainability Plan Dashboard. Groundwater Sustainability Plan (5-021.52 Colusa). https://sgma.water.ca.gov/portal/gsp/preview/92. Accessed March 2022.

_____**.** 2021. Sustainable Groundwater Management Act, Basin Prioritization Dashboard. https://gis.water.ca.gov/app/bp-dashboard/final/. Accessed February 2021.

_____. 2020. Groundwater Information System (GAMA). https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/default.asp?CMD=runreport&myaddress=40.6804279%2C+-122.37084190000002&zl=15. Accessed November 2021.

Central Valley Regional Water Quality Control Board. 2018. Water Quality Control Plan for the Sacramento and San Joaquin River Basins. https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf. Accessed November 2021.

City of Williams. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed November 2021.

Colusa Groundwater Authority and Glenn Groundwater Authority. 2021. Colusa Subbasin Groundwater Sustainability Plan. https://colusagroundwater.org/projects/groundwater-sustainability-plan/. Accessed March 2022.

Federal Emergency Management Agency. 2021. National Flood Hazard Map (Panels 06011C0519F and 06011C0518F, effective March 15, 2003). https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed November 2021.

Lawrence & Associates. 2020. Evaluation of Groundwater Quality in City of Williams Production Wells and Well #11 Test Well and Potential Interference Impacts From Future Well #11, Williams, California. On file with ENPLAN.

4.11 LAND USE AND PLANNING

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any applicable land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

REGULATORY CONTEXT

FEDERAL

There are no federal regulations pertaining to land use and planning that apply to the proposed project.

STATE

California Government Code

California Government Code (CGC) §65300 *et seq.* contains many of the State laws pertaining to the regulation of land uses by cities and counties. These regulations include requirements for general plans, specific plans, subdivisions, and zoning. State law requires that all cities and counties adopt General Plans that include seven mandatory elements: land use, circulation, conservation, housing, noise, open space, and safety. A General Plan is defined as a comprehensive long-term plan for the physical development of the county or city, and any land outside its boundaries that is determined to bear relation to its planning. A development project must be found to be consistent with the General Plan prior to project approval.

LOCAL

City of Williams 2012 General Plan includes goals, policies, and actions that guide the growth and development until 2030. The General Plan addresses land use, transportation/circulation, public services, open space/conservation, agriculture and timber, safety, noise, and housing. The City of Williams Code of Ordinances implements the City's General Plan. The purpose of the Zoning Code (Title 17) is to guide future growth of the City in accordance with the General Plan and to protect the character and the social and economic stability of agricultural, residential, commercial, industrial, recreational, and other land uses in the City, and to assure the orderly and beneficial development of such areas.

DISCUSSION OF IMPACTS

Question A

Land use impacts are considered significant if a proposed project would physically divide an existing community (a physical change that interrupts the cohesiveness of the neighborhood). The proposed project does not include any components that would create a barrier for existing or planned development; therefore, there would be no impact.

Question B

As discussed in each resource section of this Initial Study, the proposed project is consistent with applicable policies and objectives of the City of Williams General Plan and requirements of the regulatory agencies identified in Section 1.8 of this Initial Study. Where necessary, mitigation measures are included to reduce impacts to less than significant levels. Therefore, with implementation of the mitigation measures identified in Section 1.10, the proposed project would not conflict with any plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. No additional mitigation measures are necessary.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the project area, including population growth resulting from build-out of the City's General Plan, would be developed in accordance with local and regional planning documents. Thus, cumulative impacts associated with land use compatibility are expected be less than significant. In addition, with implementation of the recommended mitigation measures, the proposed project is consistent with the General Plan land use designations, goals, and policies, and would not contribute to the potential for adverse cumulative land use effects.

MITIGATION

No additional mitigation necessary.

DOCUMENTATION

City of Williams. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed November 2021.

_____. 2021. City of Williams Code of Ordinances, Title 17 (Zoning). https://library.municode.com/ca/williams/codes/code_of_ordinances?nodeId=TIT17ZO_CH17.03ENST. Accessed November 2021.

4.12 MINERAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal or local regulations pertaining to mineral resources that apply to the project.

STATE

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act (SMARA), Chapter 9, Division 2 of the Public Resources Code (PRC), provides a comprehensive surface mining and reclamation policy to ensure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. Mineral Resource Zones (MRZs) are applied to sites determined by the California Geological Survey (CGS) as being a resource of regional significance, and are intended to help maintain mining operations and protect them from encroachment of incompatible uses. The Zones indicate the potential for an area to contain significant mineral resources.

DISCUSSION OF IMPACTS

Questions A and B

According to the California Geological Survey, there are no publicly known, economically viable deposits of precious metals in the vicinity. Neither the project site nor adjacent areas are designated or zoned for mineral extraction activities. Therefore, there would be no impact.

CUMULATIVE IMPACTS

As stated above, the proposed project would not result in impacts to mineral resources; therefore, the proposed project would not contribute to adverse cumulative impacts to mineral resources.

MITIGATION

None necessary.

DOCUMENTATION

California Department of Conservation, Division of Mine Reclamation. 2021. Mines Online Maps. https://maps.conservation.ca.gov/mol/index.html. Accessed November 2021.

City of Williams. 2012. City of Williams Zoning Map. http://www.cityofwilliams.org/document_center/Departments/Planning/Zoning%20Map/zoning-map.pdf. Accessed November 2021.

_____**.** 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed November 2021.

4.13 NOISE

Would the project result in:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

NOISE FUNDAMENTALS

Commonly used technical acoustical terms are defined as follows:

Acoustics The science of sound.

Ambient Noise The distinctive pre-project acoustical characteristics of a given area consisting of all noise sources audible at that location.

A-Weighting The sound level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

Decibel, or dB The fundamental unit of measurement that indicates the intensity of a sound, defined as ten times the logarithm of the ratio of the sound pressure squared over the reference pressure squared.

REGULATORY CONTEXT

There are no federal or state regulations pertaining to noise that apply to the proposed project.

LOCAL

The City of Williams General Plan includes the following Policies and Actions that apply to the proposed project:

Chapter 6, Noise		
Policies:	6.9	Prevent the introduction of new noise-producing uses in noise-sensitive areas.
	6.10	Prevent encroachment of noise-sensitive uses upon existing noise-producing facilities.
	6.13	Noise associated with construction activities shall adhere strictly to the City Code restrictions regarding prohibited operating hours.

Actions:	6.n	The following sources of noise shall be exempt from the provisions of this Noise Element. Any noise regulations that are adopted shall specifically exempt the following: a. Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during daytime hours and does not occur for periods of more than one hour per week. b. Activities at public schools, parks or playgrounds, provided such activities occur during daytime hours. c. Activities associated with events for which a permit has been obtained from the City. d. In the event of an emergency involving agricultural activities which requires prompt action to protect crops or equipment, the City can exempt noise generated by such action from the provisions of this Element.

The General Plan includes the following noise level standards to ensure that new uses do not adversely impact existing uses.

	Average (Leq) / Maximum (Lmax)		
Receiving Land Use	**Outdoor Area Daytime**	**Outdoor Area Nighttime**	**Interior Day and Night**
Residential	55 / 75	50 / 70	35 / 55
Office Buildings	60 / 75	-	45 / 65
Commercial Buildings	55 / 75	-	45 / 65
Industry	60 / 80	-	50 / 70

City of Williams Zoning Code

Section 17.03.150.1 (General Environmental Standards, Noise) of the Williams Municipal Code provides exceptions to the City's noise standards, including:

- Construction noises between the hours of 7:00 a.m. and 7:00 p.m. that are temporary in nature.
- Transient noises from moving vehicles, such as trucks and automobiles or trains.
- Noise emanating from a site that is occasional and/or temporary in nature, such as lawn and landscaping maintenance, and loading and unloading, that takes place between the hours of 7:00 a.m. and 7:00 p.m.
- Agricultural equipment and operations.
- Emergency warning devices and equipment operated in conjunction with emergency situations, including the routine testing of such warning devices during daytime hours.

Section 17.03.150.2 (Vibration) states that no land use shall produce a perceptible vibration at the property line. Exceptions to this include temporary construction activities and vehicles on public streets.

DISCUSSION OF IMPACTS

Question A

Some individuals and groups of people are considered more sensitive to noise than others and are more likely to be affected by the existence of noise. A sensitive receptor is defined as any living entity or aggregate of entities whose comfort, health, or well-being could be impaired or endangered by the existence of noise. Locations that may contain high concentrations of noise-sensitive receptors include residential areas, schools, hospitals, and long-term care facilities.

Operational Noise

The distribution system improvements do not have any components that would permanently increase noise levels in the area. Improvements at the well site with the potential to increase operational noise levels above existing levels include the new well pump and motor, and the emergency backup generator. The well equipment would be housed inside a pre-fabricated metal building and would not be audible outside the building, provided that the door is closed.

The generator would be tested on a monthly basis and would be used to power the new in the event of a power outage. Generally, generators have decibel levels ranging from 60 to 85 dB.

The nearest sensitive receptor to the well site improvements is a single-family residence located ±380 feet to the east on the west side of Old Highway 99. The noise level produced by a generator could reach 67 dB at the exterior of this residence and 47 dB in the interior, provided that the windows were closed. The City's General Plan includes noise standards for new non-transportation noise. For residential uses, the standard for outdoor activity areas during the daytime is an average (Leq) of 55 and a maximum (Lmax) of 75. The outdoor standard during nighttime hours is 50 Leq/70 Lmax. Interior noise levels for both day and night are 35 Leq and 55 Lmax.

Depending on the size, type, and location of the generator, operation of the generator could exceed the City's noise standards. **MM 4.13.1** requires that the generator be placed in an enclosure or behind a noise barrier if necessary to achieve compliance with the City's noise level standards.

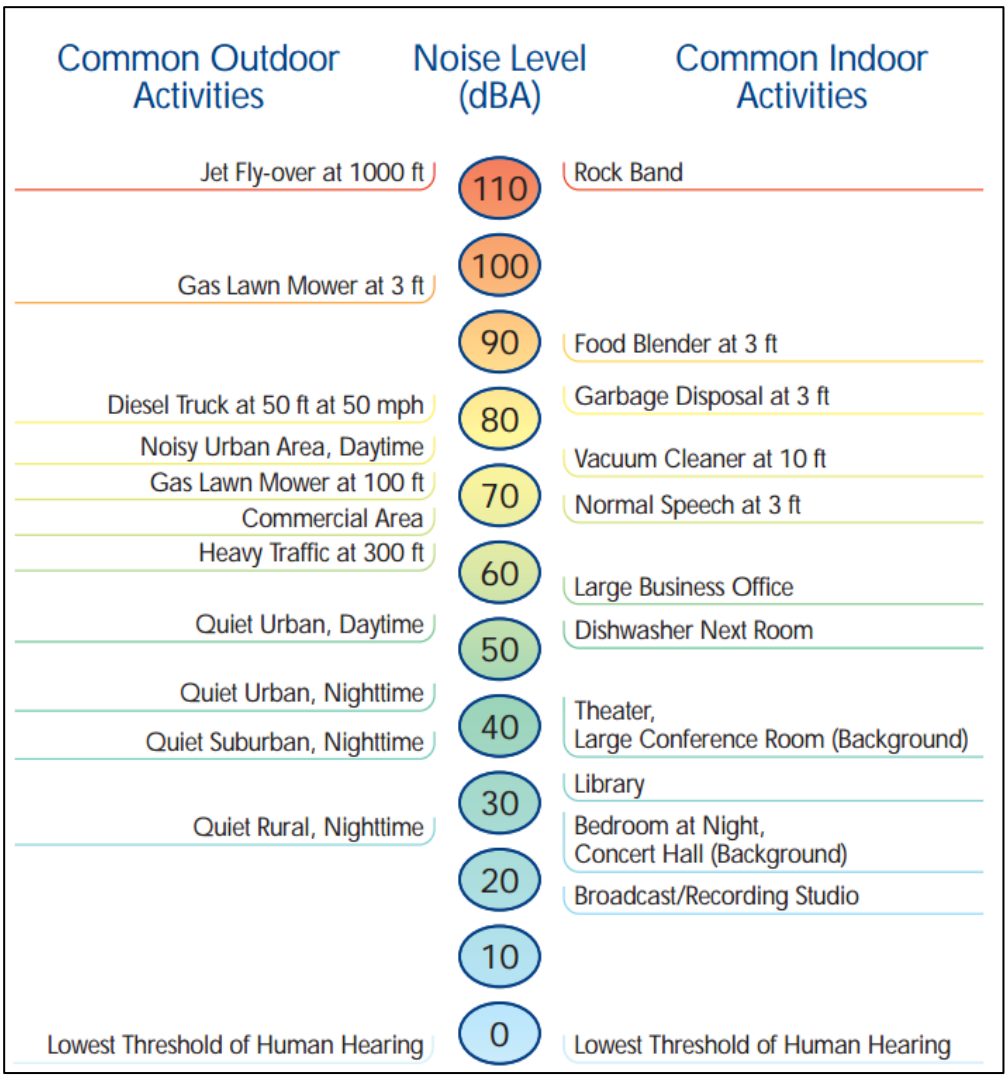
Construction Noise

Construction activities associated with the project would temporarily increase noise levels at nearby single-family residences, Williams Elementary School, and Williams Junior/Senior High School. Construction would occur as close as 15 feet from residences adjacent to the alleyway between D Street and E Street and 25 feet from residences on Westgate Drive, Venice Boulevard, E Street, F Street, and 7th Street. In addition, replacement of water meters, water service lines, and fire hydrants would occur within public utility easements on private property. Work at the well site would occur ±380 feet west of a single-family residence to the east.

Temporary traffic noise impacts along local streets would occur due to an increase in traffic from construction workers commuting to the site; however, it is not anticipated that worker commutes would significantly increase daily traffic volumes. Noise also would be generated during delivery of construction equipment and materials to the project site.

Noise impacts resulting from construction activities would depend on: 1) the noise generated by various pieces of construction equipment; 2) the timing and duration of noise-generating activities; 3) the distance between construction noise sources and noise-sensitive receptors; and 4) existing ambient noise levels. **Figure 4.13-1** shows noise levels of common activities to enable the reader to compare construction-noise with common activities.

Figure 4.13-1
Noise Levels of Common Activities



Source: Caltrans, 2016.

Noise levels from construction-related activities would fluctuate, depending on the number and type of construction equipment operating at any given time. As shown in **Table 4.13-1**, construction equipment anticipated to be used for project construction typically generates maximum noise levels ranging from 74 to 89 decibels (dBA) at a distance of 50 feet.

Noise from construction activities generally attenuates at a rate of 6 dBA (on hard and flat surfaces) to 7.5 dBA (on soft surfaces, such as uneven and/or vegetated terrain) per doubling of distance. If the receptor is far from the noise source, other factors come into play. For example, barriers such as fences or buildings that break the line of sight between the source and the receiver typically reduce sound levels by at least 5 dBA. Likewise, wind can reduce noise levels by 20 to 30 dBA over long distances.

In the project area, most of the improvements would occur between 15 and 25 feet from residences. At a distance of 25 feet, 74 to 89 dBA noise levels would increase to 80 to 95 dBA; and, at 15 feet, 74 to 89 dBA noise levels would increase to 84 to 99 dBA.

TABLE 4.13-1
Examples of Construction Equipment
Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 feet from Source
Roller	74
Concrete Vibrator	76
Pump	76
Backhoe	80
Air Compressor	81
Generator	81
Compactor	82
Concrete Pump	82
Compactor (ground)	83
Crane, Mobile	83
Concrete Mixer	85
Dozer	85
Excavator	85
Grader	85
Loader	85
Jack Hammer	88
Truck	88
Paver	89
Scraper	89

Sources: U.S. Department of Transportation, Federal Transit Administration, 2018. Federal Highway Administration, 2019.

Because it is a logarithmic unit of measurement, a decibel cannot be added or subtracted arithmetically. The combination of two or more identical sound pressure levels at a single location involves the addition of logarithmic quantities as shown in **Table 4.13.2.** A doubling of identical sound sources results in a sound level increase of approximately 3 dB. Three identical sound sources would result in a sound level increase of approximately 4.8 dB.

For example, if the sound from one backhoe resulted in a sound pressure level of 80 dB, the sound level from two backhoes would be 83 dB, and the sound level from three backhoes would be 84.8 dB.

TABLE 4.13.2
Cumulative Noise: Identical Sources

Number of Sources	Increase in Sound Pressure Level (dB)
2	3
3	4.8
4	6
5	7
10	10
15	11.8
20	13

Sources: U.S. Department of Transportation, Federal Transit Administration, 2018. The Engineering Toolbox, 2019.

In addition, as shown in **Table 4.13.3**, the sum of two sounds of different levels is only slightly higher than the louder level. For example, if the sound level from one source is 80 dB, and the sound level from the second source is 85 dB, the level from both sources together would be 86 dB; if the sound level from one source is 80, and the sound level from the second source is 89 dB, the level from both sources together would be 89.5.

TABLE 4.13.3
Cumulative Noise: Different Sources

Sound Level Difference between two sources (dB)	Decibels to Add to the Highest Sound Pressure Level
0	3
1	2.5
2	2
3	2
4	1.5
5	1
6	1
7	1
8	0.5
9	0.5
10	0.5
Over 10	0

Sources: U.S. Department of Transportation, Federal Transit Administration, 2018. The Engineering Toolbox, 2019.

With two pieces of equipment with a noise level of 89 dBA operating simultaneously within 15 feet of a sensitive receptor, noise levels could reach approximately 102 dBA at the exterior of single-family residences where improvements would occur. Assuming typical California construction methods, interior noise levels are about 10 to 15 dBA lower than exterior levels within residential units with the windows partially open, and approximately 20 to 25 decibels lower than exterior noise levels with the windows closed. Interior noise levels could reach 77 to 82 dBA when equipment operates within 15 feet of a residence, provided that the windows were closed.

In addition, OSHA regulations (Title 29 CFR, §1926.601(b)(4)(i) and (ii) and §1926.602(a)(9)(ii)) state that no employer shall use any motor vehicle, earthmoving, or compacting equipment that has an obstructed view to the rear unless the vehicle has a reverse signal alarm audible above the surrounding noise level or the vehicle is backed up only when an observer signals that it is safe to do so.

Although these regulations require an alarm to be only at a level that is distinguishable from the surrounding noise level (±5 dB), some construction vehicles are pre-equipped with non-adjustable alarms that range from 97 to 112 dBA. At a distance of 15 feet, 97 to 112 dBA noise levels would increase to 107.5 to 122 dBA; such noise levels could temporarily be experienced at the exteriors of single-family residences abutting alleyways where improvements would occur. Depending on the decibel level of the alarm, interior noise levels could reach 97 to 102 dBA, provided that the windows were closed.

The exposure to loud noises (above 85 dB) over a long period of time may lead to hearing loss. The longer the exposure, the greater the risk for hearing loss, especially when there is not enough time for the ears to rest between exposures. Hearing loss can also result from a single extremely loud sound at very close range, such as sirens and firecrackers (Centers for Disease Control, 2018). Even when noise is not at a level that could result in hearing loss, excessive noise can affect quality of life, especially during nighttime hours.

As stated under Regulatory Context, Section 1803.150.1 (General Environmental Standards) of the Williams Municipal Code exempts noise associated with construction activity between 7:00 AM and 7:00 PM from the City's noise standards.

In addition, the California Division of Safety and Health and OSHA have established thresholds for exposure to noise in order to prevent hearing damage. The maximum allowable daily noise exposure is 90 dBA for 8 hours, 95 dBA for 4 hours, 100 dBA for 2 hours, 105 dBA for 1 hour, 110 dBA for 30 minutes, and 115 dBA for 15 minutes (Caltrans, 2013).

In the worst-case scenario, exterior noise levels from construction equipment operation could reach approximately 102 dBA within 15 feet of the work areas; interior noise levels could reach 82 dBA, provided the windows were closed. Exterior noise levels could reach approximately 122 dBA if reverse signal alarms are used.

However, construction equipment does not operate continuously throughout the entire work day. In addition, reverse signal alarms are needed only intermittently, and each occurrence involves only seconds of elevated noise levels. Therefore, while construction noise may reach considerable levels for short instances, much of the time the construction noise levels at the nearby residences would be moderate.

In order to minimize impacts from construction noise, **MM 4.13.2** restricts construction noise to the daytime hours of 7:00 AM to 7:00 PM, Monday through Saturday, **MM 4.13.3** requires that construction equipment be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds. Further **MM 4.13.4** mandates that stationary construction equipment, such as generators and compressors, shall be located at the furthest practical distance from nearby noise-sensitive land uses.

Therefore, impacts would be less than significant because the proposed project does not include any components that would result in a significant permanent increase in ambient noise levels with implementation of **MM 4.13.1**; there is no expectation that noise levels during construction would be at a duration and intensity that would cause hearing loss; and **MM 4.13.2** through **MM 4.13.4** minimize noise during construction. Further, construction noise is a temporary impact that would cease at completion of the project.

Question B

The project does not have any components that would result in a permanent increase in groundborne vibration or groundborne noise. Excessive vibration during construction occurs only when high vibration equipment (e.g., compactors, large dozers, etc.) are operated. The proposed project may require limited use of equipment with high vibration levels during construction. Potential effects of ground-borne vibration include perceptible movement of building floors, rattling windows, shaking of items on shelves or hangings on walls, and rumbling sounds. In extreme cases, vibration can cause damage to buildings. Both human and structural responses to ground-borne vibration are influenced by various factors, including ground surface, distance between the source and the receptor, and duration.

The most common measure used to quantify vibration amplitude is the peak particle velocity (PPV). PPV is a measurement of ground vibration defined as the maximum speed (measured in inches per second) at which a particle in the ground is moving relative to its inactive state. Although there are no federal, state, or local regulations for ground-borne vibration, Caltrans has developed criteria for evaluating vibration impacts, both for potential structural damage and for human annoyance. The Caltrans Transportation and Construction Vibration Guidance Manual (2020), was referenced in the analysis of construction-related vibration impacts.

Table 4.13-4 includes the potential for damage to various building types as a result of ground-borne vibration. Transient sources include activities that create a single isolated vibration event, such as blasting. Continuous, frequent, or intermittent sources include jack hammers, bulldozers, and vibratory rollers.

TABLE 4.13-4
Structural Damage Thresholds from Ground-Borne Vibration

Structure Type	Vibration Level (Inches per Second PPV)	
	Transient Sources	Continuous/Frequent/ Intermittent Sources
Older residential structures	0.5	0.3
Newer residential structures	1.0	0.5
Historic and some old buildings	0.5	0.25
Newer industrial/commercial buildings	2.0	0.5

Source: Caltrans Transportation and Construction Vibration Guidance Manual, 2020.

Table 4.13-5 indicates the potential for annoyance to humans as a result of ground-borne vibration.

TABLE 4.13-5
Human Response to Ground-Borne Vibration

Human Response	Vibration Level (Inches per Second PPV)	
	Transient Sources	Continuous/Frequent/ Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.10
Disturbing	2.0	0.4

Source: Caltrans Transportation and Construction Vibration Guidance Manual, 2020.

Table 4.13-6 indicates vibration levels for various types of construction equipment that may be used for the proposed project.

TABLE 4.13-6
Examples of Construction Equipment Ground-Borne Vibration

Equipment Type	Inches per Second PPV at 25 feet
Bulldozer (small)	0.003
Bulldozer (large)	0.089
Jackhammer	0.035
Loaded trucks	0.076
Vibratory roller	0.210

Source: Caltrans Transportation and Construction Vibration Guidance Manual, 2020.

Vibration levels from construction equipment use at varying distances from the source can be calculated using the following formula:

$$PPV_{Equipment} = PPV_{Ref} \times (25/D)^{n}$$

In this equation, PPV_{Ref} = reference PPV at 25 feet, D = distance from equipment to the receiver in feet, and n = 1.1 (the value related to the attenuation rate through ground).

Based on this equation, in the worst-case scenario, a vibratory roller compacting asphalt at a distance of 25 feet from a residence would generate a PPV of 0.21 inches per second. Vibratory rollers are not expected to be used in the gravelled alley between D Street and E Street, which is within 15 feet of residences. At this location, the worst-case scenario would be due to operation of a large bulldozer (or similar equipment), which would generate a PPV of 0.156 at a distance of 15 feet. As shown in **Table 4.13-4**, vibration levels are not anticipated to be at a level that would cause structural damage. In addition, as shown in **Table 4.13-5**, these vibration levels would be strongly perceptible but would not rise to a level that would be considered disturbing. Because increased ground-borne vibration is temporary and would cease at completion of the project, impacts would be less than significant.

Question C

See discussion in Section 4.9 under Question E. The nearest public airport is located approximately 8.35 miles southeast of the project site. There is also a private airstrip, Williams Airport, on Husted Road, approximately one-mile from improvements on 7th Street. The proposed project does not have any components that would increase use of the airstrip or airports, nor would it expose people residing or working in the project area to excessive noise levels associated with an airport or private airstrip; there would be no impact.

CUMULATIVE IMPACTS

As documented above, the project would not result in a permanent increase in noise or groundborne vibration levels. A temporary increase in daytime noise levels would occur during construction activities; however, with implementation of **Mitigation Measures MM 4.13.1 through MM 4.13.4**, the proposed project's contribution to cumulative noise impacts would be less than significant.

MITIGATION

MM 4.13.1 The emergency back-up generator shall be placed inside an enclosure or behind a noise barrier if necessary in order to achieve compliance with the City's noise level standards. Noise attenuation requirements shall be identified by the project engineer and confirmed by the City Administrator or his/her designee prior to installation of the generator.

MM 4.13.2 Construction activities (excluding activities that would result in a safety concern to the public or construction workers) shall be limited to between the daytime hours of 7:00 A.M. and 7:00 P.M., Monday through Saturday. Construction activities shall be prohibited on Sundays and federal/state recognized holidays. Exceptions to these limitations may be approved by the City Administrator or his/her designee for activities that require interruption of utility services to allow work during low demand periods, or to alleviate traffic congestion and safety hazards.

MM 4.13.3 Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

MM 4.13.4 Stationary construction equipment (generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses.

DOCUMENTATION

California Department of Transportation. 2020. Transportation and Construction Vibration Guidance Manual. Microsoft Word - 0_CVM_April_2020_03-19-30 (ca.gov). Accessed November 2021.

_____. 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. Technical Noise Supplement to the Caltrans Traffic Noise Analysis Protocol. Accessed November 2021.

Centers for Disease Control and Prevention. 2019. Hearing Loss Prevention Website. https://www.cdc.gov/nceh/hearing_loss/default.html. Accessed November 2021.

Colusa County. 2014. Colusa County Airport Land Use Compatibility Plan. https://countyofcolusa.org/DocumentCenter/View/9679/COLALUCPAdopted-2014-09-24revisedprint-friendly?bidId=. Accessed November 2021.

Engineering Toolbox. 2019. Logarithmic Decibel Scale. https://www.engineeringtoolbox.com/adding-decibel-d_63.html. Accessed November 2021.

Federal Aviation Administration. 2021. Airport Facilities Data. https://www.faa.gov/airports/airport_safety/airportdata_5010/. Accessed November 2021.

Federal Highway Administration. 2017. Construction Noise Handbook. https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook09.cfm. Accessed November 2021.

4.14 POPULATION AND HOUSING

Would the project:

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

REGULATORY CONTEXT

There are no federal, State, or local regulations pertaining to population or housing that apply to the proposed project.

DISCUSSION OF IMPACTS

Question A

The project does not include construction of new homes or businesses and would not displace people or housing. Although the proposed project includes the construction of a new well and backwash tank, these improvements are needed to improve fire flows, increase system pressures, and ensure a safe and reliable potable water supply for customers in the City of Williams' water service area. Thus, because the project would not increase the effective capacity of the City's water system, the project would not induce unplanned population growth in the area. There would be no impact.

Questions B and C

No structures would be demolished to accommodate the proposed improvements; therefore, there would be no impact.

CUMULATIVE IMPACTS

As documented above, the proposed project would not directly or indirectly induce unplanned population growth in the area. Therefore, the proposed project would not contribute to cumulative impacts associated with population and housing.

MITIGATION

None necessary.

DOCUMENTATION

City of Williams. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed November 2021.

4.15 PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Fire protection?	☐	☐	☐	☒
b. Police protection?	☐	☐	☐	☒
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal, State, or local regulations pertaining to public services that apply to the proposed project.

DISCUSSION OF IMPACTS

Questions A through E

The proposed project does not include the construction of houses or businesses that would increase the number of residents in the area. In addition, as discussed in Section 4.14 under Question A, the proposed project would not induce unplanned population growth in the area. Therefore, the proposed project would not result in the need for new or physically altered governmental facilities; there would be no impact.

CUMULATIVE IMPACTS

As described above, the proposed project would not increase the demand for long-term public services; therefore, no cumulatively considerable impacts would occur.

MITIGATION

None necessary

DOCUMENTATION

City of Williams. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed November 2021.

4.16 RECREATION

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal, State, or local regulations pertaining to recreation that apply to the proposed project.

DISCUSSION OF IMPACTS

Questions A and B

As stated in Section 4.14 (Population and Housing) under Question A, the project would not directly or indirectly induce significant population growth in the area; therefore, the project would not result in an increased use of existing recreational facilities or require the construction or expansion of recreational facilities. There would be no impact.

CUMULATIVE IMPACTS

As stated above, the proposed project would not impact recreational facilities or require the construction or expansion of recreational facilities; therefore, no cumulatively considerable impacts would occur.

MITIGATION

None necessary

DOCUMENTATION

City of Williams. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed November 2021.

4.17 TRANSPORTATION

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☐	☒
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) (criteria for analyzing transportation impacts – vehicle miles traveled)?	☐	☐	☐	☒
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?	☐	☐	☒	☐

REGULATORY CONTEXT

There are no federal or local regulations pertaining to transportation/traffic that apply to the proposed project.

STATE

California Streets and Highways Code

California Streets and Highways Code §660 *et seq.* requires that an encroachment permit be obtained from Caltrans prior to the placement of structures or fixtures within, under, or over State highway right-of-way (ROW). This includes, but is not limited to, utility poles, pipes, ditches, drains, sewers, or other above-ground or underground structures.

CEQA Guidelines

SB 743 of 2013 (CEQA Guidelines §15064.3 *et seq.*) was enacted as a means to balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHGs. Pursuant to SB 743, traffic congestion is no longer considered a significant impact on the environment under CEQA. The new metric bases the traffic impact analysis on vehicle-miles travelled (VMT). VMT refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's VMT, including whether to express the change in absolute terms, per capita, per household, or in any other measure.

DISCUSSION OF IMPACTS

Questions A through C

The proposed project does not include the construction of housing or commercial/industrial development that would cause a permanent increase in traffic or VMT in the area. Although an increase in VMT would occur during construction, this is a temporary impact that would cease at completion of the project. The proposed project does not include any components that would remove or change the location of any sidewalk, bicycle lane, trail, or public transportation facility, or increase the potential for hazards due to a design feature or incompatible uses. Because the project would not result in a permanent increase in VMT, and no permanent impacts to the circulation system would occur, there would be no impact.

Question D

As discussed in Section 4.9 under Question F, there would be short-term increases in traffic in the area associated with construction workers and equipment, and this increased traffic could interfere with emergency response times. However, temporary traffic control is required and must adhere to the California Manual on Uniform Traffic Control Devices (California MUTCD). Driveway access to private properties must be maintained at all times. Because safety measures would be employed to safeguard travel by the general public and emergency response vehicles during construction, impacts would be less than significant.

CUMULATIVE IMPACTS

The proposed project would not result in a permanent increase in VMT and would not conflict with programs, plans, ordinances, or policies addressing the circulation system. Further, the project would not permanently increase hazards due to design features or incompatible uses.

There would be a temporary increase in traffic associated with construction workers and equipment during construction. However, no concurrent construction activities near the roadway network are anticipated. Temporary traffic control for all projects that require work in the public right-of-way is required and must adhere to the procedures, methods, and guidance given in the current edition of the MUTCD. In addition, construction traffic is a temporary impact that would cease at completion of the project; therefore, the project's transportation-related impacts would not be cumulatively considerable.

MITIGATION

None necessary.

DOCUMENTATION

California Department of Transportation. 2020. California Manual on Uniform Traffic Control Devices. https://dot.ca.gov/programs/safety-programs/camutcd. Accessed November 2021.

City of Williams. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed November 2021.

4.18 TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code (PRC) 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:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. A resource listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC §5020.1(k)?	☐	☒	☐	☐
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 PRC §5024.1? In applying the criteria set forth in subdivision (c) of PRC §5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

REGULATORY CONTEXT

There are no federal regulations pertaining to tribal cultural resources that apply to the proposed project.

STATE

California Environmental Quality Act

Assembly Bill 52 of 2014 (Public Resources Code [PRC] §21084.2) establishes that *"a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."* In order to determine whether a project may have such an effect, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if:

1. The tribe requested to the lead agency, in writing, to be informed through formal notification of proposed projects in the geographical area; and

2. The tribe responds, in writing, within 30 days of receipt of the formal notification and requests the consultation.

The consultation must take place prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Pursuant to PRC §21084.3, lead agencies must, when feasible, avoid damaging effects to a tribal cultural resource and must consider measures to mitigate any identified impact.

PRC §21074 defines "tribal cultural resources" as either of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the CRHR; or are included in a local register of historical resources as defined in PRC §5020.1(k).

   A historical resource described in §21084.1, a unique archaeological resource as defined in §21083.2(g), or a "nonunique archaeological resource" as defined in §21083.2(h) may also be a tribal cultural resource if it meets this criterion.

2. A resource determined by the lead agency, taking into consideration the significance of the resource to a California Native American tribe, to be significant pursuant to criteria set forth in PRC §5024.1(c).

LOCAL

The City of Williams General Plan includes the following Program that applies to the proposed project:

Chapter 9, Housing Element		
Program	7.1	Tribal Outreach/Consultation The City will circulate projects for review and comment by the Yocha Dehe Wintun Nation that involve excavation of land that are subject to CEQA (negative declaration/mitigated negative declaration, or Environmental Impact Report). The City will include tribal monitoring for larger type projects at the request of the Yocha Dehe Wintun Nation. The City all also allow the Yocha Dehe Wintin Nation to conduct periodic sensitivity training with City staff to help improve coordination efforts between the City and Yocha Dehe Wintin Nation.

DISCUSSION OF IMPACTS

Questions A and B

As discussed under Section 1.7 (Tribal Cultural Resources Consultation), the Yocha Dehe Wintun Nation requested notification of projects under the jurisdiction of the City of Williams. Project information was mailed to the Nation on December 2, 2021, and the Nation responded via letter on December 10, 2021. The Nation stated that the project is within the aboriginal territories of the Yocha Dehe Wintun Nation. Although the Nation is not aware of any known cultural resources near the project site and stated that a cultural monitor is not needed, the Nation recommended that cultural sensitivity training be provided for construction personnel.

Mitigation Measure MM 4.5.1 requires that construction personnel and their supervisors receive training from a Native American representative and/or qualified archaeologist regarding cultural and tribal cultural resources that may be present in the project site. **MM 4.5.2 and MM 4.5.3** address the inadvertent discovery of cultural resources and human remains. These measures ensure that impacts to tribal cultural resources are less than significant.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the project area have the potential to impact tribal cultural resources. Tribal cultural resources are afforded special legal protections designed to reduce the cumulative effects of development. Potential cumulative projects and the proposed project would be subject to the protection of tribal cultural resources afforded by PRC §21084.3. Given the non-renewable nature of tribal cultural resources, any impact to tribal cultural sites, features, places, landscapes, or objects could be considered cumulatively considerable. As discussed above, no cultural resources of significance to a California Native American tribe were identified within the project area. **Mitigation Measure 4.5.1** requires that all construction personnel who conduct earth-disturbing activities and their supervisors receive training regarding cultural and tribal cultural resources that may be present in the project site, and **MM 4.5.2 and 4.5.3** address the inadvertent discovery of cultural resources and human remains. Therefore, the proposed project would have less than significant cumulative impacts to tribal cultural resources.

MITIGATION

Implementation of **Mitigation Measures MM 4.5.1, 4.5.2, and 4.5.3.**

DOCUMENTATION

City of Williams. 2020. City of Williams Chapter 9 (Element No. 7). https://cms7files1.revize.com/williamsca/Williams%20HE%20HCD%20Draft%206-18-20.pdf. Accessed March 2022.

ENPLAN. 2021. Cultural Resources Inventory Report: Well 11 Improvement Project, Williams, Colusa County, California. Confidential document on file at ENPLAN.

4.19 UTILITIES AND SERVICE SYSTEMS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction 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?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal regulations pertaining to utilities and service systems that apply to the proposed project.

STATE

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act (CIWMA) of 1989 is designed to increase landfill life and conserve other resources through increased source reduction and recycling. Goals of the CIWMA include diverting approximately 50 percent of solid waste from landfills and identifying programs to stimulate local recycling in manufacturing and the purchase of recycled products. The CIWMA requires cities and counties to prepare Solid Waste Management Plans and Source Reduction and Recycling Elements to implement CIWMA goals.

LOCAL

City of Williams

The City of Williams General Plan includes the following Policies and Actions that apply to the proposed project:

Chapter 5, Public Services		
Policies:	5.1	The City of Williams will provide utilities concurrently with development.
	5.3	Improvements to the collection, distribution, treatment, and conveyance system will be commensurate with the demands of new development.
Actions:	5.a	Adopt best management practices for piping, manholes, bedding and backfill materials, and incorporate these standards into the City's technical specifications for construction projects. Subsequently, implement additional checklist items related to NPDES compliance.
	5.c	Execute plans to install a new water well.

DISCUSSION OF IMPACTS

Question A

As discussed in Section 4.14 under Question A, the proposed project would not induce population growth in the area, either directly or indirectly. Therefore, other than the improvements analyzed in this Initial Study (Section 3.2, Project Components/ Physical Improvements), the proposed project would not result in the need for new or expanded water, wastewater treatment, electric power, natural gas, or telecommunications facilities. In addition, no water, wastewater treatment, electric power, natural gas, or telecommunications facilities would need to be relocated to accommodate the proposed project. Therefore, there would be no impact.

Question B

As stated in Section 4.10 (Hydrology and Water Quality) under Question B, the City of Williams now currently has two active public groundwater wells that have a combined supply of ±2,000 gallons per minute (2.88 million gallons per day). With installation of Well 11, one of the active wells would typically be operated in standby mode only; the project would not result in an increase in the amount of groundwater usage. As stated in Section 4.14 (Population and Housing), the project would not have growth-inducing impacts and would not result in an increased demand for water supplies.

The project is subject to compliance with the Colusa Subbasin Groundwater Sustainability Plan (GSP), which addresses possible future changes in Subbasin conditions that could result in diminished groundwater supplies in the long-term. Ongoing monitoring of actual groundwater conditions over time will determine whether, when, and where implementation of projects and management actions may be needed to maintain adequate groundwater supplies. Implementation of the GSP ensures that impacts related to water supplies are less than significant.

Question C

The project would not have growth-inducing impacts and would have no additional demand for wastewater treatment above what was identified in the City's General Plan. Therefore, there would be no impact.

Questions D and E

The proposed project would not result in a long-term demand for additional solid waste services. Solid waste would be generated during construction, mainly from removal of pavement in public road ROWs to accommodate the pipeline improvements. Construction debris, including asphalt, would be recycled where feasible; remaining debris would be disposed of at the Maxwell Transfer Station, located approximately 8 miles northwest of the project site. The Maxwell Transfer Station is permitted through the California Integrated Waste Management Board (CIWMB). The maximum permitted throughput is 180 tons per day. The Transfer Station is subject to periodic inspections by Colusa County to ensure compliance with the CIWMB permit. Although the transfer station occasionally reaches capacity and is unable to accept additional waste on certain days, waste and recycled materials can be disposed of at another transfer station in the County.

The construction contractor would be responsible for recycling or disposing of all construction waste. The City would ensure through contractual obligations that the contractor complies with all federal, State, and local statutes related to solid waste disposal. Therefore, impacts would be less than significant.

CUMULATIVE IMPACTS

As documented above, utility and service systems in the area would not experience a permanent increase in demand over existing conditions, and impacts during construction would be minimal. Therefore, the proposed project would have less than significant cumulative impacts to utility and service systems.

MITIGATION

None necessary

DOCUMENTATION

CalRecycle. n.d. Facility Details: Maxwell Transfer Station (06-AA-0003). https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4374?siteID=195. Accessed November 2021.

4.20 WILDFIRE

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

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire, or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐

d.	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

REGULATORY CONTEXT

FEDERAL

There are no federal regulations pertaining to wildfire that apply to the proposed project.

STATE

California Department of Forestry and Fire Protection (CAL FIRE)

The Bates Bill (AB 337), enacted in 1992, required CAL FIRE to work with local governments to identify high fire hazard severity zones throughout each county in the State. CAL FIRE adopted Fire Hazard Severity Zone (FHSZ) Maps for State Responsibility Areas (SRA) in November 2007. Pursuant to California Government Code §51175-51189, CAL FIRE also recommended FHSZs for Local Responsibility Areas (LRA). Over the years, CAL FIRE has updated the maps and provided new recommendations to local governments based on fire hazard modeling.

The fire hazard model considers wildland fuels (natural vegetation that burns during the wildfire); topography (fires burn faster as they burn up-slope); weather (fire burns faster and with more intensity when air temperature is high, relative humidity is low, and winds are strong); and ember production and movement (how far embers move and how receptive the landing site is to new fires). The model recognizes that some areas of California have more frequent and severe wildfires than other areas.

California Fire Code

California Fire Code, Part 9, Chapter 49 (Wildland-Urban Interface Fire Areas), and California Building Code Chapter 7A (Materials and Construction Methods for Exterior Wildfire Exposure) include standards for new construction in Wildland-Urban Interface Fire Areas (fire hazard severity zones). The purpose of the standards is to prevent a building from being ignited by flying embers that can travel as much as a mile away from a wildfire and to contribute to a systematic reduction in fire-related losses through the use of performance and prescriptive requirements.

LOCAL

The City of Williams General Plan includes the following Policies and Actions that apply to the proposed project:

Chapter 4, Public Safety		
Policies:	4.20	The City supports the Williams Fire Protection Authority's (WFPA), efforts to lower its fire insurance rating and public protection classification (PPC) by: − improving the availability of water and the adequacy of fire flows; and − investing in an advanced communication system.
	4.23	The City will continue to work with the WFPA to plan for the provision of water infrastructure to support the fire fighting capabilities of the WFPA.
	4.25	The City will observe responsible land use planning as it relates to the management and protection against fire hazards.

DISCUSSION OF IMPACTS

According to FHSZ maps prepared by CAL FIRE, the project area is located within a Non-Very High FHSZ in a LRA.

Question A

See discussion in Section 4.9 under Question F. The proposed project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. Although a temporary increase in traffic could occur during construction and could interfere with emergency response times, construction-related traffic would be minor due to the overall scale of the construction activities. Temporary traffic control during completion of activities that require work in the public road ROW is required and must adhere to the procedures, methods and guidance given in the current edition of the MUTCD. Implementation of traffic control measures during construction ensures impacts are less than significant.

Questions B and C

The majority of improvements would occur in paved and graveled roadways in relatively flat developed areas with low fire hazard risk. The proposed project would not involve construction of public roads or otherwise intrude into natural spaces in a manner that would increase wildfire hazards in the long term, and would not require construction of fuel breaks, installation of emergency water sources, or other fire prevention/suppression infrastructure.

There are no features in the study area, such as slope, prevailing winds, or other factors that would exacerbate wildfire risks in a manner that would expose people living and working in the area to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire. As stated in Section 4.9 (Hazards and Hazardous Materials), Cal/OSHA regulations require that a fire protection program must be followed throughout all phases of construction. Implementation of the fire protection program ensures that impacts would be less than significant.

Question D

Proposed improvements would be installed in relatively level areas, and no significant surface waters are nearby. Project implementation would not increase the exposure of people or structures to significant post-fire hazards such as landslides, increased erosion, surface runoff, or flooding on- or off-site. Impacts would be less than significant.

CUMULATIVE IMPACTS

The proposed project and cumulative projects must implement temporary traffic control measures (i.e., signs, cones, flaggers, etc.) to ensure that emergency response vehicles are not hindered by construction activities. Because all projects must provide adequate access during construction, there would be no cumulative impact even if more than one project were under construction at the same time.

In the long term, the proposed project would not contribute individually or cumulatively to increased risks of wildfire, effects of fire prevention/suppression infrastructure, or post-fire hazards. Although cumulative wildfire risks could occur during construction, compliance with existing regulations adequately minimizes such risks.

MITIGATION

None necessary.

DOCUMENTATION

California Department of Forestry and Fire Protection (CAL FIRE). 2021. Fire Hazard Severity Zone Map Viewer. https://egis.fire.ca.gov/FHSZ/. Accessed November 2021.

City of Williams. 2012. City of Williams General Plan. http://www.cityofwilliams.org/departments/planning/general_plan.php#56. Accessed November 2021.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 rare or endangered plants or animals, 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?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

Question A

As discussed in Section 4.4, the proposed project could result in possible impacts on the quality of the environment due to the introduction and/or spread of noxious weeds during construction, and impacts on cultural resources due to inadvertent discovery during construction. However, as identified in Section 4.4 (Biological Resources) and Section 4.5 (Cultural Resources), mitigation measures are included to reduce the potential impacts to a less-than-significant level. With these mitigation measures, project implementation is not expected 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 rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory.

Question B

The potential cumulative impacts of the proposed project have been analyzed within the discussion of each environmental resource section above. The mitigation measures identified in Section 1.10 ensure that the project's cumulative impacts are less than significant.

Question C

As discussed in the applicable environmental resource sections above, the proposed project could result in adverse effects on human beings due to temporarily increased air emissions and temporarily increased noise and vibration levels. However, mitigation measures are included to reduce all potential impacts to a less than significant level.

SECTION 5.0 LIST OF PREPARERS

ENPLAN

Donald Burk ..... Environmental Services Manager
Carla L. Thompson, AICP ..... Senior Environmental Planner
Kiara Cuerpo-Hadsall ..... Environmental Planner
Allison Loveless ..... Environmental Scientist
Evan Wiant ..... Archaeologist

City of Williams

Frank Kennedy .....City Administrator
Colt Esenwein ..... Public Works Director
Monica Stegall..... City Planner
Katheryn Ramsaur .....Administrative Assistant

PACE Engineering

Laurie McCollum, P.E. ..... Managing Engineer

SECTION 6.0 ABBREVIATIONS AND ACRONYMNS

AB	Assembly Bill
AQAP	Air Quality Attainment Plan
AQMD	Air Quality Management District
APE	Area of Potential Effects
BAMM	Best Available Mitigation Measures
BAU	Business as Usual
BMP	Best Management Practice
BSR	Biological Study Report
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention Program
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Criteria Air Pollutants
CARB	California Air Resources Board
CASGEM	California Statewide Groundwater Elevation Monitoring
CBSC	California Building Standards Code
CCAPCD	Colusa County Air Pollution Control District
CCR	California Code of Regulations
CCV	California Central Valley
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	Methane
City	City of Williams
CIWMA	California Integrated Waste Management Act
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
County	Colusa County
CRHR	California Register of Historical Resources
CRI	Cultural Resources Inventory and Evaluation Report

CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CY	Cubic Yards
dBA	Decibels
DOC	Department of Conservation
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
DWSRF	Drinking Water State Revolving Fund
EO	Executive Order
ESU	Evolutionary Significant Unit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Act
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
GHG	Greenhouse Gas Emissions
GSPs	Groundwater Sustainability Plans
GWP	Global Warming Potential
H_2S	Hydrogen Sulfide
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbons
HSIP	Highway Safety Improvement Program
I-5	Interstate 5
IBC	International Building Code
IS	Initial Study
LHMP	Local Hazard Mitigation Plan
LRA	Local Responsibility Area
LUP	Linear Underground/Overhead Projects
MACT	Maximum Achievable Control Technology
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
mg/m^3	Milligrams per Cubic Meter
MND	Mitigated Negative Declaration
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone
MS4s	Small Municipal Separate Storm Sewer Systems
MSR	Municipal Service Review

MUTCD	California Manual on Uniform Traffic Control Devices
MWP	Master Water Plan
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NEIC	Northeast Information Center of the California Historical Resources Information System
NEHRA	National Earthquake Hazards Reduction Act
NEPA	National Environmental Policy Act
NF_3	Nitrogen Trifluoride
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
N_2	Nitrogen
N_2O	Nitrous Oxide
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_X	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSVAB	Northern Sacramento Valley Air Basin
NSVPA	Northern Sacramento Valley Planning Area
NWP	Nationwide Permit
O_2	Oxygen
O_3	Ozone
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Act
Pb	Lead
PF	Public Facilities
PFC	Perfluorocarbons
$PM_{2.5}$	Particulate Matter, 2.5 microns in size
PM_{10}	Particulate Matter, 10 microns in size
PPB	Parts per Billion
PPM	Parts per Million
PRC	Public Resources Code
Project	City of Williams Well 11 Improvement
PVC	Polyvinyl Chloride
RCAP	Regional Climate Action Plan

RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
ROG	Reactive Organic Gases
ROW	Right of Way
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SB	Senate Bill
SCS	Sustainable Communities Strategy
SDWA	Safe Drinking Water Act
SF_6	Sulfur Hexafluoride
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SMM	Standard Mitigation Measures
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SOI	Sphere of Influence
SO_2	Sulfur Dioxide
SO_4	Sulfates
SO_X	Sulfur Oxides
SRA	State Responsibility Area
SRWR	Sacramento River Winter-Run
SSC	Species of Special Concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SVAQEEP	Sacramento Valley Air Quality Engineering and Enforcement Professionals
TAC	Toxic Air Contaminants
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDECS	Verified Diesel Emission Control Strategies
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	Vehicle Miles Travelled
WDRs	Waste Discharge Requirements
WQO	Water Quality Objectives
$\mu g/m^3$	Micrograms per Cubic Meter

Appendix A

CalEEMod.2020.4.0 Emissions Reports

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Williams Well 11 Improvement Project

Colusa County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.93	1000sqft	0.04	1,930.00	0
Other Asphalt Surfaces	0.73	Acre	0.73	0.00	0
Other Non-Asphalt Surfaces	0.43	Acre	0.43	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	56
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - General Light Industry: Well 11 and Booster Pump Station. Non-Asphalt Surfaces: pipeline improvements in unpaved areas. Other Asphalt Surfaces: pipeline improvements in paved areas.

Construction Phase - Construction schedule provided by PACE Engineering and based on project characteristics.

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - Imported/exported material provided by PACE Engineering. Grading includes trenching for water lines.

Trips and VMT - .

Architectural Coating - Architectural coatings for the backwash tank

Vehicle Trips - No increase in operational trips.

Area Coating - .

Water And Wastewater - No increase in water use or wastewater treatment.

Solid Waste - No increase in solid waste generation.

Construction Off-road Equipment Mitigation - Based on proposed Mitigation Measures.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	965.00	1,670.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,895.00	2,200.00
tblArchitecturalCoating	EF_Parking	250.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	965	1670
tblAreaCoating	Area_Nonresidential_Interior	2895	2200
tblAreaCoating	ReapplicationRatePercent	10	5
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	30
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	200.00	218.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	4.00	109.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	2.00	21.00
tblGrading	AcresOfGrading	109.00	1.00
tblGrading	AcresOfGrading	19.69	1.20
tblGrading	MaterialExported	0.00	165.00
tblGrading	MaterialImported	0.00	5.00
tblLandUse	LandUseSquareFeet	31,798.80	0.00
tblLandUse	LandUseSquareFeet	18,730.80	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	2.39	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	49.00	30.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	1.00	10.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblWater	IndoorWaterUseRate	446,312.50	0.00

2.0 Emissions Summary

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.8677	28.1610	19.2062	0.0399	6.2908	1.2835	7.4808	3.3800	1.1929	4.4968	0.0000	3,783.1335	3,783.1335	0.9410	0.0192	3,807.6966
2023	2.5611	23.4917	18.5202	0.0398	6.2908	0.9988	7.2897	3.3800	0.9380	4.3180	0.0000	3,776.2173	3,776.2173	0.8826	7.2300e-003	3,800.4350
Maximum	**2.8677**	**28.1610**	**19.2062**	**0.0399**	**6.2908**	**1.2835**	**7.4808**	**3.3800**	**1.1929**	**4.4968**	**0.0000**	**3,783.1335**	**3,783.1335**	**0.9410**	**0.0192**	**3,807.6966**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	0.5676	3.7466	21.3987	0.0399	2.9058	0.0587	2.9640	1.5422	0.0585	1.6003	0.0000	3,783.1335	3,783.1335	0.9410	0.0192	3,807.6966
2023	1.8073	3.7346	21.3207	0.0398	2.9058	0.0580	2.9639	1.5422	0.0579	1.6001	0.0000	3,776.2173	3,776.2173	0.8826	7.2300e-003	3,800.4350
Maximum	**1.8073**	**3.7466**	**21.3987**	**0.0399**	**2.9058**	**0.0587**	**2.9640**	**1.5422**	**0.0585**	**1.6003**	**0.0000**	**3,783.1335**	**3,783.1335**	**0.9410**	**0.0192**	**3,807.6966**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	56.25	85.52	-13.23	0.00	53.81	94.88	59.87	54.37	94.53	63.69	0.00	0.00	0.00	0.00	0.00	0.00

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0475	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.8000e-004	6.8000e-004	0.0000		7.2000e-004
Energy	1.1800e-003	0.0107	9.0100e-003	6.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004		12.8770	12.8770	2.5000e-004	2.4000e-004	12.9536
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0487**	**0.0107**	**9.3300e-003**	**6.0000e-005**	**0.0000**	**8.2000e-004**	**8.2000e-004**	**0.0000**	**8.2000e-004**	**8.2000e-004**		**12.8777**	**12.8777**	**2.5000e-004**	**2.4000e-004**	**12.9543**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0475	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.8000e-004	6.8000e-004	0.0000		7.2000e-004
Energy	1.1800e-003	0.0107	9.0100e-003	6.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004		12.8770	12.8770	2.5000e-004	2.4000e-004	12.9536
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0487**	**0.0107**	**9.3300e-003**	**6.0000e-005**	**0.0000**	**8.2000e-004**	**8.2000e-004**	**0.0000**	**8.2000e-004**	**8.2000e-004**		**12.8777**	**12.8777**	**2.5000e-004**	**2.4000e-004**	**12.9543**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/3/2022	10/31/2022	5	21	
2	Site Preparation	Site Preparation	10/3/2022	10/31/2022	5	21	
3	Grading	Grading	11/1/2022	3/31/2023	5	109	
4	Building Construction	Building Construction	11/1/2022	8/31/2023	5	218	
5	Paving	Paving	9/1/2023	10/12/2023	5	30	
6	Architectural Coating	Architectural Coating	10/6/2023	11/16/2023	5	30	

Acres of Grading (Site Preparation Phase): 1.2

Acres of Grading (Grading Phase): 1

Acres of Paving: 1.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,200; Non-Residential Outdoor: 1,670; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	30.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	10.00	0.00	21.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5095	0.0000	0.5095	0.0771	0.0000	0.0771			0.0000			0.0000
Off-Road	1.3595	13.2705	9.4846	0.0179		0.6577	0.6577		0.6171	0.6171		1,720.9389	1,720.9389	0.3972		1,730.8698
Total	**1.3595**	**13.2705**	**9.4846**	**0.0179**	**0.5095**	**0.6577**	**1.1672**	**0.0771**	**0.6171**	**0.6942**		**1,720.9389**	**1,720.9389**	**0.3972**		**1,730.8698**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5900e-003	0.2141	0.0449	8.7000e-004	0.0251	2.2600e-003	0.0273	6.8800e-003	2.1700e-003	9.0400e-003		92.3545	92.3545	2.6000e-004	0.0145	96.6864
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0395	0.0244	0.3630	9.6000e-004	0.1022	5.1000e-004	0.1027	0.0271	4.7000e-004	0.0276		97.8859	97.8859	2.3300e-003	2.3300e-003	98.6384
Total	**0.0451**	**0.2385**	**0.4080**	**1.8300e-003**	**0.1272**	**2.7700e-003**	**0.1300**	**0.0340**	**2.6400e-003**	**0.0366**		**190.2404**	**190.2404**	**2.5900e-003**	**0.0168**	**195.3248**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2293	0.0000	0.2293	0.0347	0.0000	0.0347			0.0000			0.0000
Off-Road	0.2051	0.8888	10.0343	0.0179		0.0274	0.0274		0.0274	0.0274	0.0000	1,720.9389	1,720.9389	0.3972		1,730.8698
Total	**0.2051**	**0.8888**	**10.0343**	**0.0179**	**0.2293**	**0.0274**	**0.2566**	**0.0347**	**0.0274**	**0.0621**	**0.0000**	**1,720.9389**	**1,720.9389**	**0.3972**		**1,730.8698**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5900e-003	0.2141	0.0449	8.7000e-004	0.0194	2.2600e-003	0.0217	5.4800e-003	2.1700e-003	7.6500e-003		92.3545	92.3545	2.6000e-004	0.0145	96.6864
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0395	0.0244	0.3630	9.6000e-004	0.0755	5.1000e-004	0.0760	0.0206	4.7000e-004	0.0210		97.8859	97.8859	2.3300e-003	2.3300e-003	98.6384
Total	**0.0451**	**0.2385**	**0.4080**	**1.8300e-003**	**0.0949**	**2.7700e-003**	**0.0977**	**0.0260**	**2.6400e-003**	**0.0287**		**190.2404**	**190.2404**	**2.5900e-003**	**0.0168**	**195.3248**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3299	0.0000	5.3299	2.9030	0.0000	2.9030			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727		1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**5.3299**	**0.6225**	**5.9525**	**2.9030**	**0.5727**	**3.4757**		**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0395	0.0244	0.3630	9.6000e-004	0.1022	5.1000e-004	0.1027	0.0271	4.7000e-004	0.0276		97.8859	97.8859	2.3300e-003	2.3300e-003	98.6384
Total	**0.0395**	**0.0244**	**0.3630**	**9.6000e-004**	**0.1022**	**5.1000e-004**	**0.1027**	**0.0271**	**4.7000e-004**	**0.0276**		**97.8859**	**97.8859**	**2.3300e-003**	**2.3300e-003**	**98.6384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3985	0.0000	2.3985	1.3064	0.0000	1.3064			0.0000			0.0000
Off-Road	0.2106	0.9126	8.6714	0.0172		0.0281	0.0281		0.0281	0.0281	0.0000	1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**0.2106**	**0.9126**	**8.6714**	**0.0172**	**2.3985**	**0.0281**	**2.4266**	**1.3064**	**0.0281**	**1.3344**	**0.0000**	**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0395	0.0244	0.3630	9.6000e-004	0.0755	5.1000e-004	0.0760	0.0206	4.7000e-004	0.0210		97.8859	97.8859	2.3300e-003	2.3300e-003	98.6384
Total	**0.0395**	**0.0244**	**0.3630**	**9.6000e-004**	**0.0755**	**5.1000e-004**	**0.0760**	**0.0206**	**4.7000e-004**	**0.0210**		**97.8859**	**97.8859**	**2.3300e-003**	**2.3300e-003**	**98.6384**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0320	0.0000	6.0320	3.3113	0.0000	3.3113			0.0000			0.0000
Off-Road	1.3962	15.5174	7.2620	0.0179		0.6634	0.6634		0.6104	0.6104		1,731.8984	1,731.8984	0.5601		1,745.9017
Total	**1.3962**	**15.5174**	**7.2620**	**0.0179**	**6.0320**	**0.6634**	**6.6954**	**3.3113**	**0.6104**	**3.9217**		**1,731.8984**	**1,731.8984**	**0.5601**		**1,745.9017**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.5000e-004	0.0289	6.0600e-003	1.2000e-004	3.3800e-003	3.1000e-004	3.6800e-003	9.3000e-004	2.9000e-004	1.2200e-003		12.4552	12.4552	4.0000e-005	1.9600e-003	13.0394
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0494	0.0305	0.4538	1.2000e-003	0.1277	6.4000e-004	0.1284	0.0339	5.9000e-004	0.0345		122.3574	122.3574	2.9100e-003	2.9100e-003	123.2980
Total	**0.0501**	**0.0594**	**0.4599**	**1.3200e-003**	**0.1311**	**9.5000e-004**	**0.1321**	**0.0348**	**8.8000e-004**	**0.0357**		**134.8126**	**134.8126**	**2.9500e-003**	**4.8700e-003**	**136.3373**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7144	0.0000	2.7144	1.4901	0.0000	1.4901			0.0000			0.0000
Off-Road	0.2189	0.9486	8.8578	0.0179		0.0292	0.0292		0.0292	0.0292	0.0000	1,731.8984	1,731.8984	0.5601		1,745.9016
Total	**0.2189**	**0.9486**	**8.8578**	**0.0179**	**2.7144**	**0.0292**	**2.7436**	**1.4901**	**0.0292**	**1.5193**	**0.0000**	**1,731.8984**	**1,731.8984**	**0.5601**		**1,745.9016**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.5000e-004	0.0289	6.0600e-003	1.2000e-004	2.6200e-003	3.1000e-004	2.9200e-003	7.4000e-004	2.9000e-004	1.0300e-003		12.4552	12.4552	4.0000e-005	1.9600e-003	13.0394
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0494	0.0305	0.4538	1.2000e-003	0.0944	6.4000e-004	0.0951	0.0257	5.9000e-004	0.0263		122.3574	122.3574	2.9100e-003	2.9100e-003	123.2980
Total	**0.0501**	**0.0594**	**0.4599**	**1.3200e-003**	**0.0970**	**9.5000e-004**	**0.0980**	**0.0264**	**8.8000e-004**	**0.0273**		**134.8126**	**134.8126**	**2.9500e-003**	**4.8700e-003**	**136.3373**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0320	0.0000	6.0320	3.3113	0.0000	3.3113			0.0000			0.0000
Off-Road	1.2006	13.1239	6.7514	0.0179		0.5380	0.5380		0.4950	0.4950		1,731.7353	1,731.7353	0.5601		1,745.7373
Total	**1.2006**	**13.1239**	**6.7514**	**0.0179**	**6.0320**	**0.5380**	**6.5700**	**3.3113**	**0.4950**	**3.8063**		**1,731.7353**	**1,731.7353**	**0.5601**		**1,745.7373**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9000e-004	0.0246	5.6600e-003	1.1000e-004	3.3800e-003	2.4000e-004	3.6200e-003	9.3000e-004	2.3000e-004	1.1600e-003		12.0099	12.0099	2.0000e-005	1.8900e-003	12.5729
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0456	0.0267	0.4150	1.1600e-003	0.1277	6.1000e-004	0.1283	0.0339	5.6000e-004	0.0344		119.0811	119.0811	2.5900e-003	2.6700e-003	119.9413
Total	**0.0461**	**0.0513**	**0.4207**	**1.2700e-003**	**0.1311**	**8.5000e-004**	**0.1320**	**0.0348**	**7.9000e-004**	**0.0356**		**131.0910**	**131.0910**	**2.6100e-003**	**4.5600e-003**	**132.5142**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7144	0.0000	2.7144	1.4901	0.0000	1.4901			0.0000			0.0000
Off-Road	0.2189	0.9486	8.8578	0.0179		0.0292	0.0292		0.0292	0.0292	0.0000	1,731.7353	1,731.7353	0.5601		1,745.7373
Total	**0.2189**	**0.9486**	**8.8578**	**0.0179**	**2.7144**	**0.0292**	**2.7436**	**1.4901**	**0.0292**	**1.5193**	**0.0000**	**1,731.7353**	**1,731.7353**	**0.5601**		**1,745.7373**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9000e-004	0.0246	5.6600e-003	1.1000e-004	2.6200e-003	2.4000e-004	2.8600e-003	7.4000e-004	2.3000e-004	9.7000e-004		12.0099	12.0099	2.0000e-005	1.8900e-003	12.5729
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0456	0.0267	0.4150	1.1600e-003	0.0944	6.1000e-004	0.0950	0.0257	5.6000e-004	0.0263		119.0811	119.0811	2.5900e-003	2.6700e-003	119.9413
Total	**0.0461**	**0.0513**	**0.4207**	**1.2700e-003**	**0.0970**	**8.5000e-004**	**0.0979**	**0.0264**	**7.9000e-004**	**0.0272**		**131.0910**	**131.0910**	**2.6100e-003**	**4.5600e-003**	**132.5142**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3719	11.0402	11.0306	0.0195		0.5250	0.5250		0.5050	0.5050		1,794.0651	1,794.0651	0.3238		1,802.1597
Total	**1.3719**	**11.0402**	**11.0306**	**0.0195**		**0.5250**	**0.5250**		**0.5050**	**0.5050**		**1,794.0651**	**1,794.0651**	**0.3238**		**1,802.1597**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0494	0.0305	0.4538	1.2000e-003	0.1277	6.4000e-004	0.1284	0.0339	5.9000e-004	0.0345		122.3574	122.3574	2.9100e-003	2.9100e-003	123.2980
Total	**0.0494**	**0.0305**	**0.4538**	**1.2000e-003**	**0.1277**	**6.4000e-004**	**0.1284**	**0.0339**	**5.9000e-004**	**0.0345**		**122.3574**	**122.3574**	**2.9100e-003**	**2.9100e-003**	**123.2980**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2492	2.7081	11.6273	0.0195		0.0274	0.0274		0.0274	0.0274	0.0000	1,794.0651	1,794.0651	0.3238		1,802.1597
Total	**0.2492**	**2.7081**	**11.6273**	**0.0195**		**0.0274**	**0.0274**		**0.0274**	**0.0274**	**0.0000**	**1,794.0651**	**1,794.0651**	**0.3238**		**1,802.1597**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0494	0.0305	0.4538	1.2000e-003	0.0944	6.4000e-004	0.0951	0.0257	5.9000e-004	0.0263		122.3574	122.3574	2.9100e-003	2.9100e-003	123.2980
Total	**0.0494**	**0.0305**	**0.4538**	**1.2000e-003**	**0.0944**	**6.4000e-004**	**0.0951**	**0.0257**	**5.9000e-004**	**0.0263**		**122.3574**	**122.3574**	**2.9100e-003**	**2.9100e-003**	**123.2980**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2688	10.2898	10.9331	0.0195		0.4594	0.4594		0.4417	0.4417		1,794.3100	1,794.3100	0.3173		1,802.2421
Total	**1.2688**	**10.2898**	**10.9331**	**0.0195**		**0.4594**	**0.4594**		**0.4417**	**0.4417**		**1,794.3100**	**1,794.3100**	**0.3173**		**1,802.2421**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0456	0.0267	0.4150	1.1600e-003	0.1277	6.1000e-004	0.1283	0.0339	5.6000e-004	0.0344		119.0811	119.0811	2.5900e-003	2.6700e-003	119.9413
Total	**0.0456**	**0.0267**	**0.4150**	**1.1600e-003**	**0.1277**	**6.1000e-004**	**0.1283**	**0.0339**	**5.6000e-004**	**0.0344**		**119.0811**	**119.0811**	**2.5900e-003**	**2.6700e-003**	**119.9413**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2492	2.7081	11.6273	0.0195		0.0274	0.0274		0.0274	0.0274	0.0000	1,794.3100	1,794.3100	0.3173		1,802.2421
Total	**0.2492**	**2.7081**	**11.6273**	**0.0195**		**0.0274**	**0.0274**		**0.0274**	**0.0274**	**0.0000**	**1,794.3100**	**1,794.3100**	**0.3173**		**1,802.2421**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0456	0.0267	0.4150	1.1600e-003	0.0944	6.1000e-004	0.0950	0.0257	5.6000e-004	0.0263		119.0811	119.0811	2.5900e-003	2.6700e-003	119.9413
Total	**0.0456**	**0.0267**	**0.4150**	**1.1600e-003**	**0.0944**	**6.1000e-004**	**0.0950**	**0.0257**	**5.6000e-004**	**0.0263**		**119.0811**	**119.0811**	**2.5900e-003**	**2.6700e-003**	**119.9413**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0638					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7084**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0593	0.0347	0.5395	1.5100e-003	0.1661	7.9000e-004	0.1668	0.0440	7.2000e-004	0.0448		154.8054	154.8054	3.3700e-003	3.4700e-003	155.9237
Total	**0.0593**	**0.0347**	**0.5395**	**1.5100e-003**	**0.1661**	**7.9000e-004**	**0.1668**	**0.0440**	**7.2000e-004**	**0.0448**		**154.8054**	**154.8054**	**3.3700e-003**	**3.4700e-003**	**155.9237**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1598	0.6922	9.8512	0.0136		0.0213	0.0213		0.0213	0.0213	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0638					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2235**	**0.6922**	**9.8512**	**0.0136**		**0.0213**	**0.0213**		**0.0213**	**0.0213**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0593	0.0347	0.5395	1.5100e-003	0.1227	7.9000e-004	0.1235	0.0334	7.2000e-004	0.0341		154.8054	154.8054	3.3700e-003	3.4700e-003	155.9237
Total	**0.0593**	**0.0347**	**0.5395**	**1.5100e-003**	**0.1227**	**7.9000e-004**	**0.1235**	**0.0334**	**7.2000e-004**	**0.0341**		**154.8054**	**154.8054**	**3.3700e-003**	**3.4700e-003**	**155.9237**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.4948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**1.6865**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.4948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**1.5245**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.504547	0.054459	0.176045	0.160764	0.039113	0.008816	0.007575	0.018693	0.000269	0.000186	0.025160	0.000750	0.003623
Other Asphalt Surfaces	0.504547	0.054459	0.176045	0.160764	0.039113	0.008816	0.007575	0.018693	0.000269	0.000186	0.025160	0.000750	0.003623

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Other Non-Asphalt Surfaces	0.504547	0.054459	0.176045	0.160764	0.039113	0.008816	0.007575	0.018693	0.000269	0.000186	0.025160	0.000750	0.003623

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.1800e-003	0.0107	9.0100e-003	6.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004		12.8770	12.8770	2.5000e-004	2.4000e-004	12.9536
NaturalGas Unmitigated	1.1800e-003	0.0107	9.0100e-003	6.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004		12.8770	12.8770	2.5000e-004	2.4000e-004	12.9536

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	109.455	1.1800e-003	0.0107	9.0100e-003	6.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004		12.8770	12.8770	2.5000e-004	2.4000e-004	12.9536
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1800e-003**	**0.0107**	**9.0100e-003**	**6.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**		**12.8770**	**12.8770**	**2.5000e-004**	**2.4000e-004**	**12.9536**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.109455	1.1800e-003	0.0107	9.0100e-003	6.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004		12.8770	12.8770	2.5000e-004	2.4000e-004	12.9536
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1800e-003**	**0.0107**	**9.0100e-003**	**6.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**		**12.8770**	**12.8770**	**2.5000e-004**	**2.4000e-004**	**12.9536**

6.0 Area Detail

6.1 Mitigation Measures Area

Williams Well 11 Improvement Project - Colusa County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0475	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.8000e-004	6.8000e-004	0.0000		7.2000e-004
Unmitigated	0.0475	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.8000e-004	6.8000e-004	0.0000		7.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.1400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0413					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.8000e-004	6.8000e-004	0.0000		7.2000e-004
Total	**0.0475**	**0.0000**	**3.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.8000e-004**	**6.8000e-004**	**0.0000**		**7.2000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.1400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0413					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.8000e-004	6.8000e-004	0.0000		7.2000e-004
Total	**0.0475**	**0.0000**	**3.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.8000e-004**	**6.8000e-004**	**0.0000**		**7.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	24	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Williams Well 11 Improvement Project

Colusa County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.93	1000sqft	0.04	1,930.00	0
Other Asphalt Surfaces	0.73	Acre	0.73	0.00	0
Other Non-Asphalt Surfaces	0.43	Acre	0.43	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	56
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - General Light Industry: Well 11 and Booster Pump Station. Non-Asphalt Surfaces: pipeline improvements in unpaved areas. Other Asphalt Surfaces: pipeline improvements in paved areas.

Construction Phase - Construction schedule provided by PACE Engineering and based on project characteristics.

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - Imported/exported material provided by PACE Engineering. Grading includes trenching for water lines.

Trips and VMT - .

Architectural Coating - Architectural coatings for the backwash tank

Vehicle Trips - No increase in operational trips.

Area Coating - .

Water And Wastewater - No increase in water use or wastewater treatment.

Solid Waste - No increase in solid waste generation.

Construction Off-road Equipment Mitigation - Based on proposed Mitigation Measures.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	965.00	1,670.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,895.00	2,200.00
tblArchitecturalCoating	EF_Parking	250.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	965	1670
tblAreaCoating	Area_Nonresidential_Interior	2895	2200
tblAreaCoating	ReapplicationRatePercent	10	5
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	30
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	200.00	218.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	4.00	109.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	2.00	21.00
tblGrading	AcresOfGrading	109.00	1.00
tblGrading	AcresOfGrading	19.69	1.20
tblGrading	MaterialExported	0.00	165.00
tblGrading	MaterialImported	0.00	5.00
tblLandUse	LandUseSquareFeet	31,798.80	0.00
tblLandUse	LandUseSquareFeet	18,730.80	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	2.39	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	24.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	49.00	30.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	1.00	10.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblWater	IndoorWaterUseRate	446,312.50	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0916	0.8823	0.5998	1.2700e-003	0.2022	0.0397	0.2418	0.1063	0.0371	0.1434	0.0000	109.8916	109.8916	0.0267	3.5000e-004	110.6630
2023	0.1908	1.4397	1.3775	2.6800e-003	0.2135	0.0632	0.2768	0.1122	0.0599	0.1722	0.0000	228.1548	228.1548	0.0477	4.1000e-004	229.4700
Maximum	**0.1908**	**1.4397**	**1.3775**	**2.6800e-003**	**0.2135**	**0.0632**	**0.2768**	**0.1122**	**0.0599**	**0.1722**	**0.0000**	**228.1548**	**228.1548**	**0.0477**	**4.1000e-004**	**229.4700**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0173	0.1044	0.6704	1.2700e-003	0.0933	1.9000e-003	0.0952	0.0485	1.8900e-003	0.0504	0.0000	109.8915	109.8915	0.0267	3.5000e-004	110.6629
2023	0.0605	0.2836	1.5224	2.6800e-003	0.1011	3.8000e-003	0.1049	0.0519	3.7900e-003	0.0557	0.0000	228.1546	228.1546	0.0477	4.1000e-004	229.4697
Maximum	**0.0605**	**0.2836**	**1.5224**	**2.6800e-003**	**0.1011**	**3.8000e-003**	**0.1049**	**0.0519**	**3.7900e-003**	**0.0557**	**0.0000**	**228.1546**	**228.1546**	**0.0477**	**4.1000e-004**	**229.4697**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**72.44**	**83.29**	**-10.90**	**0.00**	**53.24**	**94.46**	**61.42**	**54.05**	**94.15**	**66.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2022**	**12-31-2022**	0.9636	0.1209
2	**1-1-2023**	**3-31-2023**	0.8376	0.1382
3	**4-1-2023**	**6-30-2023**	0.3780	0.0985
4	**7-1-2023**	**9-30-2023**	0.3329	0.0779
		Highest	0.9636	0.1382

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.6600e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	6.0000e-005
Energy	2.2000e-004	1.9600e-003	1.6500e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	3.6694	3.6694	2.9000e-004	7.0000e-005	3.6973
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8800e-003**	**1.9600e-003**	**1.6800e-003**	**1.0000e-005**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**3.6695**	**3.6695**	**2.9000e-004**	**7.0000e-005**	**3.6974**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.6600e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	6.0000e-005
Energy	2.2000e-004	1.9600e-003	1.6500e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	3.6694	3.6694	2.9000e-004	7.0000e-005	3.6973
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8800e-003**	**1.9600e-003**	**1.6800e-003**	**1.0000e-005**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**3.6695**	**3.6695**	**2.9000e-004**	**7.0000e-005**	**3.6974**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/3/2022	10/31/2022	5	21	
2	Site Preparation	Site Preparation	10/3/2022	10/31/2022	5	21	
3	Grading	Grading	11/1/2022	3/31/2023	5	109	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	11/1/2022	8/31/2023	5	218	
5	Paving	Paving	9/1/2023	10/12/2023	5	30	
6	Architectural Coating	Architectural Coating	10/6/2023	11/16/2023	5	30	

Acres of Grading (Site Preparation Phase): 1.2

Acres of Grading (Grading Phase): 1

Acres of Paving: 1.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,200; Non-Residential Outdoor: 1,670; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	30.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	10.00	0.00	21.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3500e-003	0.0000	5.3500e-003	8.1000e-004	0.0000	8.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0143	0.1393	0.0996	1.9000e-004		6.9100e-003	6.9100e-003		6.4800e-003	6.4800e-003	0.0000	16.3927	16.3927	3.7800e-003	0.0000	16.4873
Total	**0.0143**	**0.1393**	**0.0996**	**1.9000e-004**	**5.3500e-003**	**6.9100e-003**	**0.0123**	**8.1000e-004**	**6.4800e-003**	**7.2900e-003**	**0.0000**	**16.3927**	**16.3927**	**3.7800e-003**	**0.0000**	**16.4873**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.3800e-003	4.8000e-004	1.0000e-005	2.6000e-004	2.0000e-005	2.8000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.8800	0.8800	0.0000	1.4000e-004	0.9213
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.8000e-004	3.1300e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0400e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.8466	0.8466	2.0000e-005	2.0000e-005	0.8541
Total	**4.2000e-004**	**2.6600e-003**	**3.6100e-003**	**2.0000e-005**	**1.3000e-003**	**3.0000e-005**	**1.3200e-003**	**3.5000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.7266**	**1.7266**	**2.0000e-005**	**1.6000e-004**	**1.7754**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.4100e-003	0.0000	2.4100e-003	3.6000e-004	0.0000	3.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1500e-003	9.3300e-003	0.1054	1.9000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	16.3927	16.3927	3.7800e-003	0.0000	16.4873
Total	**2.1500e-003**	**9.3300e-003**	**0.1054**	**1.9000e-004**	**2.4100e-003**	**2.9000e-004**	**2.7000e-003**	**3.6000e-004**	**2.9000e-004**	**6.5000e-004**	**0.0000**	**16.3927**	**16.3927**	**3.7800e-003**	**0.0000**	**16.4873**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.3800e-003	4.8000e-004	1.0000e-005	2.0000e-004	2.0000e-005	2.2000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8800	0.8800	0.0000	1.4000e-004	0.9213
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.8000e-004	3.1300e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.7000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.8466	0.8466	2.0000e-005	2.0000e-005	0.8541
Total	**4.2000e-004**	**2.6600e-003**	**3.6100e-003**	**2.0000e-005**	**9.7000e-004**	**3.0000e-005**	**9.9000e-004**	**2.7000e-004**	**2.0000e-005**	**2.9000e-004**	**0.0000**	**1.7266**	**1.7266**	**2.0000e-005**	**1.6000e-004**	**1.7754**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0560	0.0000	0.0560	0.0305	0.0000	0.0305	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0138	0.1536	0.0745	1.8000e-004		6.5400e-003	6.5400e-003		6.0100e-003	6.0100e-003	0.0000	15.8710	15.8710	5.1300e-003	0.0000	15.9994
Total	**0.0138**	**0.1536**	**0.0745**	**1.8000e-004**	**0.0560**	**6.5400e-003**	**0.0625**	**0.0305**	**6.0100e-003**	**0.0365**	**0.0000**	**15.8710**	**15.8710**	**5.1300e-003**	**0.0000**	**15.9994**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.8000e-004	3.1300e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0400e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.8466	0.8466	2.0000e-005	2.0000e-005	0.8541
Total	**3.6000e-004**	**2.8000e-004**	**3.1300e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0400e-003**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**0.8466**	**0.8466**	**2.0000e-005**	**2.0000e-005**	**0.8541**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0252	0.0000	0.0252	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2100e-003	9.5800e-003	0.0911	1.8000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	15.8710	15.8710	5.1300e-003	0.0000	15.9993
Total	**2.2100e-003**	**9.5800e-003**	**0.0911**	**1.8000e-004**	**0.0252**	**2.9000e-004**	**0.0255**	**0.0137**	**2.9000e-004**	**0.0140**	**0.0000**	**15.8710**	**15.8710**	**5.1300e-003**	**0.0000**	**15.9993**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.8000e-004	3.1300e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.7000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.8466	0.8466	2.0000e-005	2.0000e-005	0.8541
Total	**3.6000e-004**	**2.8000e-004**	**3.1300e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.1000e-004**	**0.0000**	**2.1000e-004**	**0.0000**	**0.8466**	**0.8466**	**2.0000e-005**	**2.0000e-005**	**0.8541**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1330	0.0000	0.1330	0.0729	0.0000	0.0729	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0307	0.3414	0.1598	3.9000e-004		0.0146	0.0146		0.0134	0.0134	0.0000	34.5653	34.5653	0.0112	0.0000	34.8448
Total	**0.0307**	**0.3414**	**0.1598**	**3.9000e-004**	**0.1330**	**0.0146**	**0.1476**	**0.0729**	**0.0134**	**0.0863**	**0.0000**	**34.5653**	**34.5653**	**0.0112**	**0.0000**	**34.8448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.7000e-004	1.3000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2487	0.2487	0.0000	4.0000e-005	0.2603
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	7.3000e-004	8.2000e-003	2.0000e-005	2.7200e-003	1.0000e-005	2.7300e-003	7.2000e-004	1.0000e-005	7.4000e-004	0.0000	2.2173	2.2173	6.0000e-005	6.0000e-005	2.2370
Total	**9.6000e-004**	**1.4000e-003**	**8.3300e-003**	**2.0000e-005**	**2.7900e-003**	**2.0000e-005**	**2.8100e-003**	**7.4000e-004**	**2.0000e-005**	**7.7000e-004**	**0.0000**	**2.4660**	**2.4660**	**6.0000e-005**	**1.0000e-004**	**2.4973**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0599	0.0000	0.0599	0.0328	0.0000	0.0328	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8200e-003	0.0209	0.1949	3.9000e-004		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	34.5653	34.5653	0.0112	0.0000	34.8448
Total	**4.8200e-003**	**0.0209**	**0.1949**	**3.9000e-004**	**0.0599**	**6.4000e-004**	**0.0605**	**0.0328**	**6.4000e-004**	**0.0334**	**0.0000**	**34.5653**	**34.5653**	**0.0112**	**0.0000**	**34.8448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.7000e-004	1.3000e-004	0.0000	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2487	0.2487	0.0000	4.0000e-005	0.2603
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	7.3000e-004	8.2000e-003	2.0000e-005	2.0100e-003	1.0000e-005	2.0300e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	2.2173	2.2173	6.0000e-005	6.0000e-005	2.2370
Total	**9.6000e-004**	**1.4000e-003**	**8.3300e-003**	**2.0000e-005**	**2.0700e-003**	**2.0000e-005**	**2.0900e-003**	**5.7000e-004**	**2.0000e-005**	**5.8000e-004**	**0.0000**	**2.4660**	**2.4660**	**6.0000e-005**	**1.0000e-004**	**2.4973**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1963	0.0000	0.1963	0.1076	0.0000	0.1076	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0390	0.4265	0.2194	5.8000e-004		0.0175	0.0175		0.0161	0.0161	0.0000	51.0576	51.0576	0.0165	0.0000	51.4705
Total	**0.0390**	**0.4265**	**0.2194**	**5.8000e-004**	**0.1963**	**0.0175**	**0.2138**	**0.1076**	**0.0161**	**0.1237**	**0.0000**	**51.0576**	**51.0576**	**0.0165**	**0.0000**	**51.4705**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	8.5000e-004	1.9000e-004	0.0000	1.1000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3543	0.3543	0.0000	6.0000e-005	0.3709
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	9.4000e-004	0.0111	3.0000e-005	4.0100e-003	2.0000e-005	4.0300e-003	1.0700e-003	2.0000e-005	1.0800e-003	0.0000	3.1888	3.1888	8.0000e-005	8.0000e-005	3.2155
Total	**1.3000e-003**	**1.7900e-003**	**0.0113**	**3.0000e-005**	**4.1200e-003**	**3.0000e-005**	**4.1400e-003**	**1.1000e-003**	**3.0000e-005**	**1.1200e-003**	**0.0000**	**3.5431**	**3.5431**	**8.0000e-005**	**1.4000e-004**	**3.5864**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0883	0.0000	0.0883	0.0484	0.0000	0.0484	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1100e-003	0.0308	0.2879	5.8000e-004		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	51.0576	51.0576	0.0165	0.0000	51.4704
Total	**7.1100e-003**	**0.0308**	**0.2879**	**5.8000e-004**	**0.0883**	**9.5000e-004**	**0.0893**	**0.0484**	**9.5000e-004**	**0.0494**	**0.0000**	**51.0576**	**51.0576**	**0.0165**	**0.0000**	**51.4704**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	8.5000e-004	1.9000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.3543	0.3543	0.0000	6.0000e-005	0.3709
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	9.4000e-004	0.0111	3.0000e-005	2.9700e-003	2.0000e-005	2.9900e-003	8.1000e-004	2.0000e-005	8.3000e-004	0.0000	3.1888	3.1888	8.0000e-005	8.0000e-005	3.2155
Total	**1.3000e-003**	**1.7900e-003**	**0.0113**	**3.0000e-005**	**3.0500e-003**	**3.0000e-005**	**3.0800e-003**	**8.3000e-004**	**3.0000e-005**	**8.6000e-004**	**0.0000**	**3.5431**	**3.5431**	**8.0000e-005**	**1.4000e-004**	**3.5864**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0302	0.2429	0.2427	4.3000e-004		0.0116	0.0116		0.0111	0.0111	0.0000	35.8061	35.8061	6.4600e-003	0.0000	35.9676
Total	**0.0302**	**0.2429**	**0.2427**	**4.3000e-004**		**0.0116**	**0.0116**		**0.0111**	**0.0111**	**0.0000**	**35.8061**	**35.8061**	**6.4600e-003**	**0.0000**	**35.9676**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	7.3000e-004	8.2000e-003	2.0000e-005	2.7200e-003	1.0000e-005	2.7300e-003	7.2000e-004	1.0000e-005	7.4000e-004	0.0000	2.2173	2.2173	6.0000e-005	6.0000e-005	2.2370
Total	**9.4000e-004**	**7.3000e-004**	**8.2000e-003**	**2.0000e-005**	**2.7200e-003**	**1.0000e-005**	**2.7300e-003**	**7.2000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**2.2173**	**2.2173**	**6.0000e-005**	**6.0000e-005**	**2.2370**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.4800e-003	0.0596	0.2558	4.3000e-004		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	35.8060	35.8060	6.4600e-003	0.0000	35.9676
Total	**5.4800e-003**	**0.0596**	**0.2558**	**4.3000e-004**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**	**0.0000**	**35.8060**	**35.8060**	**6.4600e-003**	**0.0000**	**35.9676**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	7.3000e-004	8.2000e-003	2.0000e-005	2.0100e-003	1.0000e-005	2.0300e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	2.2173	2.2173	6.0000e-005	6.0000e-005	2.2370
Total	**9.4000e-004**	**7.3000e-004**	**8.2000e-003**	**2.0000e-005**	**2.0100e-003**	**1.0000e-005**	**2.0300e-003**	**5.5000e-004**	**1.0000e-005**	**5.6000e-004**	**0.0000**	**2.2173**	**2.2173**	**6.0000e-005**	**6.0000e-005**	**2.2370**

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3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1104	0.8952	0.9512	1.7000e-003		0.0400	0.0400		0.0384	0.0384	0.0000	141.6160	141.6160	0.0250	0.0000	142.2421
Total	**0.1104**	**0.8952**	**0.9512**	**1.7000e-003**		**0.0400**	**0.0400**		**0.0384**	**0.0384**	**0.0000**	**141.6160**	**141.6160**	**0.0250**	**0.0000**	**142.2421**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4300e-003	2.5200e-003	0.0297	9.0000e-005	0.0107	5.0000e-005	0.0108	2.8600e-003	5.0000e-005	2.9000e-003	0.0000	8.5362	8.5362	2.0000e-004	2.2000e-004	8.6076
Total	**3.4300e-003**	**2.5200e-003**	**0.0297**	**9.0000e-005**	**0.0107**	**5.0000e-005**	**0.0108**	**2.8600e-003**	**5.0000e-005**	**2.9000e-003**	**0.0000**	**8.5362**	**8.5362**	**2.0000e-004**	**2.2000e-004**	**8.6076**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0217	0.2356	1.0116	1.7000e-003		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	141.6159	141.6159	0.0250	0.0000	142.2419
Total	**0.0217**	**0.2356**	**1.0116**	**1.7000e-003**		**2.3800e-003**	**2.3800e-003**		**2.3800e-003**	**2.3800e-003**	**0.0000**	**141.6159**	**141.6159**	**0.0250**	**0.0000**	**142.2419**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4300e-003	2.5200e-003	0.0297	9.0000e-005	7.9500e-003	5.0000e-005	8.0100e-003	2.1700e-003	5.0000e-005	2.2200e-003	0.0000	8.5362	8.5362	2.0000e-004	2.2000e-004	8.6076
Total	**3.4300e-003**	**2.5200e-003**	**0.0297**	**9.0000e-005**	**7.9500e-003**	**5.0000e-005**	**8.0100e-003**	**2.1700e-003**	**5.0000e-005**	**2.2200e-003**	**0.0000**	**8.5362**	**8.5362**	**2.0000e-004**	**2.2000e-004**	**8.6076**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.6700e-003	0.0935	0.1320	2.0000e-004		4.6300e-003	4.6300e-003		4.2700e-003	4.2700e-003	0.0000	17.6586	17.6586	5.6000e-003	0.0000	17.7986
Paving	9.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0106**	**0.0935**	**0.1320**	**2.0000e-004**		**4.6300e-003**	**4.6300e-003**		**4.2700e-003**	**4.2700e-003**	**0.0000**	**17.6586**	**17.6586**	**5.6000e-003**	**0.0000**	**17.7986**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	5.6000e-004	6.6600e-003	2.0000e-005	2.4100e-003	1.0000e-005	2.4200e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9133	1.9133	5.0000e-005	5.0000e-005	1.9293
Total	**7.7000e-004**	**5.6000e-004**	**6.6600e-003**	**2.0000e-005**	**2.4100e-003**	**1.0000e-005**	**2.4200e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.9133**	**1.9133**	**5.0000e-005**	**5.0000e-005**	**1.9293**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.4000e-003	0.0104	0.1478	2.0000e-004		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	17.6586	17.6586	5.6000e-003	0.0000	17.7986
Paving	9.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3600e-003**	**0.0104**	**0.1478**	**2.0000e-004**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**17.6586**	**17.6586**	**5.6000e-003**	**0.0000**	**17.7986**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	5.6000e-004	6.6600e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.7900e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.9133	1.9133	5.0000e-005	5.0000e-005	1.9293
Total	**7.7000e-004**	**5.6000e-004**	**6.6600e-003**	**2.0000e-005**	**1.7800e-003**	**1.0000e-005**	**1.7900e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.9133**	**1.9133**	**5.0000e-005**	**5.0000e-005**	**1.9293**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0224					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8700e-003	0.0195	0.0272	4.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	3.8299	3.8299	2.3000e-004	0.0000	3.8356
Total	**0.0253**	**0.0195**	**0.0272**	**4.0000e-005**		**1.0600e-003**	**1.0600e-003**		**1.0600e-003**	**1.0600e-003**	**0.0000**	**3.8299**	**3.8299**	**2.3000e-004**	**0.0000**	**3.8356**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0224					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	1.9300e-003	0.0275	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.8299	3.8299	2.3000e-004	0.0000	3.8356
Total	**0.0229**	**1.9300e-003**	**0.0275**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.8299**	**3.8299**	**2.3000e-004**	**0.0000**	**3.8356**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.504547	0.054459	0.176045	0.160764	0.039113	0.008816	0.007575	0.018693	0.000269	0.000186	0.025160	0.000750	0.003623
Other Asphalt Surfaces	0.504547	0.054459	0.176045	0.160764	0.039113	0.008816	0.007575	0.018693	0.000269	0.000186	0.025160	0.000750	0.003623
Other Non-Asphalt Surfaces	0.504547	0.054459	0.176045	0.160764	0.039113	0.008816	0.007575	0.018693	0.000269	0.000186	0.025160	0.000750	0.003623

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.5375	1.5375	2.5000e-004	3.0000e-005	1.5527
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.5375	1.5375	2.5000e-004	3.0000e-005	1.5527
NaturalGas Mitigated	2.2000e-004	1.9600e-003	1.6500e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1319	2.1319	4.0000e-005	4.0000e-005	2.1446
NaturalGas Unmitigated	2.2000e-004	1.9600e-003	1.6500e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1319	2.1319	4.0000e-005	4.0000e-005	2.1446

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	39951	2.2000e-004	1.9600e-003	1.6500e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1319	2.1319	4.0000e-005	4.0000e-005	2.1446
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.2000e-004**	**1.9600e-003**	**1.6500e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**2.1319**	**2.1319**	**4.0000e-005**	**4.0000e-005**	**2.1446**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	39951	2.2000e-004	1.9600e-003	1.6500e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1319	2.1319	4.0000e-005	4.0000e-005	2.1446
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.2000e-004**	**1.9600e-003**	**1.6500e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**2.1319**	**2.1319**	**4.0000e-005**	**4.0000e-005**	**2.1446**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	16617.3	1.5375	2.5000e-004	3.0000e-005	1.5527
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.5375**	**2.5000e-004**	**3.0000e-005**	**1.5527**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	16617.3	1.5375	2.5000e-004	3.0000e-005	1.5527
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.5375**	**2.5000e-004**	**3.0000e-005**	**1.5527**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.6600e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	6.0000e-005
Unmitigated	8.6600e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	6.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	6.0000e-005
Total	**8.6600e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	6.0000e-005
Total	**8.6600e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	24	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number

11.0 Vegetation

Appendix B

Biological Records

TABLE 1
Rarefind (CNDDB) Report Summary

Five-Mile Radius around Project Area
March 24, 2022

Listed Element	Quadrangle [1]				Status [2]
	AR	CO	CC	WI	
ANIMALS					
American badger				•	SSSC
Burrowing owl			•		SSSC
Giant garter snake		•		•	FT, ST
Swainson's hawk	•		•	•	ST
Tricolored blackbird	•	•		•	ST, SSSC
Vernal pool tadpole shrimp				•	FE
PLANTS					
California alkali grass				•	1B.2
Coulter's goldfields		•			1B.1
Ferris' milk-vetch		•			1B.1
Palmate-bracted bird's-beak		•			FE, SE, 1B.1
San Joaquin spearscale		•		•	1B.2
Vernal pool smallscale	•				1B.2
Water star-grass				•	2B.2

Highlighting denotes the quadrangle in which the project site is located

[1]QUADRANGLE CODE

AR = Arbuckle, CC = Cortina Creek, CO = Colusa, WI = Williams

[2]STATUS CODES

Federal

FE	Federally Listed – Endangered
FT	Federally Listed – Threatened
FC	Federal Candidate Species
FP	Federal Proposed Species
FD	Federally Delisted
FSC	Federal Species of Concern

State

SFP	State Fully Protected
SR	State Rare
SE	State Listed – Endangered
ST	State Listed – Threatened
SC	State Candidate Species
SD	State Delisted
SSSC	State Species of Special Concern

Rare Plant Rank

1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened or Endangered in California and Elsewhere
2	Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3	Plants About Which We Need More Information *(A Review List)* (generally not considered special-status, unless unusual circumstances warrant)
4	Plants of Limited Distribution *(A Watch List)* (generally not considered special-status, unless unusual circumstances warrant)

Rare Plant Threat Ranks

0.1 Seriously Threatened in California
0.2 Fairly Threatened in California
0.3 Not Very Threatened in California

TABLE 2
California Native Plant Society
Inventory of Rare and Endangered Plants
U.S. Geological Survey's Williams 7.5-minute Quadrangle

Common Name	Scientific Name	CA Rare Plant Rank	Blooming Period	State Listing Status	Federal Listing Status
California alkali grass	*Puccinellia simplex*	1B.2	Mar-May	None	None
Ferris' goldfields	*Lasthenia ferrisiae*	4.2	Feb-May	None	None
Parry's rough tarplant	*Centromadia parryi* ssp. *rudis*	4.2	May-Oct	None	None
San Joaquin spearscale	*Extriplex joaquinana*	1B.2	Apr-Oct	None	None
Water star-grass	*Heteranthera dubia*	2B.2	Jul-Oct	None	None

Rare Plant Rank	
1A	Plants presumed extinct in California and either rare or extinct elsewhere
1B	Plants rare, threatened or endangered in California and elsewhere
2A	Plants presumed extinct in California but common elsewhere
2B	Plants rare, threatened, or endangered in California but common elsewhere
3	Review List: Plants about which more information is needed (generally not considered special-status, unless unusual circumstances warrant)
4	Watch List: Plants of limited distribution (generally not considered special-status, unless unusual circumstances warrant)
Rare Plant Threat Rank	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

Source: *California Native Plant Society, Rare Plant Program. 2022. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). http://www.rareplants.cnps.org. Accessed March 24, 2022.*

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
PLANTS							
California alkali grass	*Puccinellia simplex*	1B.2	California alkali is an annual grasslike herb that occurs in wetlands located within valley grassland. The species is reported from sea level to 3,000 feet in elevation. The flowering period March through May.	No	No	No	No potentially suitable habitats for Coulter's goldfields are present on the project site. The species was not observed during the botanical survey and is not expected to be present.
Coulter's goldfields	*Lasthenia glabrata* ssp. *coulteri*	1B.1	Coulter's goldfields is an annual herb that occurs in marshes, swamps, playas, and vernal pools. The species is reported from sea level to 4,000 feet in elevation. The flowering period is February through June.	No	No	No	No marshes, vernal pools, or potentially suitable habitats for Coulter's goldfields are present on the project site. The species was not observed during the botanical survey and is not expected to be present.
Ferris' milk-fetch	*Astragalus tener* var. *ferrisiae*	1B.1	Ferris' milk-fetch, an annual herb, occurs in meadows, seeps, valley and foothill grassland, and wetlands. In the Central Valley, the species is usually seen on dry, adobe soils of subalkaline flats on overflow land. The species is reported up to 260 feet in elevation. The flowering period is April through May.	No	No	No	No potentially suitable habitat for Ferris' milk-fetch is present on the project site. The species was not observed during the botanical survey and is not expected to be present.
Palmate-bracted bird's-beak	*Chloropyron palmatum*	FE, SE, 1B.1	Palmate-bracted bird's-beak, an annual herb, occurs in chenopod scrub, meadows, seeps, valley and foothill grassland, and wetlands. The species is usually found on Pescadero silty clay soils, which are alkaline. The species occurs up to 500 feet in elevation. The flowering period is May through October.	No	No	No	No potentially suitable habitat for palmate-bracted bird's-beak is present on the project site. The species was not observed during the botanical survey and is not expected to be present.

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
San Joaquin spearscale	*Extriplex joaquinana*	1B.2	San Joaquin spearscale, an annual herb, occurs in chenopod scrubs, alkali meadows, playas, and valley and foothill grasslands. The species is usually found in seasonal alkali wetlands or alkali sink scrub. The species is reported between sea level and 2,625 feet in elevation. The flowering period is April through October.	No	No	No	According to CNDDB records, San Joaquin spearscale was reported ±1.3 miles northwest of the project site in 1916. No potentially suitable habitat for San Joaquin spearscale is present on the project site. The species was not observed during the botanical survey and is not expected to be present.
Vernal pool smallscale	*Atriplex persistens*	1B.2	Vernal pool smallscale is an annual herb that occurs in alkaline vernal pools. The species is reported between 10 and 377 feet in elevation. The flowering period extends from June through October.	No	No	No	No vernal pools or potentially suitable habitats for vernal pool smallscale are present on the project site. The species was not observed during the botanical survey and is not expected to be present.
Water star-grass	*Heteranthera dubia*	2B.2	Water star-grass occurs in marshes and swamps and requires a water pH of 7 or greater. The species is reported between sea level and 5,000 feet in elevation. The flowering period is July through October.	No	No	No	According to CNDDB records, water star-grass was reported ±3.3 miles northwest of the project site in 1976. No potentially suitable habitat for water star-grass is present on the project site. The species was not observed during the botanical survey and is not expected to be present.

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
BIRDS							
Burrowing owl	*Athene cunicularia*	SSSC	The burrowing owl is a ground-dwelling bird species that is well adapted to open, relatively flat expanses. In California, preferred habitat generally consists of short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils. Grassland, shrub steppe, and desert are naturally occurring habitat types used by the species. Burrowing owls may also inhabit some agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable and there are useable burrows and foraging habitat in proximity. Burrowing owls nest in mammal burrows (e.g., ground squirrels, coyotes, badgers, and foxes) or they may excavate their own burrow.	No	No	No	No suitable nesting habitat for the burrowing owl is present on the project site and the species was not observed during the wildlife survey. Thus, burrowing owls would not nest on the project site.
Northern spotted owl	*Strix occidentalis caurina*	FT, ST	Northern spotted owls inhabit dense, old-growth coniferous forest stands with large trees and a complex array of vegetation types, sizes, and ages. Nesting occurs in dense forests, well protected from open sky. The species may use a broken-off treetop or tree-trunk hollow, a mistletoe tangle, or an old nest left behind by a squirrel or a bird of prey. The species is reported from sea level to approximately 7,600 feet in elevation.	No	No	No	No old-growth forest or potentially suitable nesting trees/snags are present in the project site or vicinity; thus, the species would not nest on-site.

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Swainson's hawk	*Buteo swainsoni*	ST	Swainson's hawks nest in riparian areas or in oak savannah on the valley floor or in the foothills of the Central Valley, as far north as southern Tehama County. The species also nests in northeastern California in similar communities as well as juniper-sage flats.	No	No	No	According to CNDDB records, Swainson's hawk was reported ±0.3 miles southeast of the project area in 2009. No suitable nesting habitat for the Swainson's hawk is present on the project site and the species was not observed during the wildlife survey. Thus, Swainson's hawks would not nest on the project site.
Tricolored blackbird	*Agelaius tricolor*	ST, SSSC	Tricolored blackbirds are colonial nesters and generally nest near open water. Nesting areas must be large enough to support a minimum colony of about 50 pairs. Tricolored blackbirds generally construct nests in dense cattails or tules, although they can also nest in thickets of willow, blackberry, wild rose and tall herbs.	No	No	No	According to CNDDB records, tricolored blackbird was reported ±0.4 miles west of the project area in 1936. No suitable nesting habitat for the tricolored blackbird is present on the project site and the species was not observed during the wildlife survey. Thus, tricolored blackbirds would not nest on the project site.
AMPHIBIANS							
California red-legged frog	*Rana draytonii*	FT, SSSC	Suitable aquatic habitat for the California red-legged frog (CRLF) consists of permanent water bodies of virtually still or slow-moving fresh water, including ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds. Dense, shrubby riparian vegetation and bank overhangs are important features of CRLF breeding habitat. The CRLF tends to occur in greater numbers in deeper, cooler pools with dense emergent and shoreline vegetation.	No	No	No	No suitable habitat for the California red-legged frog is present in the project area. The closest extant population of CRLF is in northeastern Butte County, approximately 60 miles northeast of the project site. Thus, the CRLF would not be present in the project site.

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
California tiger salamander	*Ambystoma californiense*	FT, ST, WL	The California tiger salamander is most commonly found in annual grassland habitat, but also occurs in the grassy understory of valley-foothill hardwood habitats, and occasionally along streams in valley-foothill riparian habitats. Adults spend most of the year in subterranean refugia, emerging with the onset of fall rains to migrate to breeding sites. Tiger salamanders breed and lay eggs primarily in vernal pools and other temporary rainwater ponds from December through early February. Larvae transform into juvenile salamanders during late spring or early summer. Juvenile salamanders generally remain at the breeding site for several days before seeking shelter in small-mammal burrows nearby.	No	No	No	No suitable breeding habitat for the California tiger salamander is present in the project area. The California tiger salamander would thus not be present in the project site.
INSECTS							
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	The valley elderberry longhorn beetle (VELB) is found only in association with elderberry shrubs (*Sambucus* spp.). Most populations are found below 500 feet in elevation. The species is known to occur in the Central Valley and adjoining foothills.	No	No	No	One elderberry was observed southwest of the water tank, outside (south of) the chain-link fence surrounding the project site. The elderberry is over 50 meters from the planned work area. No VELB exit holes were observed in the stems. Given the distance separation, even if present, VELB would not be adversely affected by project implementation.

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Monarch – California overwintering population	*Danaus plexippus* pop. 1	FC	The western population of monarch butterflies overwinters on the California Coast, Baja California, and to some extent the central Mexico mountains. The butterflies begin migration in February and March and reach the northern limits of their range in California, Oregon, Washington, Idaho, and Nevada, in early to mid-June. Eggs are laid singly on milkweed plants within their breeding range. Once hatched, larva reach the adult stage in 20 to 35 days; adults generally live 2 to 5 weeks. Several generations are produced within one season, with the last generation beginning migration back to their overwintering sites in August and September.	Pot.	No	Pot.	Although monarchs could feed on nectar produced by flowers in adjacent residential yards, no milkweeds were observed in the study area. Project implementation would not result in the loss of foraging or breeding habitat.

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
REPTILES							
Giant garter snake	*Thamnophis gigas*	FT, ST	Giant garter snake habitat requirements consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's inactive season. The snake inhabits small mammal burrows and other soil crevices above prevailing flood elevations throughout its winter inactive period. Giant garter snakes typically select burrows with sunny exposure along south and west facing slopes. The breeding season extends through March and April, and females give birth to live young from late July through early September.	No	No	No	CNDDB records show that the giant garter snake was reported ±1.0 mile northeast of the project area in 1981 and ±1.0 mile northwest of the project area in 1973. No suitable habitat for the giant water snake is present on the project site. Thus, giant garter snake would not be present on the project site.
CRUSTACEANS							
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	Conservancy fairy shrimp inhabit large, cool-water vernal pools with moderately turbid water.	No	No	No	No vernal pools or other potentially suitable habitats for Conservancy fairy shrimp are present in the project site. Conservancy fairy shrimp would thus not be present.

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Vernal pool fairy shrimp inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump or basalt-flow depression pools.	No	No	No	No vernal pools or other potentially suitable habitats for vernal pool fairy shrimp are present in the project site. Vernal pool fairy shrimp would thus not be present.
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Vernal pool tadpole shrimp occur in vernal pools in California's Central Valley and in the surrounding foothills.	No	No	No	No vernal pools or other potentially suitable habitats for vernal pool tadpole shrimp are present in the project site. Vernal pool tadpole shrimp would thus not be present.
FISH							
Central Valley spring-run chinook salmon	*Oncorhynchus tshawytscha pop. 6*	FT, ST	Central Valley spring-run Chinook salmon enter the Sacramento-San Joaquin Delta in early January, and enter natal streams between mid-March and mid-October. Upon entering fresh water, spring-run are sexually immature and must hold in cold water habitats through summer to mature. Typically, spring-run utilize mid- to high-elevation streams that provide sufficient flow, water temperature, cover, and pool depth to allow over-summering. Spawning occurs between August and mid-October.	No	No	No	No suitable habitat occurs in the project site for Central Valley spring-run chinook salmon. The species would thus not be present.
Delta smelt	*Hypomesus transpacificus*	FT, SE	Delta smelt primarily inhabit the brackish waters of Sacramento-San Joaquin River Delta. Most spawning occurs in backwater sloughs and channel edgewaters.	No	No	No	No suitable habitat occurs in the project site for Delta smelt. Delta smelt would thus not be present.

TABLE 3

Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

March 24, 2022

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Sacramento River winter-run chinook salmon	*Oncorhynchus tshawytscha pop. 7*	FE, SE	Sacramento River winter-run Chinook salmon spawn almost exclusively in the Sacramento River, and not in tributary streams. Spawning generally occurs in swift, relatively shallow riffles or along the edges of fast runs where there is an abundance of loose gravel. Juveniles may rear in tributaries of the Sacramento River.	No	No	No	No suitable habitat occurs in the project site for Sacramento River winter-run chinook salmon. The species would thus not be present.
Steelhead – Central Valley DPS	*Oncorhynchus mykiss pop. 11*	FT	Central Valley steelhead inhabit cold-water tributaries of the Sacramento and San Joaquin rivers. Adults begin their upstream spawning migration between August and March. Spawning occurs between December and April. Spawning habitat is characterized by loose, clean gravel in cold, swiftly flowing, shallow water.	No	No	No	No suitable habitat occurs in the project site for steelhead-Central Valley DPS. The species would thus not be present.
MAMMALS							
American badger	*Taxidea taxus*	SSSC	Badgers generally inhabit dry, open areas in shrub, forest, and herbaceous habitats, with friable soils. Badgers dig burrows in dry, sandy soil, usually in areas with sparse overstory.	No	No	No	According to CNDDB records, a (dead) badger was reported on shoulder of Interstate 5 ±0.5 miles southeast of the project area in 2016. No suitable habitat for the badger is present on the project site. Thus, the badger would not be present on the project site.

[1] Status Codes

Federal:

FE	Federally Listed – Endangered
FT	Federally Listed – Threatened
FC	Federal Candidate Species
FP	Federal Proposed Species
FD	Federal Delisted

State:

SFP	State Fully Protected
SR	State Rare
SE	State Listed - Endangered
ST	State Listed - Threatened
SC	State Candidate Species
SSSC	State Species of Special Concern
WL	Watch List

Rare Plant Rank

1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened or Endangered in California and Elsewhere
2A	Presumed extirpated in California, but more common elsewhere
2B	Rare or Endangered in California, but more common elsewhere

Rare Plant Threat Rank

0.1	Seriously Threatened in California
0.2	Fairly Threatened in California
0.3	Not Very Threatened in California

TABLE 4. NATIONAL MARINE FISHERIES SERVICE LIST OF THREATENED AND ENDANGERED SPECIES

Quad Name **Williams**

Quad Number **39122-B2**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - **X**

SRWR Chinook Salmon ESU (E) - **X**

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat -

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH - **X**

Groundfish EFH -

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: March 24, 2022
Project Code: 2022-0023762
Project Name: City of Williams Well 11 Improvement Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

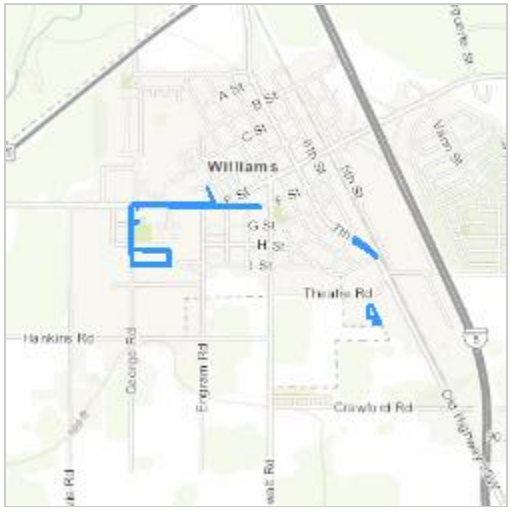
This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Project Code: 2022-0023762
Event Code: None
Project Name: City of Williams Well 11 Improvement Project
Project Type: Water Supply Facility - New Constr
Project Description: Well construction and waterline replacement within the City of Williams.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.14642265,-122.14425039469072,14z



Counties: Colusa County, California

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: ENPLAN
Name: Kiara Hadsall
Address: 3179 Bechelli Lane
City: Redding
State: CA
Zip: 96002
Email khadsall@enplan.com
Phone: 5302210440

Appendix C

Lawrence & Associates Williams Well 11 Groundwater Evaluation

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

020012.00

October 22, 2020

Ms. Laurie McCollum
PACE Engineering
1730 South Street
Redding, CA 96001

Dear Laurie:

SUBJECT: EVALUATION OF GROUNDWATER QUALITY IN CITY OF WILLIAMS PRODUCTION WELLS & WELL #11 TEST WELL AND POTENTIAL INTERFERENCE IMPACTS FROM FUTURE WELL #11, WILLIAMS, CALIFORNIA

INTRODUCTION

This letter presents the results of an evaluation of the groundwater quality in the City of Williams (City) production wells and the Well #11 Test Well (Test Well) and of potential interference impacts from future Well #11, Williams, California (**Figure 1**). Our work was conducted for PACE Engineering (PACE), on behalf of the City of Williams (City).

Our analysis presented herein is based on the following documents provided by PACE, the City, and publicly available information:

- Wood Rogers, August 21, 2012, *City of Williams – Well Field Assessment and Recommendations.*
- Driller's logs and geophysical logs for the existing production wells and the Test Well, and driller's logs only for Wells #3 and #6.
- Water-quality data for the production wells, 1987 to 2020 (where available).
- Water-quality data for the Test Well, sampled in March, April, and August 2020.
- Pumping-level records for Wells #8, #9, and #10.
- California Department of Water Resources (DWR) driller's logs.
- Colusa County Groundwater Management Plan.

SUMMARY

Comparing the pattern of the occurrence and thickness of the two main water-producing sand units (below approximately 300 feet) to the water quality, there is a general correlation between the better water quality in Wells #8 and #10 and the area of greater thickness in the sand units. The poorer water quality in the Test Well correlates with the area showing the least thickness of the lower sand unit and thinner parts of the upper and combined units.

Based on the combination of water-quality results and stratigraphic information, it may be that a new well located between Wells #8 and #10 would provide better water quality than the area of the Test Well. Wells #8 and #10 also show better specific capacity. The water-quality shown in the Test Well samples likely is representative of the formation water.

Analysis of interference (drawdown) on neighboring wells was calculated using aquifer parameters estimated from City Wells 8, 9, and 10 pumping data, an average dry-season pumping rate of 600 gpm (1,200 gpm for 12 hours/day) for a new Well #11, and assuming 180 days of continuous pumping during the dry season. These calculations show that between approximately ¼ and 1 mile the interference would be between 5.7 and 9.5 feet; between 1 and 2 miles the interference would be between 3.8 and 5.7 feet; between 2 and 3 miles the interference would be between 2.7 and 3.8 feet. Beyond 3 miles, interference would be less than 2 feet, and would become non-detectable at less than 7 miles (**Figure 9**).

The closest well to the Well #11 location is a domestic well, reportedly completed within the uppermost sand and gravel unit, and approximately 300 feet to the northwest. This well reportedly has problems with poor water quality during drought periods. The parcel does have a City water connection, but reports still using the well periodically. If the new Well #11 is completed in both the uppermost (approximately 170 – 190 feet bgs) and deeper aquifer zones, there is a potential for significant interference on this well if it has a water column less than 100 feet in length, although it is not known exactly what the depth of the domestic well is.

There is unlikely to be significant interference on any of the other wells of record. Wells less than 120 feet deep would not experience interference from the new Well #11 because the new well would be screened no higher than approximately 170 feet bgs, and the uppermost permeable zones (if present) could be sealed off.

Of the wells more than 120 feet deep, all have water columns more than 100 feet in length. **Figure 10** shows the relationship between well depth and length of water column. Interference of between zero and 9.5 feet (the maximum at ¼ mile) would represent less than 10% of any of the wells' water columns. Interference of less than 10% of a more than 100-foot water column would not preclude a well's ability to pump. Therefore, potential interference will not be a significant impact.

DISCUSSION

REGIONAL HYDROGEOLOGIC SETTING

The project site is in the western part of the Colusa subbasin, a subbasin of the Sacramento Valley groundwater basin (**Figure 2**). In the Project vicinity, the Sacramento Valley groundwater basin is filled with Tertiary-age sediments that are thickest in the central part of the valley and thin to the east and west.

Geologic units occurring at the surface in the site vicinity are, from youngest to oldest, Recent stream deposits; the Pleistocene-age Modesto and Riverbank Formations, and the Pliocene-age Tehama and Tuscan Formations (**Figure 3**). Not exposed at the surface are the Oligocene to late-Miocene-age Upper Princeton Gorge Formation and the late-Jurassic to Cretaceous-age Great Valley Sequence.[1,2]

Recent stream deposits are found in the channels of Walker Creek and its tributaries. These consist of unconsolidated gravel, sand, silt, and clay.

The Modesto Formation consists of unconsolidated, slightly weathered gravel, sand, silt, and clay. The Riverbank Formation consists of unconsolidated to semi-consolidated gravel, sand, silt, and minor clay. These units were deposited by streams on the eroded surface of the older, underlying units. The Modesto and Riverbank formations can contain groundwater, although these units do not support the main aquifer beneath the well site.

The Tehama Formation consists of interbedded clay, silt, sand, and gravel, or mixtures thereof, interpreted to be alluvial in origin. The Tehama Formation is one of the principal water-bearing formations in the Sacramento Valley groundwater basin. The Tehama Formation generally is moderately to highly permeable, with moderate to high (100 to over 1,000 gpm) groundwater yields.

Gravels in the Tehama Formation sediments are composed mainly of greenstone, with lesser quantities of metamorphic rock fragments, chert, and occasional granitic rock fragments. These rock types are typically found in the Coast Ranges to the west of the site, indicating that Tehama Formation sediments beneath the site are derived from the Coast Ranges. Most of the gravel clasts are rounded to subrounded, resembling present-day gravels in creeks flowing from the Coast Ranges.

Interfingering with the Tehama Formation to the east of the site is the Tuscan Formation. Sediment in the Tuscan Formation was derived from the volcanic terrains to the east of the Sacramento Valley, rather than the Coast Ranges. The Tuscan Formation consists of volcanic mudflows, ash beds, tuff breccias, and tuffaceous sandstones and conglomerates. The Tuscan Formation is not interpreted to occur beneath the Project site.

Underlying the Tertiary-age units in the western part of the basin is the Great Valley Sequence or Chico Formation. These units consist of well-consolidated to cemented, interbedded sandstone and shale. Generally, these units contain very poor quality water and have low groundwater yields. Neither the Great Valley Sequence nor Princeton Gorge Formation were penetrated by the test well.

Faulting cuts through deeper geologic units in the site vicinity. Just east of I-5, the Willows-Corning fault cuts through the lower portion of the Tehama Formation and underlying units. The Willows-

[1] Helley, D. S., and Harwood, E. J., 1985, *Cenozoic Deposits of the Sacramento Valley and Northern California*, U.S.G.S.

[2] Department of Water Resources, Bulletin 118-7, *Geology and Hydrogeology of the Freshwater Bearing Aquifer Systems of the Northern Sacramento River Valley*, (Geologic Map and Cross Sections).

Corning fault is a steeply dipping, high-angle reverse fault running generally northwest. It extends from the Red Bluff area, southward past the Sutter Buttes, east of the well site.

PROJECT SITE STRATIGRAPHY

Locally, the main production zones for the City's wells are two discrete sand and gravel beds at depths between approximately 310 and 420 feet bgs, although Well #8 also produces from a sand and gravel zone between 160 and 180 feet bgs. The depth and thickness of these beds were interpreted from the geophysical logs provided by PACE. Material occurring between the producing aquifer zones consists predominantly of fine-grained sediment (silt and clay).

Figure 4 shows maps of the thicknesses of the upper sand, lower sand, and the two units combined:

- The upper sand unit is thickest in the area of Well #8, thinning to the northwest and southeast.
- The lower sand unit is thickest in the area of Well #10, thinning to the northwest, west, and southwest.
- The combined upper and lower sand units are thickest in the area from Well #8 to Well #10, thinning to the north, northwest, and southeast.

WATER QUALITY

Figures 5 and **6** show time-series graphs of groundwater quality data from the existing City production wells.

Overall, Well #10 shows better water quality, with the lowest specific conductance (SC) and hardness, and lower total dissolved solids (TDS), manganese, and sulfate. Well #9 shows the lowest chloride and TDS. Well #10 shows generally stable water-quality, except for chloride which appears to be increasing (there are only three data points for chloride, however, and the trend may or may not be reflective of long-term conditions).

Well #8 has the longest period of record for results (since 1987), although only a few data points. Since 1987, TDS, chloride, pH, and sulfate have generally decreased; hardness, EC, and Mn have remained relatively stable.

Well #9 has only three or four data points for all parameters except manganese. The limited data for SC, TDS, chloride, and sulfate suggest that water quality in Well #9 is becoming worse. Manganese in Well #9 shows statistically significant seasonality, but no increasing trend.

Water quality in the Test Well is slightly worse than the other wells (**Attachment B** contains a summary table of the results). The 2020 samples (two each from the two different production zones) shows the highest hardness (358 mg/L vs. ~250 to 275 mg/L in Wells #8 and #9) and SC (1,400 µmhos/com). Reportedly, the Test Well also was sampled in 2012, but those data were not provided to L&A (it is unknown if they are available). The current samples likely are representative of

formation water quality based on the reported sampling (a minimum of eight hours of purging at 8 gallons per minute before each of the samples).

All wells show routine exceedences of the water-quality objective (50 µg/L) for manganese.

Comparing the pattern of the occurrence and thickness of the sand units to the water quality, there is a general correlation between the better water quality in Wells #8 and #10 and the area of greater thickness in the sand units (**Figure 4**). The poorer water quality in the Test Well correlates with the area showing the least thickness of the lower sand unit and thinner parts of the upper and combined units.

Based on the combination of water-quality results and stratigraphic information, it may be that a new well located between Wells #8 and #10 would provide better water quality than the area of the Test Well. Wells #8 and #10 also show better specific capacity (60 and 20 gpm/foot of drawdown, respectively) than the other wells (less than 10 gpm/foot of drawdown). Specific capacity and aquifer parameters are discussed further in the following section.

INTERFERENCE

Interference is the drawdown on neighboring wells caused by a pumping well. Interference or drawdown is dependent both on pumping rate and length of time the pumping occurs, along with the aquifer characteristics of transmissivity and storativity. To estimate potential interference from the future Well #11, we calculated the average transmissivity and storativity from pumping data for Wells #8, #9, and #10. Pumping data (pumping rate, static and pumping water levels, and specific capacity) for the period 2012 through 2019 or 2020 was provided by City staff (**Attachment A** shows the data).

Dividing the pumping rate by the drawdown gives the specific capacity value, a standard way to compare the ease with which different wells can deliver water. Specific capacity can be used to estimate transmissivity, a value that represents an aquifer's ability to transmit water. The higher the transmissivity, the better the aquifer can transmit water (*e.g.*, a well in an aquifer with high transmissivity will have higher yields than wells in an aquifer with low transmissivity). Specific capacity can be converted to transmissivity by multiplying by 2,000 (for a confined aquifer, the type likely underlying the site; Driscoll, 1987). Using this equation we calculated transmissivity ranging from approximately 12,800 to 94,000 gallons per day per foot (gpd/foot) of aquifer thickness for the three active City wells.

To estimate storativity, we used the Theis equation with the calculated transmissivities and backed into storativity by adjusting the storativity value until the drawdown calculated by the Theis equation roughly equaled the approximate observed drawdown in each well. **Figure 7** shows those calculations. The estimated storativities ranged from 1.0×10^{-5} to 5.0×10^{-3}.

For predicting interference from future Well #11, we used the Theis equation to predict drawdown at different distances, **Figure 8** shows the calculations. We used an average transmissivity of 48,933 gpd/foot and storativity of 1.7×10^{-3}. An average pumping rate of 600 gpm was assumed, based on a summertime scenario of pumping at 1,200 gpm for a 12-hour on/12-hour off pumping schedule if the future well has satisfactory water quality (pers. comm., L. McCollum to B. Lampley, October 2020). An overall time period of 180 days was assumed, for the dry season. **Figure 9** shows a map of the area surrounding the location of future Well #11 to a distance of three miles and a count of the wells of record in that area, and summarizes the interference calculations.

Table 1. Summary of Interference Calculations

Distance From Well #11	Predicted Drawdown
miles	feet
0 - 0.25	>9.5
0.25 - 1	5.7 - 9.5
1 - 2	3.8 - 5.7
2 - 3	2.7 - 3.8
3 - 4	2.0 - 2.7
4 -5	1.4 - 2.0
5 - 6	1.1 - 1.4
6 - 7	0 - 1.1

Based on the DWR well-completion report database, within one-quarter and one mile from the Well #11 location, there are approximately 42 domestic and 14 production wells of record. It is unknown how many of these wells are actively used. Between one and two miles, there are 16 domestic and 20 production wells. Between two and three miles, there are 20 domestic and 34 production wells.

The closest well to the Well #11 location is reported to be a domestic well, reportedly completed within the uppermost sand and gravel unit, and approximately 300 feet to the northwest. This well reportedly has problems with poor water quality during drought periods. The parcel does have a City water connection, but reports still using the well periodically. If the new Well #11 is completed in both the uppermost (approximately 170 – 190 feet bgs) and deeper aquifer zones, there is a potential for significant interference on this well, although it is not known exactly what the depth of the domestic well is.

There is unlikely to be significant interference on any of the other wells of record. Wells less than 120 feet deep would not experience interference from the new Well #11 because the new well would be screened no higher than approximately 170 feet bgs, and the uppermost permeable zones (if present) could be sealed off.

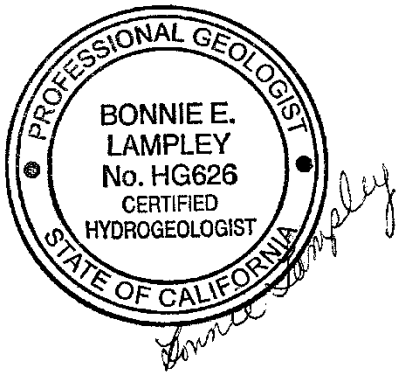
Of the wells more than 120 feet deep, all have water columns more than 100 feet in length. **Figure 10** shows the relationship between well depth and length of water column. Interference of between zero and 9.5 feet (the maximum at ¼ mile) would represent less than 10% of any of the wells' water columns. Interference of less than 10% of a more than 100-foot water column would not preclude a well's ability to pump. Therefore, potential interference will not be a significant impact.

Please feel free to contact me at blampley@lwrnc.com or 530-275-4800 if you have questions regarding this report.

Sincerely,

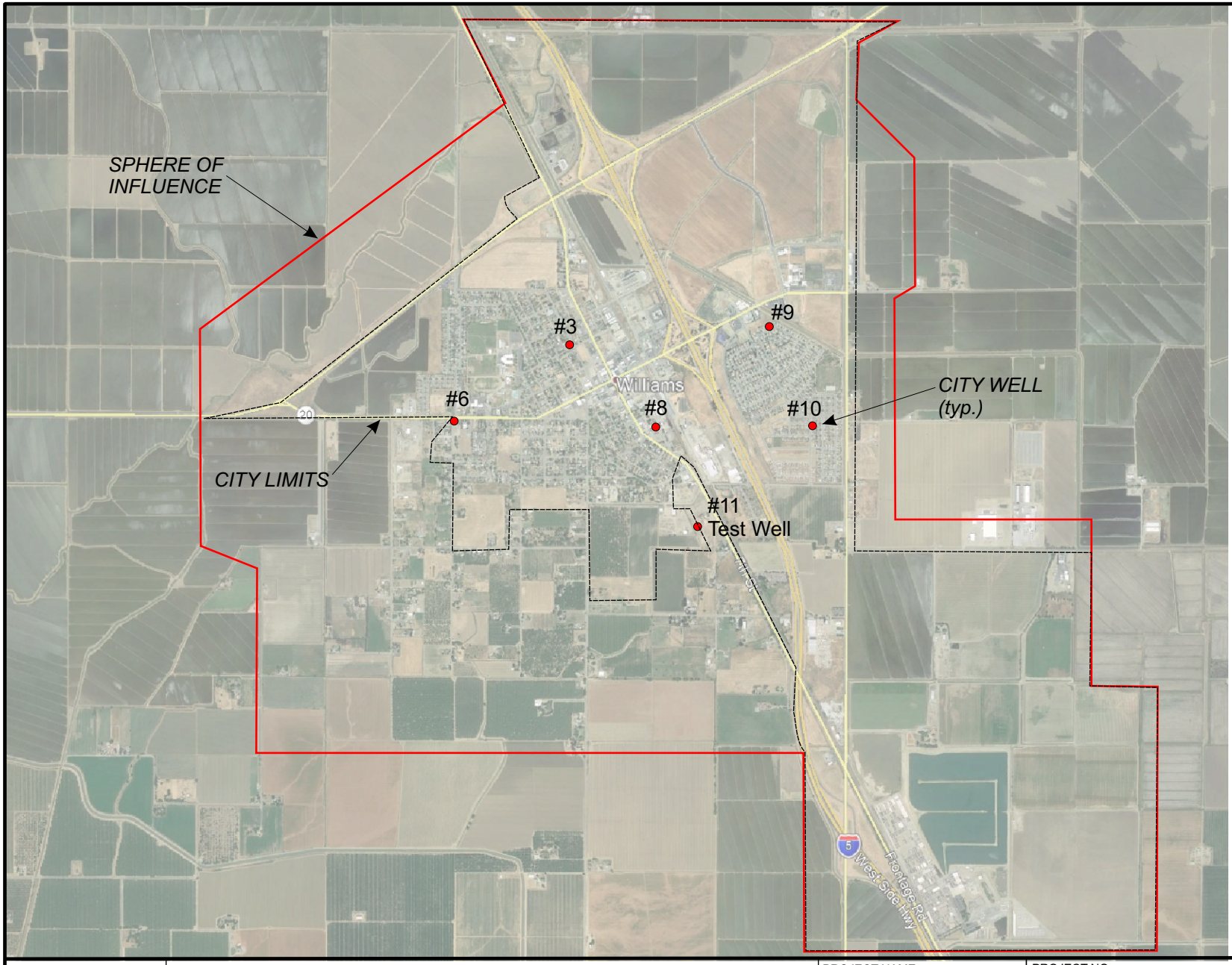
Bonnie E. Lampley

Bonnie Lampley
Principal Hydrogeologist, CHG 626



enc.: **Figure 1.** Location Map of City Wells
Figure 2. Project Location Relative to Sacramento Valley Groundwater Basin
Figure 3. Geologic Map Project Vicinity
Figure 4. Main Sand and Gravel Unit Thicknesses, Existing Wells
Figure 5. Time-Series Graphs, SC, TDS, Chloride, pH
Figure 6. Time-Series Graphs, Manganese, Hardness, Sulfate
Figure 7. Existing Well Operations – Aquifer Parameter Calculation
Figure 8. Estimated Drawdown From Pumping New Well #11
Figure 9. Area Wells of Record
Figure 10. Water Column Length vs Well Depth

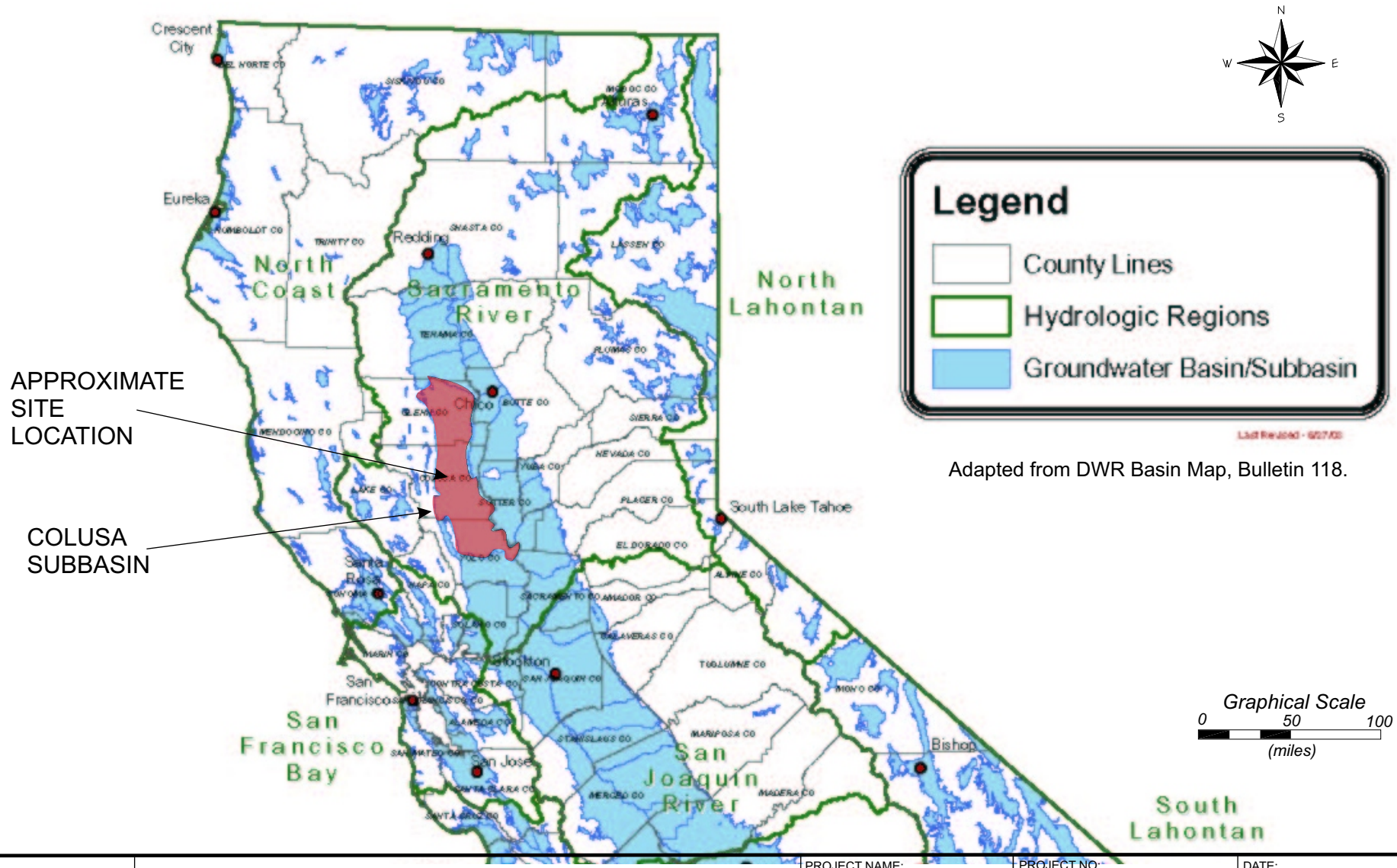
Attachment A. Wells #8, #9, & #10 Specific Capacity Data
Attachment B. 2020 Sampling Results, Test Well #11



LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

LOCATION MAP
CITY OF WILLIAMS WELLS

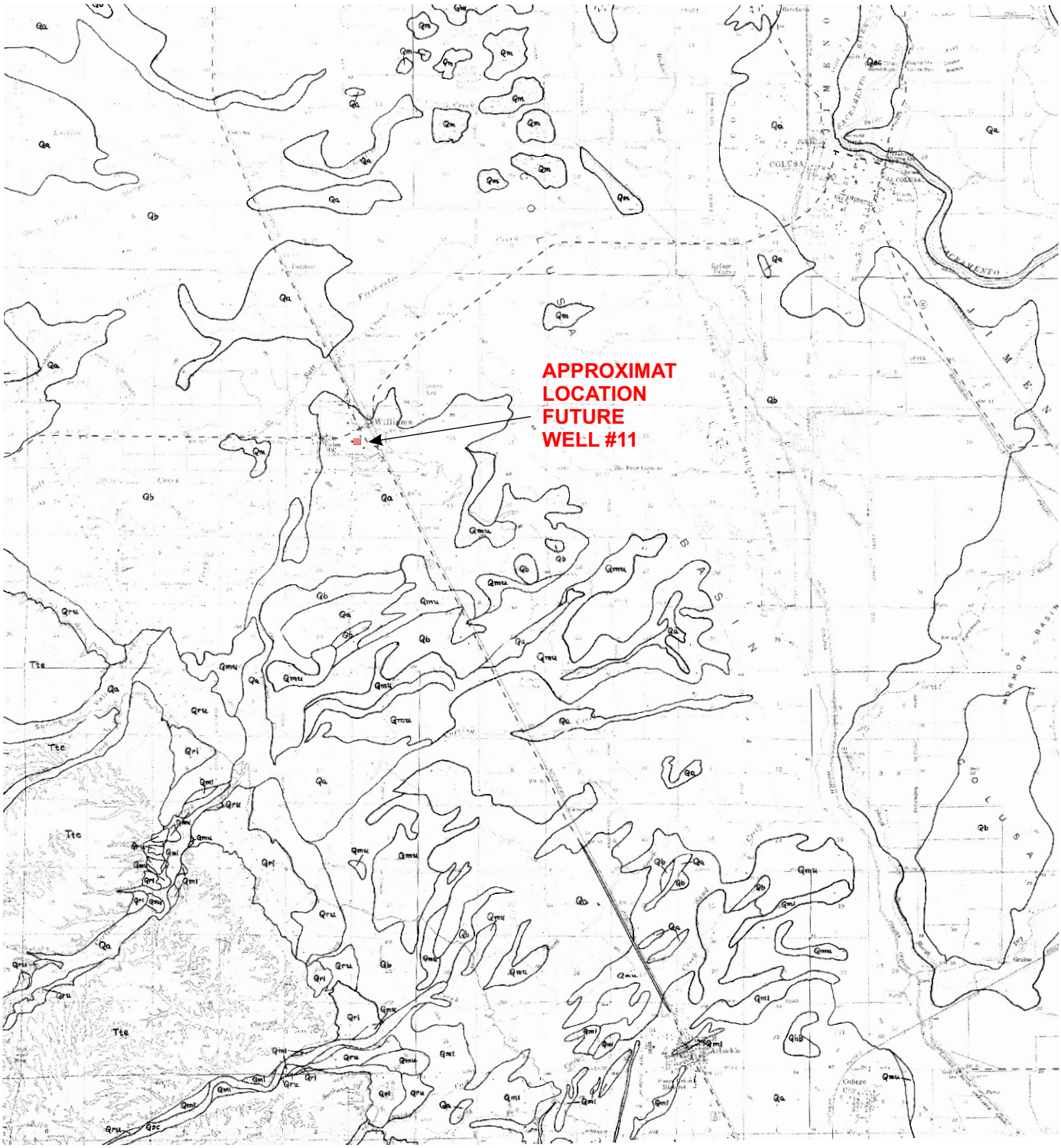
PROJECT NAME: WELL 11 EVALUATION	PROJECT NO: 020012.00	DATE: JULY 7, 2020
CLIENT: PACE ENGINEERING	DRAWN BY: B. LAMPLEY	FIGURE 1
SCALE: 1 INCH ~ 3,000 FEET	CHECKED BY: B. GARTNER	



LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

MAP SHOWING PROJECT LOCATION
RELATIVE TO SACRAMENTO VALLEY
GROUNDWATER BASIN
AND COLUSA SUBBASIN

PROJECT NAME: WILLIAMS WELL 11	PROJECT NO.: 020012.00	DATE: OCTOBER 2020
CLIENT: PACE ENGINEERING	DRAWN BY: B. LAMPLEY	FIGURE 2
SCALE: AS SHOWN	CHECKED BY: B. GARTNER	



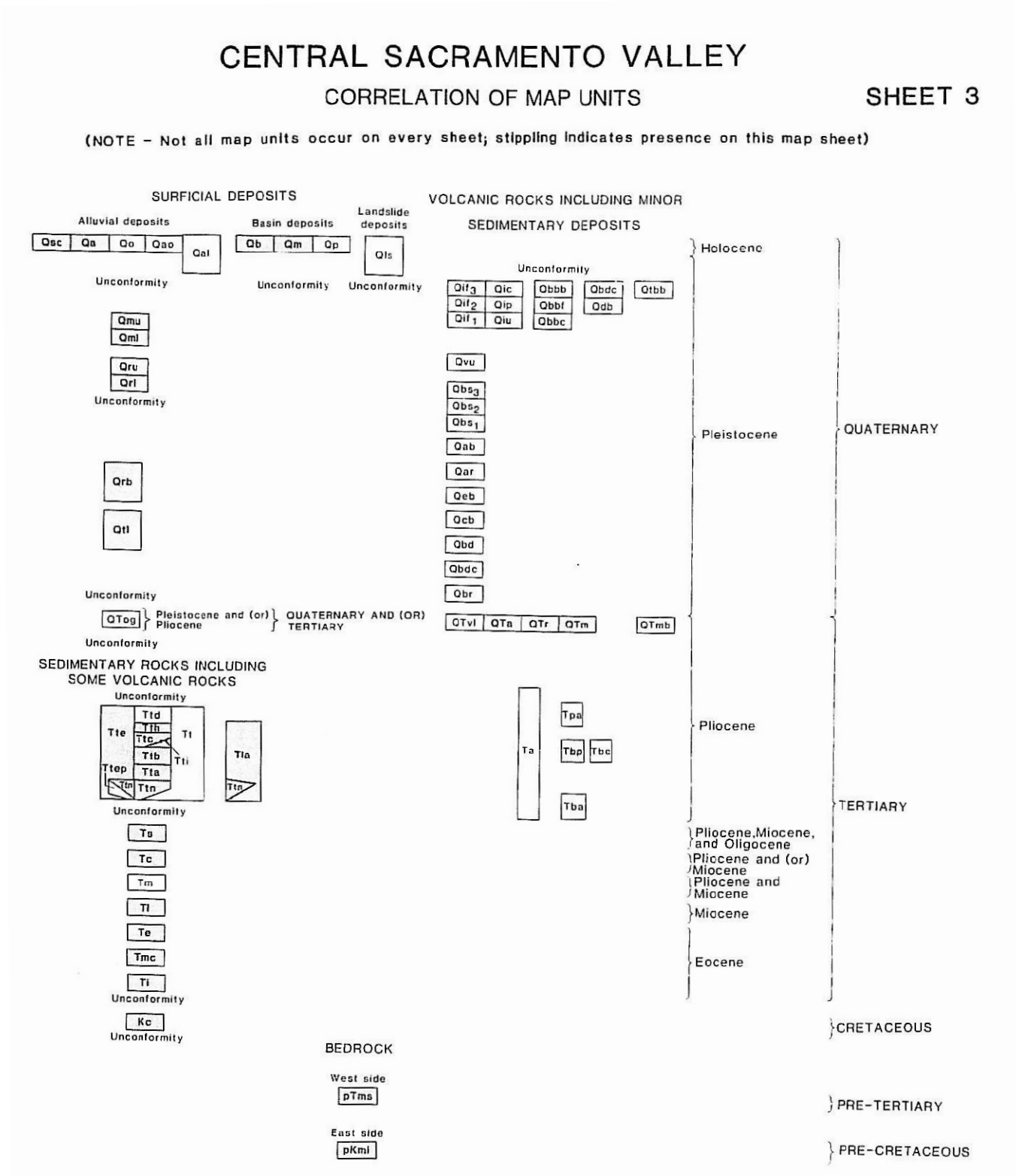
LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

GEOLOGIC MAP
PROJECT VICINITY
(KEY ON REVERSE)

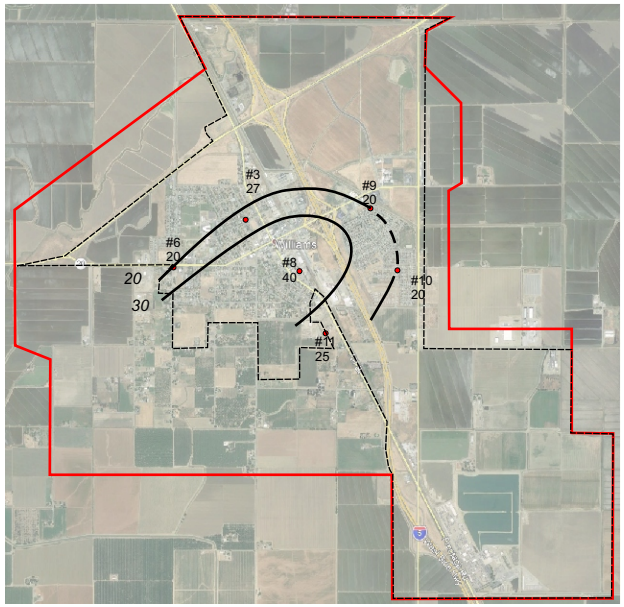
PROJECT NAME: WILLIAMS WELL	PROJECT NO: 020012.00	DATE: 10/09/20
CLIENT: PACE ENG.	DRAWN BY: B. LAMPLEY	FIGURE 3
SCALE: 0.5 IN. ~ 1 MILE	CHECKED BY: B. GARTNER	

KEY TO GEOLOGIC MAP, FIGURE 4:

Adapted from: Helley, E.J. and Harwood, D.S., 1985, U.S.G.S., Miscellaneous Field Studies Map, MF-1790, *Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California*.

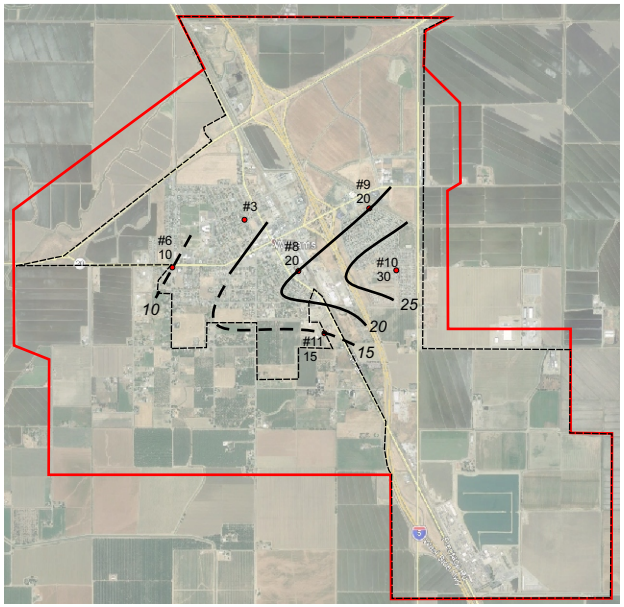


NORTH



UPPER SAND THICKNESS,
IN FEET

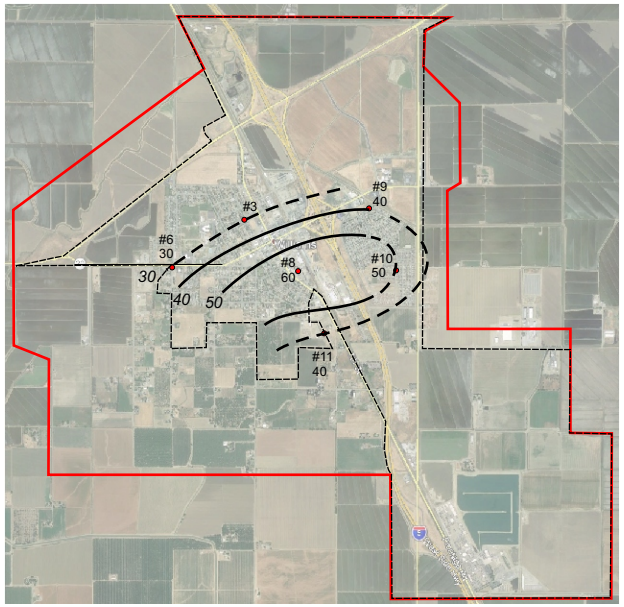
Upper sand unit is thickest in area of Well #8, thinning to the northwest and southeast.



LOWER SAND THICKNESS,
IN FEET

Lower sand unit is thickest in area of Well #10, thinning to the northwest, west, and southwest.

Well #3 not included (total depth above lower sand).



COMBINED UPPER & LOWER SAND
THICKNESS, IN FEET

The combined upper and lower sand units are thickest in the area from Well #8 to Well #10, thinning to the north, northwest, and southeast.

Well #3 not included (total depth above lower sand).

Legend:

20 — *Line of equal thickness, in feet*

#6 / 10 — *Well number & unit thickness, in feet*

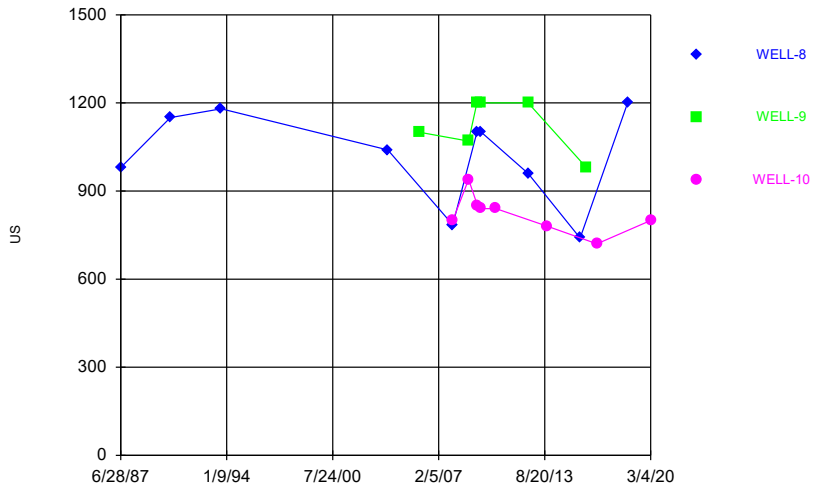
LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

MAIN SAND & GRAVEL UNITS
(PRODUCTION ZONES) THICKNESSES
CITY OF WILLIAMS WELLS

PROJECT NAME: WELL 11 EVALUATION	PROJECT NO: 020012.00	DATE: JULY 7, 2020
CLIENT: PACE ENGINEERING	DRAWN BY: B. LAMPLEY	FIGURE 4
SCALE: 1 INCH ~ 4,000 FEET	CHECKED BY: B. GARTNER	

WQStat Plus™ v.9.4.41

SPECIFIC CONDUCTANCE

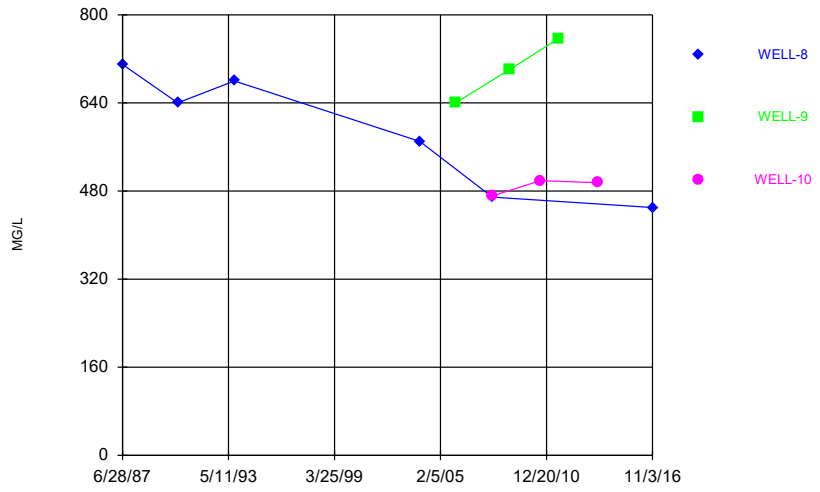


Time Series Analysis Run 5/15/2020 3:45 PM

Facility: City of Williams Data File: Williams_GW

WQStat Plus™ v.9.4.41

TOTAL DISSOLVED SOLIDS

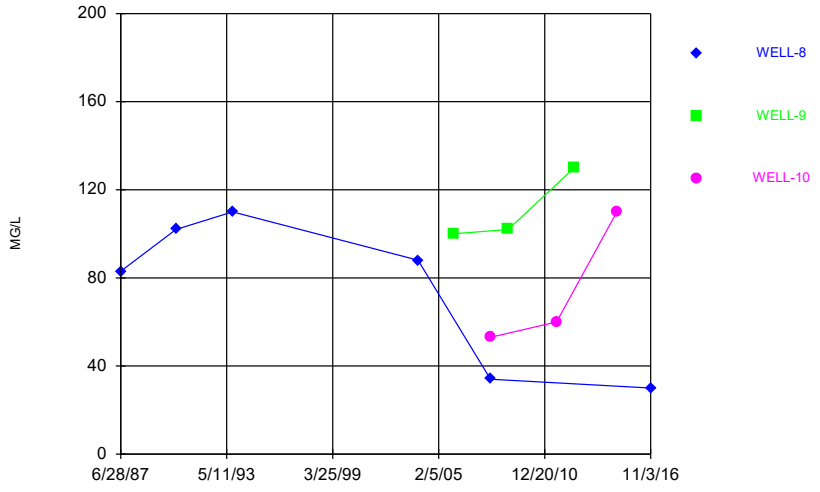


Time Series Analysis Run 5/15/2020 3:45 PM

Facility: City of Williams Data File: Williams_GW

WQStat Plus™ v.9.4.41

CHLORIDE

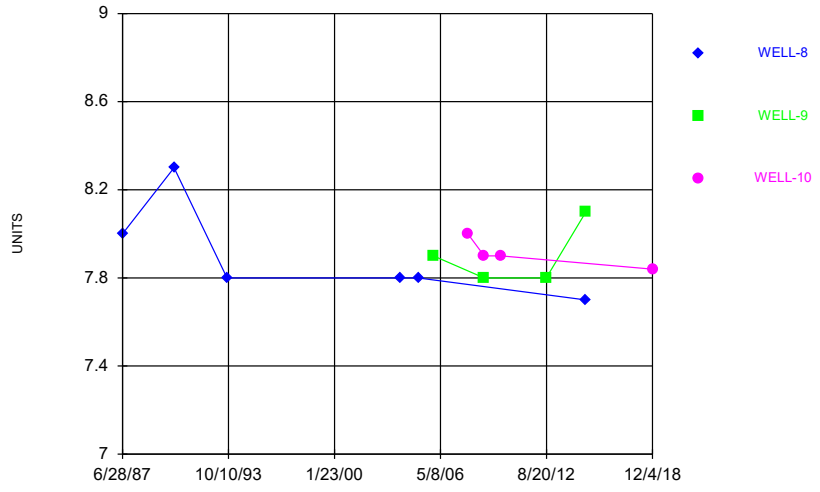


Time Series Analysis Run 5/15/2020 3:46 PM

Facility: City of Williams Data File: Williams_GW

WQStat Plus™ v.9.4.41

PH



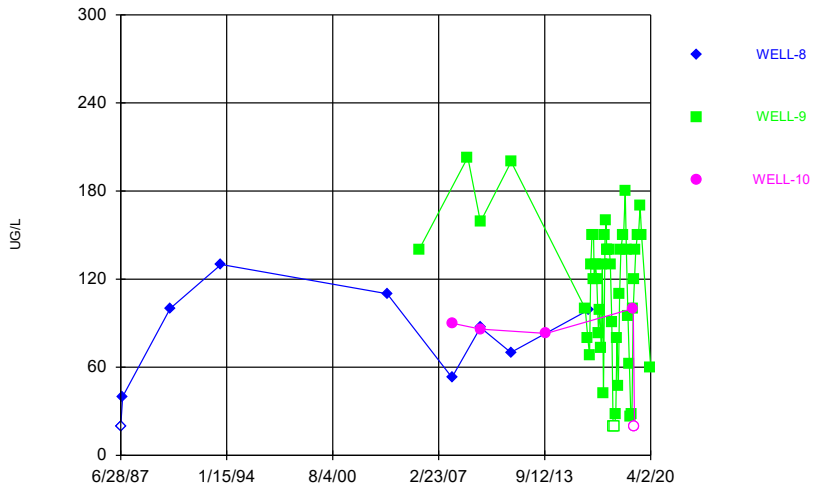
Time Series Analysis Run 5/15/2020 3:46 PM

Facility: City of Williams Data File: Williams_GW

FIGURE 5

WQStat Plus™ v.9.4.41
Hollow symbols indicate censored values.

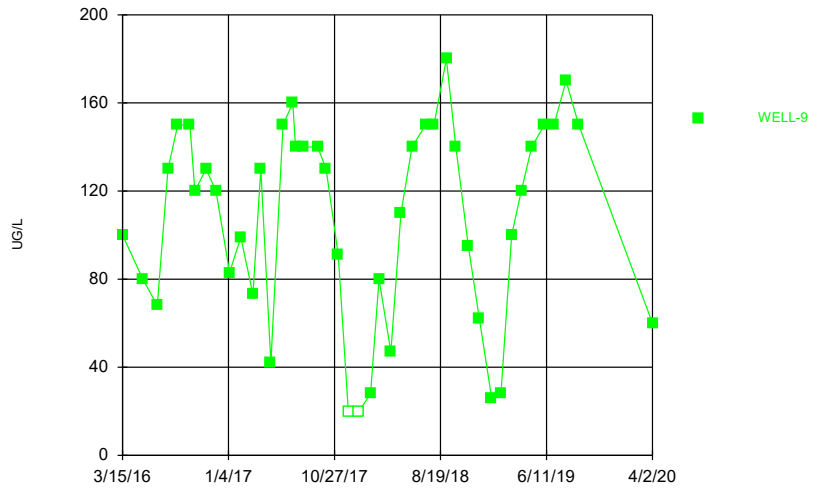
MANGANESE



Time Series Analysis Run 5/15/2020 3:48 PM
Facility: City of Williams Data File: Williams_GW

WQStat Plus™ v.9.4.41
Hollow symbols indicate censored values.

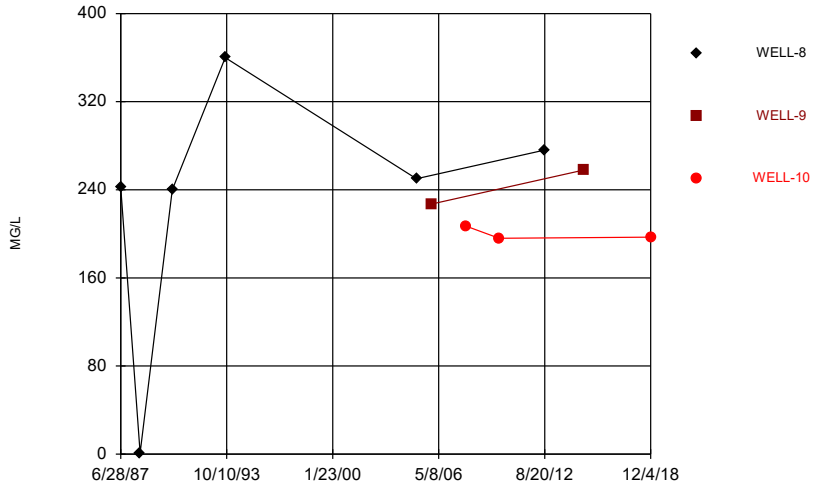
MANGANESE



Time Series Analysis Run 5/15/2020 3:50 PM
Facility: City of Williams Data File: Williams_GW

WQStat Plus™ v.9.4.41

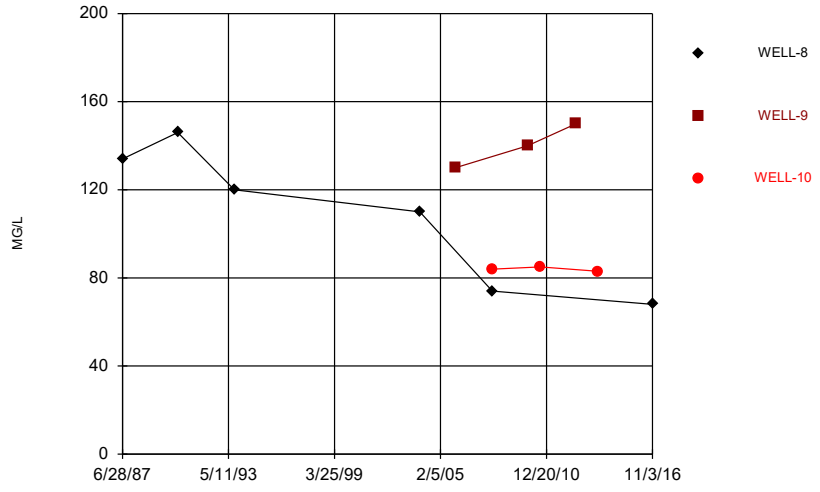
HARDNESS



Time Series Analysis Run 5/15/2020 3:51 PM
Facility: City of Williams Data File: Williams_GW

WQStat Plus™ v.9.4.41

SULFATE



Time Series Analysis Run 5/15/2020 3:52 PM
Facility: City of Williams Data File: Williams_GW

FIGURE 6

CITY OF WILLIAMS

Existing Well Operations

		Well #8	Well #9	Well #10
Specific capacity, gpm/ft dd, **SC**	From Well #10 data	20	6	47
Transmissvity, in gpd/ft., **T**	SC x 2000; Driscoll	40,000	12,800	94,000
Storage coefficient, unitless, **S**		5.0E-03	1.0E-05	1.0E-04
Recent discharge, in gpm, **Q**		700	500	1150
Length of pumping period, days		0.30	0.30	0.30

Parameter	**Units**	**Well #8**	**Well #9**	**Well #10**
Distance from center of well	r, ft	0.7	0.7	0.7
Storage coefficient	S, di'less	0.005	0.000	0.000
Transmissivity	T, gpd/ft	40,000	12,800	94,000
Pumping time	t, minutes	432	432	432
	t, days	0.30	0.30	0.30
Discharge	Q, gpm	700.00	500.00	1150.00
u = [1.87r^2S/Tt]	u	3.82E-07	2.39E-09	3.25E-09
Well function of u	W(u)	14.20	19.28	18.97
Drawdown, theoretical = [s1=114.6QW(u)/T]	s1, ft	28.48	86.29	26.59
Well efficiency	eff., percent	0.80	0.70	0.80
Observed Drawdown	ft	35.00	130.00	35.00
Calculated drawdown from pumping well	s2, ft	**35.60**	**123.27**	**33.24**

Note: ERROR indicates that the calculation is out of range; that is, the calculation indicates that there would be no effect at that distance.

FIGURE 7

CITY OF WILLIAMS

Estimated drawdown From Pumping New Well #11

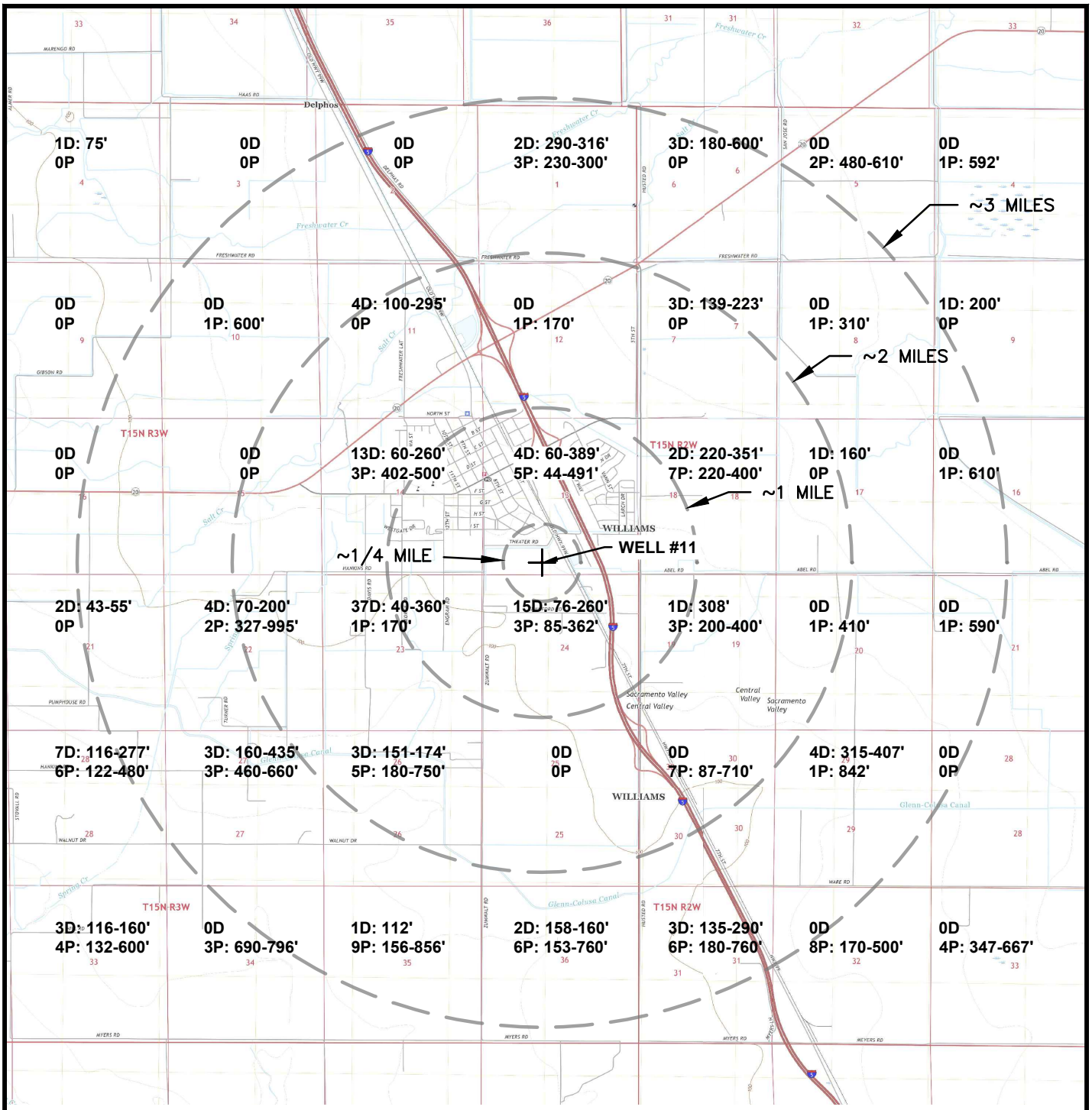
		New Well #11			
Specific capacity, gpm/ft dd, **SC**	Average estimated from data from Wells 8, 9, & 10	20			
Transmissvity, in gpd/ft, **T**		48,933	---	---	---
Storage coefficient, unitless, **S**		1.7E-03	---	---	---
Planned discharge, in gpm, **Q**		600	---	---	---
Length of pumping period, days		180			

Parameter	**Units**	**Pumping New Well #11**	At 0.25 miles	At 1 mile	At 2 miles	At 3 miles	At 4 miles	At 5 miles	At 6 miles	At 7 miles
Distance from center of well	r, ft	0.7	1320	5280	10560	15840	21120	26400	31680	36960
Storage coefficient	S, di'less	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Transmissivity	T, gpd/ft	48,933	48,933	48,933	48,933	48,933	48,933	48,933	48,933	48,933
Pumping time	t, minutes	259200	259200	259200	259200	259200	259200	259200	259200	259200
	t, days	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00
Discharge	Q, gpm	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00
u = [1.87r^2S/Tt]	u	1.77E-10	6.30E-04	1.01E-02	4.03E-02	9.07E-02	1.61E-01	2.52E-01	3.63E-01	4.94E-01
Well function of u	W(u)	21.88	6.79	4.03	2.67	1.91	1.39	1.02	0.81	ERROR
Drawdown, theoretical = [s1=114.6QW(u)/T]	s1, ft	30.7	9.5	5.7	3.8	2.7	2.0	1.4	1.1	0.0
Well efficiency	eff., percent	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Calculated drawdown from pumping well	s2, ft	**30.7**	**9.5**	**5.7**	**3.8**	**2.7**	**2.0**	**1.4**	**1.1**	**0.0**

Notes: Planned discharge = overall average of 1200 gpm for 12 hours/day during the dry season.

ERROR indicates that the calculation is out of range; that is, the calculation indicates that there would be no effect at that distance.

FIGURE 8



INTERFERENCE SUMMARY

0.25 – 1 MILE:	5.7 – 9.5 FEET
1 – 2 MILES:	3.8 – 5.7 FEET
2 – 3 MILES:	2.7 – 3.8 FEET
3 – 4 MILES:	2.0 – 2.7 FEET

N
W E
S

0 5000 10000 Feet

LEGEND

#D	NUMBER OF DOMESTIC WELLS, SHOWING DEPTHS
#P	NUMBER OF PRODUCTION WELLS, SHOWING DEPTHS

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

AREA WELLS OF RECORD PER SECTION

PROJECT NAME: WILLIAMS	PROJECT NO: 020012.00	DATE: 10/12/2020
CLIENT: PACE ENG.	DRAWN BY: J. BEERS	FIGURE 9
SCALE: 1" = 5,000'	CHECKED BY: B. LAMPLEY	

p:\020012.00_pace_williams\area_wells.dwg J.R.B. 10/12/2020

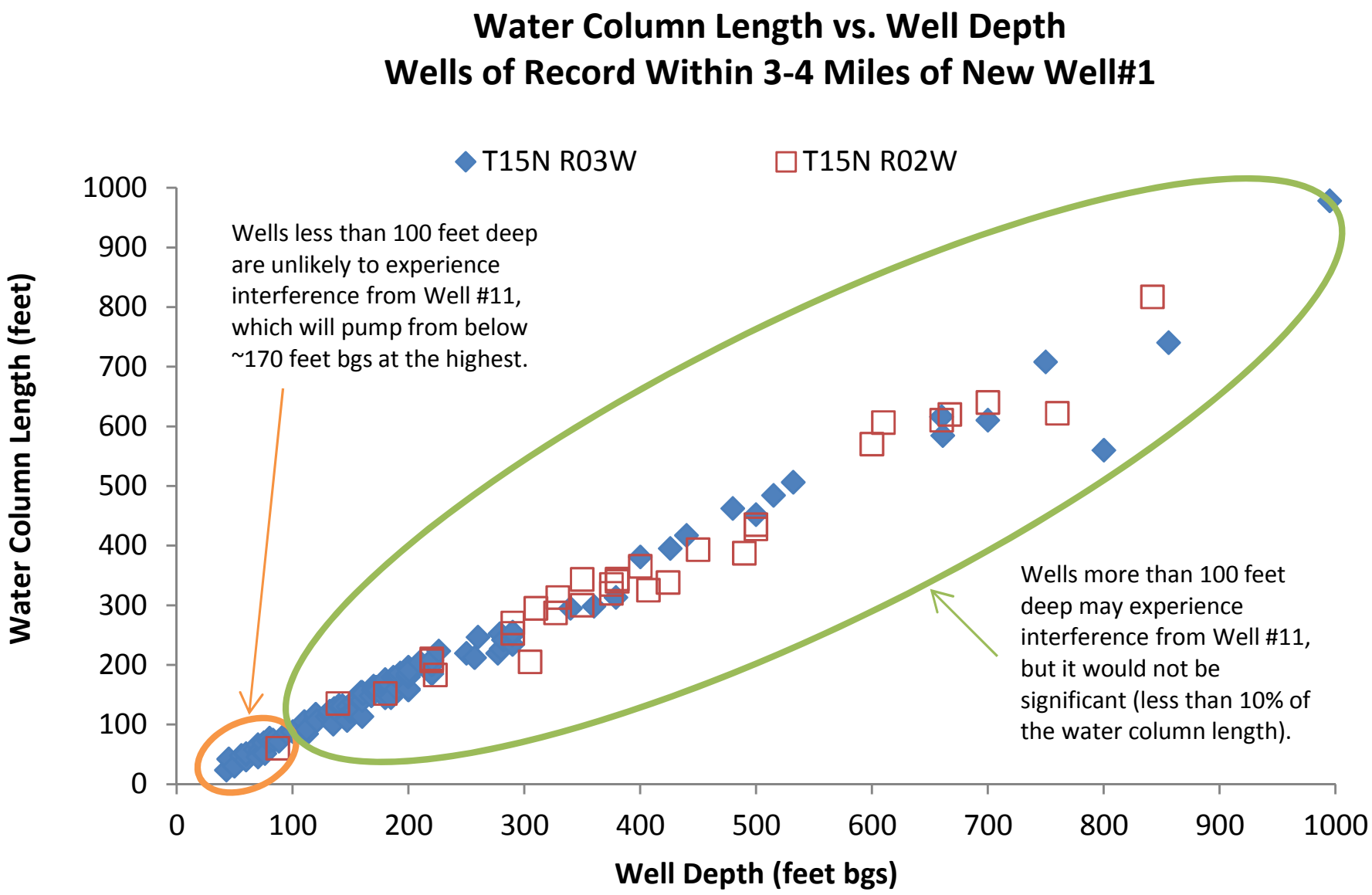

Water Column Length vs. Well Depth
Wells of Record Within 3-4 Miles of New Well#1
T15N R03W
T15N R02W
Wells less than 100 feet deep are unlikely to experience interference from Well #11, which will pump from below ~170 feet bgs at the highest.
Wells more than 100 feet deep may experience interference from Well #11, but it would not be significant (less than 10% of the water column length).
Water Column Length (feet)
Well Depth (feet bgs)
0
100
200
300
400
500
600
700
800
900
1000

FIGURE 10

ATTACHMENT A
Wells #8, #9, & #10 Specific Capacity Data

Well 8, Avg. SC = 46.8

Date	Static Level	Pumping Level	Discharge	Specific Capacity
	feet RP	feet RP	gpm	gpm/ft dd
9/10/2012	79.2	99.4	1050	52.0
2/27/2013	37	61	1050	43.8
4/11/2013	41	64	1050	45.7
6/18/2013	74	94	1050	52.5
8/9/2013	87	105	1050	58.3
9/12/2013	78	98	1050	52.5
11/1/2013	55	76	1050	50.0
1/8/2014	43	65	1050	47.7
1/9/2014	42	65	1150	50.0
1/16/2014	43	66.5	1150	48.9
1/24/2014	55	77	1050	47.7
1/31/2014	62	82	1050	52.5
2/7/2014	59	80	1050	50.0
2/13/2014	50	70	1050	52.5
2/21/2014	47	59	1050	87.5
3/4/2014	43	67	1050	43.8
3/7/2014	44	65	1050	50.0
3/14/2014	42	64	1150	52.3
4/3/2014	40	62	1150	52.3
4/11/2014	41	64	1150	50.0
4/18/2014	45	67	1150	52.3
4/25/2014	52	72	1150	57.5
5/2/2014	58	77	1150	60.5
5/16/2014	71	82	1150	104.5
5/30/2014	82	102	1150	57.5
6/6/2014	84	104	1050	52.5
6/9/2014	86	106	1150	57.5
6/12/2014	91	109	1033	57.4
6/27/2014	95	112	1150	67.6
7/9/2014	93	111	995	55.3
7/17/2014	96	115	962	50.6
7/25/2014	98	115	1000	58.8
8/6/2014	95	112	1000	58.8
8/15/2014	95	115	1000	50.0
8/21/2014	95	115	1000	50.0
8/27/2014	95	112	1000	58.8
9/9/2014	90	107	1000	58.8
9/30/2014	78	103	1028	41.1
10/3/2014	81	100	1028	54.1
10/24/2014	75	94	1028	54.1
11/5/2014	65	85	1028	51.4
12/5/2014	55	75	1028	51.4
1/7/2015	44	70	1150	44.2
2/10/2015	43	64	1185	56.4
2/19/2015	41	63	1185	53.9
3/12/2015	42	66	1185	49.4
3/23/2015	51	75	1185	49.4
3/30/2015	50	74	1185	49.4
4/10/2015	52	75	1185	51.5
4/16/2015	56	79	1185	51.5
4/23/2015	58	80	1185	53.9
5/8/2015	68	89	1185	56.4
5/14/2015	73	93	1185	59.3
5/21/2015	80	100	1185	59.3
5/28/2015	85	105	1100	55.0
6/4/2015	87	105	1100	61.1
6/11/2015	90	109	1000	52.6
6/18/2015	90	110	1000	50.0
6/25/2015	95	115	1000	50.0
7/6/2015	102	119	1000	58.8
7/10/2015	98	120	1000	45.5
7/13/2015	104	120	1000	62.5

Well 8, Avg. SC = 46.8

Date	Static Level	Pumping Level	Discharge	Specific Capacity
	feet RP	feet RP	gpm	gpm/ft dd
7/17/2015	103	120	1000	58.8
7/24/2015	103	120	1000	58.8
7/31/2015	98	117	1000	52.6
8/7/2015	100	120	1000	50.0
8/13/2015	101	119	1000	55.6
8/21/2015	100	117	1000	58.8
8/28/2015	100	117	1000	58.8
9/4/2015	99	116	1000	58.8
9/11/2015	91	109	1000	55.6
9/18/2015	98	111	1050	80.8
9/25/2015	88	107	1050	55.3
10/2/2015	83	102	1000	52.6
10/9/2015	83	101	1050	58.3
10/16/2015	79	99	1050	52.5
10/23/2015	78	97	1050	55.3
10/30/2015	74	96	1050	47.7
11/19/2015	63	83	1050	52.5
11/25/2015	61	86	1100	44.0
12/4/2015	56	81	1129	45.2
12/11/2015		81	1150	14.2
12/18/2015	55	79	1150	47.9
12/23/2015	54	79	1128	45.1
1/8/2016	47	72	1150	46.0
1/22/2016	45	75	1150	38.3
2/12/2016	45	75	1160	38.7
2/26/2016	44	70	1150	44.2
3/4/2016	43	73	1150	38.3
3/11/2016	42	72	1150	38.3
3/18/2016	42	72	1150	38.3
4/8/2016	45	77	1150	35.9
4/29/2016		77	1150	14.9
5/27/2016	66	95	1060	36.6
6/17/2016	75	96	1150	54.8
6/24/2016	80	100	1050	52.5
7/1/2016	80	104	1050	43.8
7/8/2016	88	109	1015	48.3
7/15/2016	80	106	1050	40.4
7/22/2016		109	1050	9.6
8/12/2016	87	111	1150	47.9
8/26/2016	80	106	1050	40.4
2/8/2017	40	65	1200	48.0
3/14/2017	39	67	1200	42.9
4/5/2017	37	68	1200	38.7
5/3/2017	50	76	1200	46.2
5/19/2017	56	83	1150	42.6
6/23/2017	75	97	1150	52.3
7/7/2017	73	100	1150	42.6
7/14/2017	77	101	1150	47.9

Well 8, Avg. SC = 46.8

Date	Static Level	Pumping Level	Discharge	Specific Capacity
	feet RP	feet RP	gpm	gpm/ft dd
7/28/2017		106	1150	10.8
8/7/2017	82	108	1150	44.2
8/20/2017	83	105	1050	47.7
8/25/2017	82	107	1050	42.0
12/8/2017	50	75	1150	46.0
2/2/2018	41	70	1150	39.7
2/9/2018	42	69	1150	42.6
2/28/2018	43	73	1150	38.3
3/30/2018	44	69	1150	46.0
5/2/2018	51	79	1150	41.1
5/24/2018	65	90	1150	46.0
6/22/2018	74	98	1150	47.9
7/13/2018	75	98	1050	45.7
7/20/2018	80	101	1050	50.0
8/3/2018	82	110	1050	37.5
9/14/2018	81	105	1050	43.8
9/21/2018	76	104	1050	37.5
9/28/2018	76	101	1070	42.8
10/5/2018	71	95	1100	45.8
10/12/2018	65	92	1150	42.6
10/19/2018	68	94	1090	41.9
11/1/2018	63	90	1150	42.6
11/9/2018	60	88	1150	41.1
11/30/2018	55	80	1150	46.0
1/9/2019	41	74	1150	34.8
2/1/2019	39	71	1150	35.9
3/1/2019	40	70	1150	38.3
3/8/2019	37	68	1150	37.1
4/2/2019	38	65	1200	44.4
4/5/2019	40	66	1200	46.2
4/19/2019	41	69	1200	42.9
4/26/2019	43	75	1200	37.5
5/10/2019	52	81	1150	39.7
5/17/2019	52	81	1150	39.7
5/31/2019		82	1150	14.0
6/7/2019	54	88	1150	33.8
6/14/2019	59	90	1085	35.0
6/21/2019		91	1050	11.5
6/28/2019	68	95	1080	40.0
7/5/2019	70	98	1059	37.8
7/12/2019	72	100	1080	38.6
7/19/2019	77	100	1080	47.0
7/26/2019	73	101	1200	42.9
8/2/2019		105	1200	11.4
8/9/2019	83	109	1050	40.4
8/16/2019	82	110	1050	37.5
8/23/2019	83	107	1050	43.8
8/30/2019	81	110	1025	35.3
9/8/2019	82	107	1025	41.0
9/13/2019	82	106	1150	47.9
9/27/2019	76	104	1025	36.6
10/18/2019	75	100	1050	42.0
10/25/2019	65	95	1050	35.0
11/1/2019	64	93	1070	36.9
11/15/2019	58	90	1100	34.4
2/28/2020	46	71	1150	46.0
3/20/2020	46	74	1150	41.1
4/8/2020	46	75	1150	39.7
4/17/2020	47	75	1150	41.1
5/1/2020	48	82	1150	33.8

Well 9, Avg. SC = 6.4

Date	Static Level	Pumping Level	Discharge	Specific Capacity
	feet RP	feet RP	gpm	gpm/ft dd
9/10/2012	74.9	174.5	800	8.0
2/27/2013	32	139	800	7.5
4/11/2013	40	138	800	8.2
6/18/2013	75.5	167	800	8.7
8/9/2013	85	183	650	6.6
9/12/2013	75	175	800	8.0
11/1/2013	62	149	800	9.2
1/8/2014	42	149	800	7.5
1/9/2014	39	150	750	6.8
1/16/2014	39	148.5	700	6.4
1/24/2014	52	154	750	7.4
1/31/2014	61	157	800	8.3
2/7/2014	59	160	800	7.9
2/13/2014	48	149	800	7.9
2/21/2014	48	150	800	7.8
3/4/2014	43	147	800	7.7
3/7/2014	38	145	800	7.5
3/14/2014	40	146	700	6.6
4/3/2014	36	143	700	6.5
4/11/2014	36	144	700	6.5
4/18/2014	45	147	700	6.9
4/25/2014	50	152	700	6.9
5/2/2014	53	149	650	6.8
5/16/2014	76	172	700	7.3
5/30/2014	87	185	700	7.1
6/6/2014	93	163	550	7.9
6/12/2014	89	170	694	8.6
6/27/2014	94	180	700	8.1
7/9/2014	95	190	550	5.8
7/17/2014	95	190	547	5.8
7/25/2014	94	153	490	8.3
8/6/2014	92	162	485	6.9
8/15/2014	94	165	485	6.8
8/21/2014	95	160	485	7.5
8/27/2014	91	155	485	7.6
9/9/2014	87	157	485	6.9
9/30/2014	76	150	485	6.6
10/3/2014	80	153	485	6.6
10/17/2014	72	120	485	10.1
10/24/2014	70	129	485	8.2
11/5/2014	60	134	485	6.6
2/10/2015	40	115	485	6.5
6/4/2015	76	154	485	6.2
6/11/2015	90	165	485	6.5
6/18/2015	91	171	500	6.3
6/25/2015	95	170	475	6.3
7/6/2015	100	169	500	7.2
7/10/2015	100	180	500	6.3
7/13/2015	100	175	500	6.7
7/17/2015	100	166	500	7.6
7/24/2015	103	145	500	11.9
7/31/2015	103	144	500	12.2
8/7/2015	99	175	500	6.6
8/13/2015	103	163	485	8.1
8/21/2015	101	166	500	7.7
6/17/2016	66	126	500	8.3
6/24/2016	75	130	500	9.1
7/1/2016		140	500	3.6
7/15/2016	75	139	500	7.8
3/14/2017	33	92	500	8.5
4/5/2017	32	95	500	7.9
5/3/2017	37	114	500	6.5

Well 9, Avg. SC = 6.4

Date	Static Level	Pumping Level	Discharge	Specific Capacity
	feet RP	feet RP	gpm	gpm/ft dd
7/14/2017	71	139	500	7.4
7/28/2017	77	149	500	6.9
8/25/2017	76	146	500	7.1
2/2/2018	35	108	500	6.8
2/28/2018	39	120	500	6.2
3/30/2018	36	130	500	5.3
5/2/2018	45	125	500	6.3
6/22/2018	66	150	500	6.0
7/13/2018	71	178	650	6.1
7/20/2018	74	185	650	5.9
9/14/2018	75	159	500	6.0
9/21/2018	71	159	500	5.7
9/28/2018	70	159	500	5.6
10/5/2018	66	147	500	6.2
10/12/2018	60	150	550	6.1
10/19/2018	64	159	550	5.8
11/1/2018	58	153	500	5.3
11/9/2018	55	145	550	6.1
11/30/2018	45	138	500	5.4
1/9/2019	38	134	500	5.2
2/1/2019	36	140	500	4.8
3/1/2019	39	143	500	4.8
3/8/2019	35	135	500	5.0
4/2/2019	31	133	500	4.9
4/5/2019	24	135	500	4.5
4/19/2019	35	139	500	4.8
4/26/2019	35	139	500	4.8
5/10/2019	47	170	500	4.1
5/31/2019		178	500	2.8
6/7/2019	50	166	550	4.7
6/14/2019	51	163	500	4.5
6/21/2019		157	550	3.5
6/28/2019	69	179	500	4.5
7/5/2019	65	186	500	4.1
7/12/2019	54	181	500	3.9
7/19/2019	74	182	500	4.6
7/26/2019	73	196	500	4.1
8/2/2019		182	500	2.7
8/9/2019	74	195	500	4.1
8/16/2019	76	215	500	3.6
8/23/2019	76	171	500	5.3
8/30/2019	76	215	500	3.6
9/8/2019	79	207	500	3.9
9/13/2019	80	168	600	6.8
9/27/2019		185	500	2.7
4/8/2020	39	132	500	5.4
4/17/2020	41	166	500	4.0
5/1/2020	50	180	500	3.8

Well 10, Avg. SC = 20.1

Date	Static Level	Pumping Level	Discharge	Specific Capacity
	feet RP	feet RP	gpm	gpm/ft dd
6/18/2013	74	142	950	14.0
8/9/2013	87	112	500	20.0
9/12/2013	76	114	950	25.0
11/1/2013	53	108	950	17.3
1/8/2014	40	108	950	14.0
1/9/2014	39	69	500	16.7
1/24/2014	53	71	500	27.8
1/24/2014	53	71	500	27.8
5/2/2014	54	90	500	13.9
7/17/2014	101	121	500	25.0
8/6/2014	97	115	500	27.8
8/15/2014	97	115	450	25.0
8/27/2014	96	135	600	15.4
9/9/2014	90	115	500	20.0
5/14/2015	68	140	1000	13.9
8/28/2015	100	123	550	23.9
9/21/2018	75	108	500	15.2
3/13/2020	40	75	700	20.0
3/20/2020	41	76	700	20.0

ATTACHMENT B
2020 Sampling Results, Test Well #11

CITY OF WILLIAMS - TEST WELL #11

Monitoring Point	Zone	Parameter	Collection Date	Quali-fier	Result	Units
Well 11, Test Well	Upper only	Aggressive Index	3/10/2020	=	12.42	NU
Well 11, Test Well	Upper+Lower	Aggressive Index	4/2/2020	=	12.5	NU
Well 11, Test Well	Upper only	Aluminum	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Aluminum	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Antimony	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Antimony	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Arsenic	3/10/2020	=	2.9	ug/L
Well 11, Test Well	Upper+Lower	Arsenic	4/2/2020	=	2.7	ug/L
Well 11, Test Well	Upper only	Barium	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Barium	4/2/2020	=	100	ug/L
Well 11, Test Well	Upper only	Beryllium	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Beryllium	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Bicarbonate	3/10/2020	=	360	mg/L
Well 11, Test Well	Upper+Lower	Bicarbonate	4/2/2020	=	380	mg/L
Well 11, Test Well	Upper only	Cadmium	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Cadmium	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Calcium	3/10/2020	=	58	mg/L
Well 11, Test Well	Upper+Lower	Calcium	4/2/2020	=	57	mg/L
Well 11, Test Well	Upper+Lower	Calcium	8/5/2020	=	61	mg/L
Well 11, Test Well	Upper only	Calcium	8/17/2020	=	63	mg/L
Well 11, Test Well	Upper only	Carbonate	3/10/2020	=	ND	mg/L
Well 11, Test Well	Upper+Lower	Carbonate	4/2/2020	=	ND	mg/L
Well 11, Test Well	Upper only	Chloride	3/10/2020	=	160	mg/L
Well 11, Test Well	Upper+Lower	Chloride	4/2/2020	=	160	mg/L
Well 11, Test Well	Upper+Lower	Chloride	8/5/2020	=	170	mg/L
Well 11, Test Well	Upper only	Chloride	8/17/2020	=	170	mg/L
Well 11, Test Well	Upper only	Chromium	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Chromium	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Color	3/10/2020	=	ND	CU
Well 11, Test Well	Upper+Lower	Color	4/2/2020	=	ND	CU
Well 11, Test Well	Upper only	Copper	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Copper	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Fluoride	3/10/2020	=	0.24	mg/L
Well 11, Test Well	Upper+Lower	Fluoride	4/2/2020	=	0.23	mg/L
Well 11, Test Well	Upper only	Hardness, Total	3/10/2020	=	347	mg/L
Well 11, Test Well	Upper+Lower	Hardness, Total	4/2/2020	=	348	mg/L
Well 11, Test Well	Upper+Lower	Hardness, Total	8/5/2020	=	363	mg/L
Well 11, Test Well	Upper only	Hardness, Total	8/17/2020	=	371	mg/L
Well 11, Test Well	Upper only	Hydroxide	3/10/2020	=	ND	mg/L

CITY OF WILLIAMS - TEST WELL #11

Monitoring Point	Zone	Parameter	Collection Date	Quali-fier	Result	Units
Well 11, Test Well	Upper+Lower	Hydroxide	4/2/2020	=	ND	mg/L
Well 11, Test Well	Upper only	Iron	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Iron	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Lead	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Lead	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Magnesium	3/10/2020	=	49	mg/L
Well 11, Test Well	Upper+Lower	Magnesium	4/2/2020	=	50	mg/L
Well 11, Test Well	Upper+Lower	Magnesium	8/5/2020	=	51	mg/L
Well 11, Test Well	Upper only	Magnesium	8/17/2020	=	52	mg/L
Well 11, Test Well	Upper only	Manganese	3/10/2020	=	150	ug/L
Well 11, Test Well	Upper+Lower	Manganese	4/2/2020	=	160	ug/L
Well 11, Test Well	Upper+Lower	Manganese	8/5/2020	=	170	ug/L
Well 11, Test Well	Upper only	Manganese	8/17/2020	=	170	ug/L
Well 11, Test Well	Upper only	MBAS, calculated as LAS, mw 340	3/10/2020	=	ND	mg/L
Well 11, Test Well	Upper+Lower	MBAS, calculated as LAS, mw 340	4/2/2020	=	ND	mg/L
Well 11, Test Well	Upper only	Mercury	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Mercury	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Methane	3/10/2020	<	0.002	mg/L
Well 11, Test Well	Upper+Lower	Methane	3/11/2020	<	0.002	mg/L
Well 11, Test Well	Upper only	Nickel	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Nickel	4/2/2020	=	12	ug/L
Well 11, Test Well	Upper+Lower	Nickel	8/5/2020	=	<10	ug/L
Well 11, Test Well	Upper only	Nickel	8/17/2020	=	<10	ug/L
Well 11, Test Well	Upper only	Nitrate as N	3/10/2020	=	ND	mg/L
Well 11, Test Well	Upper+Lower	Nitrate as N	4/2/2020	=	ND	mg/L
Well 11, Test Well	Upper only	Odor	3/10/2020	=	ND	T.O.N.
Well 11, Test Well	Upper+Lower	Odor	4/2/2020	=	ND	T.O.N.
Well 11, Test Well	Upper only	Perchlorate	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Perchlorate	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	pH	3/10/2020	=	7.78	pH Units
Well 11, Test Well	Upper+Lower	pH	4/2/2020	=	7.84	pH Units
Well 11, Test Well	Upper+Lower	pH	8/5/2020	=	7.85	pH Units
Well 11, Test Well	Upper only	pH	8/17/2020	=	7.64	pH Units
Well 11, Test Well	Upper only	Potassium	3/10/2020	=	2.7	mg/L
Well 11, Test Well	Upper+Lower	Potassium	4/2/2020	=	2.2	mg/L
Well 11, Test Well	Upper only	Selenium	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Selenium	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Silver	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Silver	4/2/2020	=	ND	ug/L

CITY OF WILLIAMS - TEST WELL #11

Monitoring Point	Zone	Parameter	Collection Date	Quali-fier	Result	Units
Well 11, Test Well	Upper only	Sodium	3/10/2020	=	170	mg/L
Well 11, Test Well	Upper+Lower	Sodium	4/2/2020	=	160	mg/L
Well 11, Test Well	Upper only	Specific Conductance (EC)	3/10/2020	=	1300	umhos/cm
Well 11, Test Well	Upper+Lower	Specific Conductance (EC)	4/2/2020	=	1400	umhos/cm
Well 11, Test Well	Upper+Lower	Specific Conductance (EC)	8/5/2020	=	1400	umhos/cm
Well 11, Test Well	Upper+Lower	Specific Conductance (EC)	8/5/2020	=	1410	umhos/cm
Well 11, Test Well	Upper only	Specific Conductance (EC)	8/17/2020	=	1400	umhos/cm
Well 11, Test Well	Upper only	Specific Conductance (EC)	8/17/2020	=	1400	umhos/cm
Well 11, Test Well	Upper only	Sulfate as SO4	3/10/2020	=	150	mg/L
Well 11, Test Well	Upper+Lower	Sulfate as SO4	4/2/2020	=	150	mg/L
Well 11, Test Well	Upper+Lower	Temperature	8/5/2020	=	22.0	degrees C
Well 11, Test Well	Upper only	Temperature	8/17/2020	=	22.0	degrees C
Well 11, Test Well	Upper only	Thallium	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Thallium	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Total Alkalinity as CaCO3	3/10/2020	=	300	mg/L
Well 11, Test Well	Upper+Lower	Total Alkalinity as CaCO3	4/2/2020	=	320	mg/L
Well 11, Test Well	Upper only	Total Dissolved Solids	3/10/2020	=	780	mg/L
Well 11, Test Well	Upper+Lower	Total Dissolved Solids	4/2/2020	=	770	mg/L
Well 11, Test Well	Upper+Lower	Total Dissolved Solids	8/5/2020	=	840	mg/L
Well 11, Test Well	Upper only	Total Dissolved Solids	8/17/2020	=	820	mg/L
Well 11, Test Well	Upper only	Turbidity	3/10/2020	=	0.74	NTU
Well 11, Test Well	Upper+Lower	Turbidity	4/2/2020	=	0.11	NTU
Well 11, Test Well	Upper+Lower	Turbidity	8/5/2020	=	0.38	NTU
Well 11, Test Well	Upper only	Turbidity	8/17/2020	=	0.52	NTU
Well 11, Test Well	Upper only	VOC by EPA Method 524.2	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	VOC by EPA Method 524.2	4/2/2020	=	ND	ug/L
Well 11, Test Well	Upper only	Zinc	3/10/2020	=	ND	ug/L
Well 11, Test Well	Upper+Lower	Zinc	4/2/2020	=	ND	ug/L