RESOLUTION NO. P.C. 11-30

RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WHITTIER, CALIFORNIA CERTIFYING THE FINAL ENVIRONMENTAL IMPACT REPORT FOR THE WHITTIER MAIN OIL FIELD DEVELOPMENT PROJECT; ADOPTING FINDINGS PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT; ADOPTING A STATEMENT OF OVERRIDING CONSIDERATIONS, AND ADOPTING A MITIGATION MONITORING AND REPORTING PROGRAM

The Planning Commission of the City of Whittier hereby finds and resolves as follows:

Section 1. The project, known as the Whittier Main Oil Field Development Project, is the drilling, exploration and production of oil and gas reserves located on property owned by the City of Whittier that is part of the Puente Hills Landfill Native Habitat Preserve (the "Project"). The Project would occur in three phases, with the first phase consisting of a drilling and testing phase which would involve the drilling of up to three test wells to assess the quality and quantity of oil and natural gas produced. The second phase, known as the design and construction phase, would involve construction of well cellars, the installation of gas and oil processing equipment, and crude transportation facilities. The third phase, known as the operations and maintenance phase, would involve drilling the remaining wells (for a total of up to 60 wells), and the operation and maintenance of the gas and oil facilities and the wells, which would include well workovers and occasional well re-drilling. The Project site would contain the oil and gas drilling and processing facilities on a single pad, which would include the well area, a gas plant area, and an oil plant area consisting of well cellars, well test stations, liquid and gas separating equipment, a truck loading facility, an oil processing facility, and gas plant. The total permanent area required for the pads would be approximately 6.9 acres with an additional 6.5 acres of roadways (most of which currently exist in the area). A fuel modification zone would be required by the Los Angeles County Fire Department which would encompass an additional 6.9 acres. Up to an additional 8.5 acres would be temporarily disturbed for construction and grading of the site. The total impacted area for the Project would be 30.6 acres.

Section 2. In April 2009, Matrix Oil Corporation (the "Applicant") submitted an application for a conditional use permit ("CUP") for an oil drilling, exploration and production project. A Draft Environmental Impact Report for this project was released to the public in October 2010 for a 60-day comment period. After this 60-day comment period, in April 2011, the Applicant amended its CUP application to establish a new project that conformed to the Central Consolidated Site Alternative detailed in the Draft Environmental Impact Report. These revisions resulted in what is now the Project as defined herein.

Section 3. In April 2011, a Notice of Preparation ("NOP") was distributed to various agencies, organizations, and interested persons throughout the City and surrounding

area. The proposed Project was described, the scope of the environmental review was identified, and the agencies and the public were invited to review and comment on the NOP.

Section 4. On May 5, 2011, two public scoping meetings were held. The first scoping meeting was held for the general public, and the second scoping meeting was specific to responsible agencies. Both scoping meetings were held in order to obtain input on the scope of environmental review for the Project.

Section 5. In June 2011, a Draft Environmental Impact Report (the "DEIR") was prepared for the Project. In accordance with the California Environmental Quality Act ("CEQA") (Cal. Pub. Res. Code §21000 *et seq*.) and the State Guidelines (the "Guidelines") (14 Cal. Code Regs. §15000 *et seq*.) promulgated with respect thereto, the City analyzed the Project's potential impacts on the environment.

Section 6. The City circulated the DEIR and the Appendices for the Project to the public and other interested parties for a 45-day comment period, consistent with the 45-day public comment period required by Guidelines Section 15105, from June 6, 2011 to July 21, 2011. Additionally, on June 30, 2011, the City held a public workshop on the DEIR. The City received a total of 132 comment letters on the DEIR.

Section 7. After the DEIR was circulated for public review, and in an effort to be responsive to concerns raised by various commenters, the Applicant proposed project refinements by redesigning the layout and amount of grading required for the Project pads. These changes are discussed and analyzed in Appendix O of the FEIR, which is hereby incorporated by this reference. The design revisions would reduce the amount of grading and result in a reduced overall impact area to the Preserve. Under these changes, the amount of earth moved from the site during Project grading would be reduced from 147,000 yds to zero. The duration of grading would be cut in half, from 24 weeks to 12 weeks. Most significantly, by eliminating soil export, the design modification would eliminate the requirement to transport soils to the Landfill or other destinations, which would eliminate the grading soil export trips resulting in a reduction of 9,313 truck trips during Project grading.

Section 8. The City prepared written responses to all comments received on the DEIR, and those responses to comments are incorporated into the Final Environmental Impact Report (the "Final EIR"). The Responses to Comments were distributed to all public agencies that submitted comments on the DEIR at least 10 days prior to certification of the Final EIR.

Section 9. The Final EIR is comprised of the DEIR dated June 2011 and all appendices thereto, including Appendix O that details the Project refinements, the Comments and Response to Comments on the DEIR, and the Mitigation Monitoring and Reporting Program.

Section 10. The findings made in this Resolution are based upon the information and evidence set forth in the Final EIR and upon other substantial evidence that has been presented at the hearings and in the record of the proceedings. The documents, staff reports, technical studies, appendices, plans, specifications, and other materials that constitute the record of

proceedings on which this Resolution is based are on file for public examination during normal business hours at the City of Whittier, City of Whittier City Hall, 13230 Penn Street, Whittier, California 90602. Each of those documents is incorporated herein by reference.

Section 11. The City Council finds that agencies and interested members of the public have been afforded ample notice and opportunity to comment on the DEIR and the Project.

Section 12. Section 15091 of the State CEQA Guidelines requires that the City, before approving the Project, make one or more of the following written finding(s) for each significant effect identified in the Final EIR accompanied by a brief explanation of the rationale for each finding:

A. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the Final EIR; or,

B. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency; or,

C. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

Section 13. Section 15093 of the State CEQA Guidelines requires that if the Project will cause significant unavoidable adverse impacts, the City must adopt a Statement of Overriding Considerations prior to approving the project. A Statement of Overriding Considerations states that any significant adverse project effects are acceptable if expected project benefits outweigh unavoidable adverse environmental impacts.

Section 14. Environmental impacts identified in the Final EIR that are found to be less than significant and do not require mitigation are described in Exhibit A, Section III attached hereto and incorporated herein by reference.

Section 15. Environmental impacts identified in the Final EIR as potentially significant, but that can be reduced to less than significant levels with mitigation, are described in Exhibit A, Section IV, attached hereto and incorporated herein by reference.

Section 16. Environmental impacts identified in the Final EIR as significant and unavoidable despite the imposition of all feasible mitigation measures are described in Exhibit A, Section V, attached hereto and incorporated herein by reference.

Section 17. Alternatives to the Project that might eliminate or reduce significant environmental impacts are described in Exhibit A, Section VI, attached hereto and incorporated herein by reference.

Section 18. A discussion of the Project benefits and a Statement of Overriding Considerations for the environmental impacts that cannot be fully mitigated to a less than significant level are set forth in Exhibit B, attached hereto and incorporated herein by reference.

Section 19. Public Resources Code section 21081.6 requires the City to prepare and adopt a mitigation monitoring and reporting program for any project for which mitigation measures have been imposed to assure compliance with the adopted mitigation measures. The Mitigation Monitoring and Reporting Program is attached hereto as Exhibit C, and is hereby incorporated herein by reference.

Section 20. Prior to taking action, the Planning Commission reviewed, considered and has exercised its independent judgment on the Final EIR and all of the information and data in the administrative record, and all oral and written testimony presented to it during meetings and hearings and finds that the Final EIR is adequate and was prepared in full compliance with CEQA. No comments or any additional information submitted to the City, including Appendix O, have produced any substantial new information requiring recirculation or additional environmental review of the Project under CEQA.

Section 21. The Planning Commission of the City of Whittier hereby certifies the Final EIR, adopts findings pursuant to the California Environmental Quality Act, as set forth in Exhibit A attached hereto and incorporated herein by reference; adopts the Statement of Overriding Considerations set forth in Exhibit B attached hereto and incorporated herein by reference; adopts the Mitigation Monitoring and Reporting Program attached hereto as Exhibit C and incorporated herein by reference, and imposes each mitigation measure as a condition of Project approval if the Project is approved. City staff shall implement and monitor the mitigation measures as described in Exhibit C.

PASSED AND APPROVED this 25th day of October 2011 by the following vote:

AYES: W. MURRAY, E. HERNANDEZ, H. STONE, F. DUTRA, R. MCDONNELL

NOES: NONE

ABSENT: NONE

ATTEST:

_____

Jeffery S. Adams, Acting Secretary

EXHIBIT A

Findings and Facts in Support of Findings

I. Introduction.

The California Environmental Quality Act ("CEQA") and the State CEQA Guidelines (the "Guidelines") provide that no public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that will occur if a project is approved or carried out unless the public agency makes one or more of the following findings:

A. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects identified in the EIR.

B. Such changes or alterations are within the responsibility of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

C. Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.[1]

Pursuant to the requirements of CEQA, the Planning Commission hereby makes the following environmental findings in connection with the proposed Whittier Main Oil Field Development Project. The Whittier Main Oil Field Development Project is the "Project", as more fully described in the Draft EIR ("DEIR") and in Appendix O of The Final EIR ("FEIR"). These findings are based upon evidence presented in the record of these proceedings, both written and oral, the DEIR, and all of their contents, the Comments and Responses to Comments on the EIR, and staff and consultants' reports presented through the hearing process, which comprise the FEIR.

II. Project Objectives.

As set forth in the EIR, the proposed Project is intended to achieve a number of objectives (the "Project Objectives") as follows:

1. City Objectives:

    a. Generate a substantial, long-term income stream for the City.

    b. Provide long-term resources to help manage environmental issues associated with the Project within the Preserve.

    c. Minimize environmental impacts from the Project on the Preserve.

[1] Cal. Pub. Res. Code § 21081; 14 Cal. Code Regs. § 15091.

d. Minimize noise impacts to surrounding areas.

e. Minimize traffic impacts to surrounding areas.

f. Minimize impacts to the functioning of the Core habitat of the Preserve.

g. Minimize impacts to operational, recreational, and educational opportunities of the Preserve.

h. Facilitate the long-term preservation and enhancement of the Preserve's ecological resources and native habitat.

i. Employ current technologies in an effort to reduce environmental impacts to less-than significant levels.

j. Maintain reasonable fire safety levels for the community and open space.

k. Develop the site in accordance with the City's Strategic Plan for economic development in order to generate tax revenue for the City;

l. Develop a fast food drive-through restaurant that is convenient to and meets the demands of the local residents and visitors to the area;

m. Implement the goals of the City General Plan; and

n. Increase and enhance the visual gateway of the City.

2. Applicant Objectives:

a. Develop the Whittier Main Oil Field, pursuant to the terms of the Oil and Gas Lease with the City of Whittier dated October 28, 2008, utilizing current "slant-drill, or high-angle well" technology and other state-of-the-art techniques, while maintaining safe and efficient operations.

b. Minimize impacts to the Preserve, as defined in the Lease, by utilizing existing roads as much as possible, and placement of production equipment and facilities on one site utilizing up to seven acres.

c. Operate in accordance with all prevailing laws and regulations to maximize safety and protect the environment.

d. Minimize and mitigate negative impacts of the project on the local community.

e. Stimulate the local economy by providing opportunities for qualified local businesses to sell goods and services and to qualified workers to apply for jobs.

f. Maximize oil and gas production from the field, thereby maximizing royalty payments to the City of Whittier.

III. Effects Determined to be Less Than Significant Without Mitigation in the EIR.

The EIR found that the proposed Project would have a less than significant impacts without the imposition of mitigation on a number of environmental topic areas listed below. A less than significant environmental impact determination was made for each of the following topic areas listed below, based on the more expansive discussions contained in the Final EIR.

A. AESTHETICS

1. Use of the North Access Road for the Project would not degrade public view sheds in the Project vicinity, and with the Project refinements even less of an impact would result as less traffic would utilize the North Access Road for the hauling of soils.

B. AIR QUALITY

1. The Project would not cause any cumulative air quality impacts.

C. GEOLOGY AND SOILS

1. The proposed Project would not cause earthquakes as a result of wastewater injection into the proposed wells.

2. The Project would not cause any geology and soils cumulative impacts.

D. HYDROLOGY AND WATER QUALITY

1. Reinjection of produced water would not impair water quality of aquifers within the Whittier Area of the Central Groundwater Basin.

2. The Project site would not be susceptible to flooding in an extreme precipitation event.

E. LAND USE

1. The Project would not cause any cumulative land use and policy consistency impacts.

F. ENERGY AND MINERAL RESOURCES

1. The Project would not cause an impact from any increased energy demand.

2. The Project would not cause an impact from any increased fossil fuel use.

3. The Project would not cause a cumulative energy or mineral resources impact.

G. FIRE PROTECTION AND EMERGENCY SERVICES

1. The Project would not cause a cumulative fire protection and emergency services impact.

H. NOISE

1. The Project as refined would not increase vibration levels in the area to a level of significance even without the imposition of mitigation.

2. The Project would not cause a cumulative noise impact.

I. PUBLIC SERVICES AND UTILITIES

1. The Project would not generate a solid waste impact from future drilling, construction and operations.

2. The Project would not cause an impact on demand for potable water as a result of future drilling, construction, and operations.

J. RECREATION

1. The Project would not cause a cumulative recreation impact.

K. SAFETY, RISK OF UPSET, HAZARDOUS MATERIALS

1. The Project would not cause a cumulative safety or risk of upset impact.

L. WASTEWATER

1. The Project would not cause a cumulative wastewater impact.

M. ENVIRONMENTAL JUSTICE

1. The Project will not disproportionately impact minority and low-income populations.

IV. Potentially Significant Environmental Impacts Determined to be Mitigated to a Less Than Significant Level.

The EIR identified the potential for the Project to cause significant environmental impacts. With the exception of those specific impacts to air quality, aesthetics, hydrology and water quality, land use and policy consistency, and recreation discussed in Section V below, measures were identified that would mitigate all of these impacts to a less than significant level.

The Planning Commission finds that the feasible mitigation measures for the Project identified in the Final EIR would reduce the Project's impacts to a less than significant level, with the exception of those unmitigable impacts discussed in Section V below. The Planning Commission will adopt all of the feasible mitigation measures for the Project described in the

Final EIR as conditions of approval of the Project and incorporate those into the Project if approved.

A. AESTHETICS

1. Oil Processing Equipment Could Degrade Public Viewsheds

Oil processing equipment could degrade public viewsheds. However, with the implementation of mitigation, this impact would be reduced to less than significant.

(a) Findings

Changes or alterations have been required in, or incorporated into, the Project that will ensure a less than significant public viewshed impact from the oil processing equipment. Specifically, the following mitigation measures are imposed upon the Project to ensure a less than significant impact:

> **AE-1a** Landscaping with native vegetation shall be planted at the periphery of the Project Site for the specific purpose of beautifying and screening the operations from adjoining residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address berms, screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and the Habitat Authority. The Habitat Authority and a certified landscape architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition.
>
> **AE-1b** Within 30 days of installation, all structures visible from public locations at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a color or textured surface in consultation with the City, so that they are less obtrusive to the surrounding area.

(b) Facts in Support of Findings

The proposed processing area would include tanks and vessels and would be proximate to several nearby recreation areas, a scenic overlook that contains hiking and walking trails, and residential areas. Once drilled, the wells would be below grade in the well cellars, would use down-hole pumps and not pumper units, and would not be visible from recreational areas. Due to the proximity of recreational facilities to the proposed oil field operations, installation of tanks and other industrial development could create significant visual resource impacts that would be perceived as incompatible with adjacent uses. In addition, the installation of the

facilities would have necessitated the removal of a number of eucalyptus trees but with the Project refinements, these eucalyptus trees will be retained. The visual simulations show the extent to which the areas up Canada Canyon would be opened to views from the Deer Loop Trail and the viewing area. This removal of eucalyptus trees would exacerbate the impacts of installing industrial equipment in the area.

While oil field production activities would not likely obstruct scenic views seen from trails, recreations areas, or residences, the placement of oil production facilities could significantly degrade the existing visual conditions within selected viewsheds from public trails and recreation areas. Views of the crude oil tanks and equipment would not be significant from residences as existing vegetation would shield most equipment from residences' direct lines of sight. The proposed Project processing equipment could create potentially significant visual impacts to public viewsheds.

Regarding residual impacts, measures to either beautify or effectively screen the proposed Project Processing Area facilities (e.g., tanks) from view would reduce impacts. Landscaping and berms could minimize the view of the tanks from the Deer Loop Trail and views from the viewing area.

As the growth of vegetation to conceal the Processing Area equipment could take years, this impact would remain from a number of years before vegetation grows to a substantial height to conceal the equipment. Although this impact would be adverse, since visual impacts are determined on a long-term scale, vegetation would conceal most, if not all, facility equipment over time (except the drilling rig). The use of berms, which would be re-vegetated with grasses and lower-growing shrubs (thereby faster growing than trees) would reduce the timeframe in which the Processing Area equipment would be visible.

Implementing Mitigation Measures AE-1a and AE-1b would reduce the impacts to public viewsheds over the long-term to less than significant with mitigation by requiring berms and landscaping to prevent any significant public viewshed impact.

2. Glare and Nighttime Lighting Impact

The proposed Project could increase glare and nighttime lighting. However, mitigation will be imposed to reduce this impact to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into, the Project that will ensure a less than significant glare and nighttime lighting impact. Specifically, the following mitigation measures are imposed upon the Project to ensure a less than significant impact:

> **AE-4** All point lighting sources that may be introduced onsite in support of nighttime operations shall be screened and directed to prevent offsite spillover lighting effects. Spillover lighting shall be limited to 0.1 fc within 30 feet of facility boundaries. Outdoor lighting should be restricted to only those lights that are required

by code for lighting building exteriors and safety and security needs. Consistent with public safety needs, street lighting, pedestrian walkway lighting, and parking lot lighting shall use light fixtures that shield and direct light with a backlight shield or other equivalent type of shielding to minimize light spill-over effects into adjacent areas. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency.

(b) Facts in Support of Findings

Visual impacts associated with night-lighting in activity areas would be potentially significant but capable of being mitigated to less than significant levels with mitigation, including shielding exterior night lighting and containing spill-over lighting from fixed point lighting sources.

The governments of most countries require warning lights on all high towers and on low towers near airports, because towers are a hazard to aircraft. The Federal Aviation Administration (FAA), in the Federal Code of Regulation 14 CFR part 77, and in the FAA Advisory Circular 70/7460 and 150/, describes requirements associated with lighting objects that may affect navigable airspace. Objects more than 200-feet high require lighting at a level of approximately 2,000 candela and a flashing rate of between 40 and 60 flashes per minute. A red light would be placed on top of the drilling rig to aid its visibility to aircraft, although this is not specifically required by the FAA. This light would be visible from areas offsite and throughout the area. However, the illumination created by the red flashing light on top of the 125-foot drilling rig would be less than the level that would produce a significant illumination impact.

Where oil wells would be drilled and operations would be scheduled 24 hours per day, lighting the work site drilling platforms for safety may create prominent night lighting during drilling. Lighting impacts from drilling would be potentially significant but would be less than significant with mitigation by shielding exterior night lighting and containing spill-over lighting from fixed point lighting sources.

Mitigation Measure AE-4 requires that all point lighting sources that may be introduced onsite in support of nighttime operations be screened and directed to prevent offsite spillover lighting effects.

Regarding residual impacts, current lighting designs, such as a RUUD Lighting, Inc. area cutoff light, can be equipped with a backlight shield that can reduce lighting levels to less than 0.05 fc within 30 feet horizontal distance utilizing a 400-watt high pressure sodium bulb and forward throw sharp cutoff. With proper shielding and control of the directional nature of the installed lighting, illumination impacts on the Project area and adjacent uses would be less than significant with mitigation.

With the mitigation described above, the impact is reduced to a less than significant level.

3. Cumulative Aesthetics Impact

The Project in conjunction with other projects has the potential to cause a cumulative aesthetics impact. However, with the incorporation of mitigation, any potential cumulative impact will be reduced to the extent feasible and to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into, the Project that will ensure a less than significant cumulative impact. Specifically, the following mitigation measure is imposed upon the Project to ensure a less than significant impact:

> **AE-1a** Landscaping with native vegetation shall be planted at the periphery of the Project Site for the specific purpose of beautifying and screening the operations from adjoining residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address berms, screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and the Habitat Authority. The Habitat Authority and a certified landscape architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition.

(b) Facts in Support of Findings

The County of Los Angeles Fire Department and the City of Whittier have determined that a Vegetation Management Plan is necessary for long-term mitigation to reduce wildfire risk (see Section 4.12 of the EIR, Fire Protection and Emergency Response). Eucalyptus trees have been cleared due to fire department concerns related to wildfire risk and the removal of eucalyptus trees is part of the exotic plant control program detailed in the Habitat RMP. Recent clearance areas include close to 20 acres immediately east of Colima Road and in the area around the Colima Road parking area. Removal of eucalyptus trees along the boundary of the proposed Project Site would increase the visibility of proposed Project equipment. Existing eucalyptus trees would provide extensive shielding of proposed Project equipment from areas along hiking trails and residences along San Lucas and Lodosa Drives. The originally proposed Project in the EIR would have removed a number of eucalyptus trees from the east side of the Project Site. If additional eucalyptus trees are removed, particularly those to the south of the Project Site, this could be considered a significant impact. However, with the Project refinements detailed in Appendix O of the FEIR, the eucalyptus trees would be retained. Mitigation measure AE.1 requires planting vegetation, in consultation with the Habitat Authority, to screen project components. This mitigation measure would be implemented to reduce any cumulative impacts to less than significant.

No other cumulative projects would be constructed within the same viewsheds as the proposed Project. Therefore, there would be no other potential cumulative significant impacts.

B. AIR QUALITY

1. Operational Emissions

The proposed Project's operational emissions have the potential to exceed the South Coast Air Quality Management District's (SCAQMD) emissions thresholds. However, through the implementation of mitigation, this impact will be less than significant.

(a) Findings

Changes or alterations have been required in, or incorporated into, the Project that will ensure a less than significant operational emissions impact. Specifically, the following mitigation measures are imposed upon the Project to ensure a less than significant impact:

> **AQ-2a** The Applicant shall comply with all SCAQMD regulations, including but not limited to Regulation IV (Prohibitions), Regulation XIII (New Source Review), Regulation XI (Source Specific Standards), and Regulation XIV (New Source Review for Toxic Air Contaminants). The operator shall implement best available control technology and obtain emission offsets as required by SCAQMD Regulation XIII and/or Regulation XX for new and modified permitted emission sources. Emission offsets are required for all emission increases associated with stationary sources, thus, minimizing the impacts associated with emissions from stationary sources.
>
> **AQ-2b** The Applicant shall implement a program to reduce NOx, VOC, and PM emissions, including:
>
> - All drilling engines shall meet EPA Tier 3 emissions levels, or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction, or utilize electric engines.
>
> - Treat all used Preserve dirt roads that will be used (gravel or apply soil binders with at least 80% effectiveness) or pave all Preserve dirt roads that will be used during test drilling.
>
> - Limit onsite truck idling to less than 5 minutes.
>
> - Electrify service equipment and auxiliary power units where feasible.
>
> - Use clean street sweepers during operations.

- Pave roads and road shoulders during operational phase.

- Utilize trucks that meet EPA 2010 emission standards and off-road equipment that meets EPA 2015 emissions levels to the extent feasible.

- A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.

- Install only internal floating roof tanks, or utilize a more efficient vapor recovery system for handling organic liquids (crude oil) or some other equivalent method to reduce fugitive emissions to less than the SCAQMD CEQA thresholds.

- Use low-emissions flare systems to achieve flare NOx emissions of less than 0.06 lb/mmBTU, according to SCAQMD BACT requirements.

- Limit flaring and drilling during the peak day to the equivalent of drilling and full-flow flaring combined to less than 3 hours per day (at full gas plant flow or the equivalent throughput) or limiting flaring only to less than 4 hours per day (at full gas plant flow or the equivalent throughputs).

- Prohibit use of workover rigs at the same time as drilling rigs to reduce peak day emissions

- Further reduce NOx emission by either (1) Purchasing emission offsets to reduce remaining NOx emissions to less than significant levels or (2) utilizing Tier 4 engines on the drilling rig sufficient to reduce daily emissions to less than the thresholds, or (3) electrifying all or portions of the drilling rig engines to reduce NOx emissions to less than the thresholds.

(b) Facts in Support of Findings

Operational activities would generate emissions that exceed South Coast Air Quality Management District thresholds. Operational emissions of the proposed Project would exceed the regional thresholds for VOC and NOx. On the worst-case peak day, assuming that the flare would operate for 24 hours during an upset condition, the entire gas flow would necessarily be directed to the flare. When the flare would not operate for the entire day, emissions would still exceed the regional emissions thresholds due to emissions from the drilling operations and offsite mobile sources.

Operational emissions would exceed the local thresholds associated with the SCAQMD lookup tables for NOx, PM10, and PM2.5. However, modeling indicates that localized impacts

would be less than significant. On the worst-case peak day, assuming that the flare would operate for 24 hours during an upset condition, the entire gas flow would necessarily be directed to the flare. The local impacts would be primarily associated with flaring emissions, which would produce more than 90 percent of the NOx and PM emissions during the peak day.

When the flare would not operate for the entire day, emissions of PM10 and PM2.5 would also not exceed the local emissions thresholds.

Mitigation measures could include the use of cleaner, newer drilling engines, use of internal floating roof tanks or a more efficient vapor recovery system, obtaining offsets for NOx emissions, or limiting flare operations.

Mitigation Measure AQ-2a requires the Applicant to comply with all SCAQMD regulations, including but not limited to Regulation IV (Prohibitions), Regulation XIII (New Source Review), Regulation XI (Source Specific Standards), and Regulation XIV (New Source Review for Toxic Air Contaminants). The operator shall implement best available control technology and obtain emission offsets as required by SCAQMD Regulation XIII and/or Regulation XX for new and modified permitted emission sources. Emission offsets are required for all emission increases associated with stationary sources, thus, minimizing the impacts associated with emissions from stationary sources.

Mitigation Measure AQ-2b requires the Applicant to implement a program to reduce NOx, VOC, and PM emissions.

Regarding residual impacts, NOx emissions from flaring would be reduced by utilizing a best available control technology (BACT) compliant flare that would achieve lower NOx and PM emissions. Emissions of NOx when the flare is operating for 24 hours would exceed regional thresholds even with mitigation. Therefore, by reducing the operating hours of the flare during an upset condition, thereby requiring shutting in of some wells, and limiting drilling operations if an upset condition occurs that requires flaring, the emissions of NOx could be reduced to less than the threshold values for NOx during this upset scenario.

However, during the normal operations scenario, when the flare is not operating, and the gas plant combustion equipment is operating along with drilling equipment, the daily emissions would exceed the significance thresholds primarily due to drilling engine emissions.

The emissions of NOx from drilling engines would be reduced through emission offsets, or electrification of some equipment or use of diesel drilling rig engines cleaner (Tier 4 levels for NOx on the drawworks engines, for example). Operations of workover engines would also not be allowed when drilling is occurring in order to reduce peak day emissions. Emissions offsets are validated and acquired through the SCAQMD Emissions Reduction Credit Program (ERC), which can then be sold to other operators for the installation of new equipment or the increase in emissions from existing equipment (SCAQMD Rule 1309). The EPA is phasing in Tier 4 engines requirements for new off-road engines from 2011 to 2014 that would reduce NOx emissions by about 50 percent compared to Tier 3 engines.

Impacts would be less than significant with the above listed mitigation detailed in mitigation measures AQ-2a and AQ-2b.

If Tier 4 engines are not available, ensuring that diesel engines meet at least the EPA Tier 3 requirements or equivalent on the drilling rig would help reduce emissions. The Applicant-proposed drilling rig is reported to have Tier 3 engines. AQ-2b ensures that any other rigs selected would also have Tier 3 engines. However, even with Tier 3 engines, NOx emissions levels would still exceed the regional thresholds and the use of electric motors or offsets would be required. The use of newer trucks would also reduce NOx emissions. However, since the availability of new trucks in many areas is unknown, this measure is assumed to be required where feasible and has not been accounted for in the emission calculations.

Requiring the use of internal floating roof tanks, more efficient vapor recovery, or other equivalent measures would reduce VOC emissions to less than the SCAQMD regional thresholds.

Localized impacts associated with NOx and PM would be reduced by requiring a BACT-compliant flare and clean diesel engines. Impacts would be less than the localized thresholds and impacts would be less than significant.

Emissions when the flare is not operating would not exceed the localized thresholds for the onsite equipment.

With the mitigation described above, the impact is reduced to a less than significant level.

2. Operational Odors

The operational phase of the Project has the potential to produce odors that could rise to the level of significance. With the implementation of mitigation, any potential impact will be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into, the Project that will ensure a less than significant operational odors impact. Specifically, the following mitigation measures are imposed upon the Project to ensure a less than significant impact:

> **AQ-3a** The Operator shall have a gas buster and SCAQMD-approved portable flare at the oil field and available for immediate use to circulate out and combust any gas encountered during drilling. The flare shall be capable of recording the volume of gas that is flared. The operator shall report any flared gas from drilling to the Los Angeles County Fire Chief and the SCAQMD.
>
> **AQ-3b** The Operator shall install a detection system that will monitor vapor space on all crude oil tanks. The detection system shall be capable of monitoring pressure in the vapor space of the tanks and notifying the operator via an alarm when the pressure

in the tanks gets within 10 percent of the tank relief pressure. If the tank pressure exceeds the relief pressure, the Operator shall report the incident to the SCAQMD as a breakdown pursuant to Rule 430, and submit a report of the breakdown to the Los Angeles County Fire Chief and the SCAQMD, which shall detail the corrective actions the Operator shall take to avoid exceeding the tank relief pressure.

AQ-3c The Operator shall develop an Odor Minimization Plan. The Odor Minimization Plan shall address potential sources of odors from all oil field equipment, including wells and drilling operation, and measures to reduce or eliminate these odors (e.g., containment, design modifications, carbon canisters). The Plan shall address issues such as facility information, buffer zones, signs with contact information, logs of odor complaints, the protocol for handling odor complaints and odor event investigations and methods instituted to prevent a re-occurrence.

AQ-3d The Operator shall develop an Air Monitoring Plan. The Plan shall provide for the monitoring of total hydrocarbon vapors and hydrogen sulfide at each well drill and re-drilling site and total hydrocarbon vapors at the gas plant. At all times during drilling and redrilling operations, the Operator shall maintain monitoring equipment that shall monitor and digitally record the levels of hydrogen sulfide and total hydrocarbon vapors. Monitors shall be installed at the edge of the drill pad and around the outer edge of the gas plant. Such monitors shall provide automatic alarms that are audible or visible to the Operator of the drilling equipment for the drill rig monitors, and gas plant for the gas plant monitors, and shall be triggered by the detection of hydrogen sulfide or total hydrocarbon vapors. Alarm points shall be set at a maximum of 5 and 10 ppm H2S and 500 and 1,000 ppm hydrocarbons, with the higher level requiring shut-down of drilling or gas plant operations and notification to appropriate agencies, including the Los Angeles County Fire Department and SCAQMD. A meteorological station to monitor wind speed and direction under the guidance and specification of the SCAQMD shall be installed at the Processing, or applicable location.

AQ-3e The Operator shall use an odor suppressant spray system or vapor capture hood and carbon filter system on the mud shaker tables, and shall install carbon capture canisters on all tanks (permanent and portable) that are not equipped with vapor recovery, containing potentially odiferous materials (for example; the mud baker-type tanks) for all drilling operations so that no odor can be detected at the closest receptor (e.g., residences, hiking trails, Ranger Residence).

(b) Facts in Support of Findings

Potential operations and drilling at the Whittier Main Oil Field would create odor events. Odor events could occur due to several different situations associated with equipment or drilling upset conditions. The equipment components could also leak and cause odors. Tanks are equipped with hatches to protect them from overpressure. If these hatches lift, due to a failure of the vapor recovery compressor, for example, odor events could occur. During drilling, drilling muds, well kicks, and releases from increased pressure up the wellbore could cause odor events. During drilling, pockets of gas can be encountered, which can be picked up by the circulating muds, brought to the surface, and released through the muds processing system. These types of releases have caused notices of violation (NOV) at other oilfields in the past, such as the Baldwin Hills Oilfield. Any of these scenarios would be considered a significant impact.

The release of material that contains even small amounts of sulfur compounds (H2S) or hydrocarbons produces an odor. Several compounds associated with the oil and gas industry can produce nuisance odors. Sulfur compounds, found in oil and gas, have very low odor threshold levels. The H2S levels in the produced gas from the Proposed Project wells are estimated to be less than a few parts per million.

Modeling was conducted to predict the potential extent of odor impacts from normal operations fugitive component leaks. The modeling utilized the same meteorological parameters and air dispersion models as the health risk analysis using the HARP Model. The H2S concentration was assumed to be 4 ppm, because hydrogen sulfide levels in the produced gas have historically been low and this is the limit allowed by the Southern California Gas Company. The odor threshold was conservatively set at 2 ppb for H2S. The resulting vapor cloud could produce odors downwind. The modeling was based on the peak hour of metrological parameters that could produce the greatest downwind distance.

The results indicated that normal operations fugitive emissions could produce concentrations greater than the odor threshold less than a few hundred feet from the Project equipment, which would not reach nearby residences. Impacts from normal operations fugitive emissions would therefore be less than significant.

Releases of materials causing odors can travel a substantial distance since the odor thresholds for materials can be very low, in the parts per billion. Odor impacts associated with accidental releases from the oil field could impact surrounding areas and could be a significant impact.

Odor events can be mitigated with systems that direct odor-causing releases to flare-type systems, odor masking materials, and systems in place to notify operators when releases could or do occur. These mitigation measures are utilized in oil fields in urban areas and have been incorporated into the Project through the above identified mitigation measures.

Regarding residual impacts, implementing the above identified mitigation measures would eliminate odor events that have resulted in odor complaints and NOV at other oilfields in the past, as well as other suspected sources of odors associated with the oil field operations.

Although odor events could still occur, the number of odor events with mitigation would most likely be reduced to less than six per year, according to the SCAQMD definition of a "nuisance," and would therefore be less than significant.

Using portable flares and odor suppressants as addressed in mitigation AQ-3a and AQ-3e during drilling would eliminate the odor events associated with mud vapors and drilling gasses. Technology to separate the muds from entrained gasses and utilize flares, or equivalent devices, to combust the gasses would prevent events similar to the January 2006 event at the Baldwin Hill Oil field, where gasses entrained in the muds were released and detected by oilfield neighbors. The flare systems would utilize a de-gassing vessel (i.e., gas buster); the muds would first pass through this vessel to release entrained gasses. These gasses would be combusted in a flare while the liquid muds would flow to muds processing. The dedicated flare pilot or igniter would automatically and immediately ignite the flare gasses. The flare would essentially eliminate all of the hydrocarbons in the gas, and the combustion of gasses would create substantial heat, providing the combusted products with sufficient buoyancy to rise quickly into the air without producing odors. This type of flare technology for drilling operations is well developed in the oil and gas industry.

Engineering analysis of the field operations identified tank hatches as a potential odor sources. The tanks have a relief system that relieves the pressure to the atmosphere instead of to the vapor recovery system if the pressure gets too high inside of the tank. This could occur if the vapor recovery system fails or if surges in fluid flow cause short-term increases in pressure that exceed the capacity of the vapor recovery system compressor. Ensuring appropriate monitoring of the tank relief systems would increase the understanding associated with intermittent tank releases and allow for minimizing these potential odor events by increasing compressor capacity if necessary.

By implementing these mitigation measures, the oil field operations would apply best available technology applied (e.g., tank monitoring, drilling flare and odor control, muds odor control). Impacts would therefore be reduced to less than significant with mitigation. With the mitigation described above, the impact is reduced to a less than significant level.

3. Toxic Emissions

Potential operations and drilling at the Project site would emit toxic materials. However, mitigation is imposed upon the Project to ensure a less than significant impact.

(a) Findings

Changes or alterations have been required in, or incorporated into, the Project that will ensure a less than significant toxic emissions impact. Specifically, the following mitigation measure is imposed upon the Project to ensure a less than significant impact:

> **AQ-5** The Applicant shall install CARB-verified Level 3 diesel catalysts on all diesel-powered drilling equipment or utilize diesel engines that have an equivalent PM emission rate (Tier 4 engines) or electric drilling rigs. The current list of CARB-Verified Level 3 diesel catalysts is available from

http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm. Catalysts or engine certifications shall demonstrate achieving 85% reduction for diesel particulate matter

(a) Facts in Support of Findings

Potential operations and drilling at the Whittier Main Oil Field would emit toxic materials. Based on SCAQMD annual emission reporting requirements, future operations at the oil field could exceed the emissions for equipment that is covered by the SCAQMD Rule 301 reporting requirements. Although the SCAQMD Rule 301 reporting requirement does not include mobile sources and temporary equipment (e.g., drill rigs and construction equipment), they have been included to provide a comparison of these emissions to the reporting thresholds.

As part of this analysis, a health risk assessment was conducted using the CARB Hotspots Analysis and Reporting Program (HARP) model. HARP is a computer software package that combines the tools of emission inventory database, facility prioritization, air dispersion modeling, and risk assessment analysis. All of these tools are tied to a single database allowing sharing and utilizations of information.

The Office of Environmental Health Hazard Assessment (OEHHA) document Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments outlines the risk assessment methods and procedures. The following paragraphs discuss the inputs associated with the model.

Receptor locations were established based on the Preserve boundary, a regional receptor grid, and the closest residences. The main receptor grid covered a 1- by 1-kilometer (0.6 by 0.6 miles) grid with spacing every 100 meters (328.1 feet). Receptors along the Preserve boundary were spaced approximately 20 meters (65.6 feet) apart.

The health risk assessment utilized local meteorological data for worst-case health risk estimates: SCAQMD meteorological data from the Whittier monitoring station is located on Leffingwell Road, approximately three miles northwest of the oil field.

Pursuant to SCAQMD Guidelines, terrain elevation heights were included in the modeling analysis. Digital Elevation Mapping data in the HARP modeling software were used to input elevation for all sources and receptors. Digital Elevation Mapping data from four U.S. Geological Survey quadrangles were required, which included Baldwin Park, El Monte, La Habra and Whittier.

It was assumed that all offsite individuals would experience a lifetime exposure (i.e., 70 years under the SCAQMD and OEHHA risk assessment guidelines) for operations and drilling. Two emission scenarios were evaluated in the analysis: a 70-year average emissions profile to estimate lifetime cancer risk, and a peak emissions year that was assumed to persist for 70 years to evaluate the SCAQMD's criteria limiting the risk per year to 1/70 of the maximum allowable risk. Since drilling would only occur over a five year period, the maximum emissions scenario represents a very conservative estimate of potential health risk.

Overall, the worst-case health risk associated with future operations exceeded applicable health risk criteria for individual cancer risk. Based on the health risk assessment modeling results, potential health risks would be considered potentially significant. Sources that contributed the greatest to the high health risk levels mainly included diesel engines, especially those associated with the drilling of new wells.

The cancer burden is defined as the estimated increase in the occurrence of cancer cases in a population subject to a MICR of greater than or equal to one in 1,000,000 (1 x 10-6) resulting from exposure to toxic air contaminants.

Emissions of toxic materials can be reduced by limiting operations near sensitive receptors and installing devices on the diesel engines that reduce emissions of toxic materials. These devices are verified and registered by the CARB and are commonly used on diesel engines throughout industry to reduce diesel particulate matter, the main toxic component of diesel exhaust.

Mitigation Measure AQ-5 requires the Applicant to install CARB-verified Level 3 diesel catalysts on all diesel-powered drilling equipment or utilize diesel engines that have an equivalent PM emission rate (Tier 4 engines) or electric drilling rigs. The current list of CARB-Verified Level 3 diesel catalysts is available from http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm. Catalysts or engine certifications shall demonstrate achieving 85% reduction for diesel particulate matter.

Regarding residual impacts, diesel catalysts are widely used to reduce emissions from diesel engines. CARB recommends diesel catalysts as part of their ongoing Airborne Toxic Control Measures and maintains a list of certifications of applicable technologies. CARB has evaluated various types of control options for diesel particulate and identified the control efficiency, cost, and source test data. CARB found that the most effective control technologies are catalyst-based diesel particulate filters. CARB requires diesel catalyst manufacturers to certify that they can achieve the required reduction levels.

To evaluate the effectiveness of the proposed mitigation measure, the HARP model was rerun using the same approach as was used to evaluate the potential future oil field development. Overall, worst-case health risks associated with mitigated project operations are below all applicable health risk criteria.

With implementation of mitigation, which would meet the SCAQMD Best Available Control Technology for Toxics requirements, impacts would be reduced to less than significant with mitigation. With the mitigation described above, the impact is reduced to a less than significant level.

C. BIOLOGICAL RESOURCES

1. Grading and Vegetation Clearing Impacts

Project grading and vegetation clearing for fuel modification, and increased noise, would result in adverse effects, either directly or through habitat modifications, on

sensitive wildlife species. However, with the implementation of mitigation, any potential impact will be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project that ensure a less than significant grading and vegetation clearing impact. Specifically, the following mitigation measures are imposed upon the Project to ensure any impact is less than significant:

> **BIO-1a** To mitigate the Project's permanent loss of 4.84 acres of coastal sage scrub, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the loss of habitat value due to the Project's noise impacts affecting 5.49 acres of coastal sage scrub, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 19.99 acres of degraded habitats in the La Cañada Verde and Arroyo Pescadero watersheds to coastal sage scrub communities, or as otherwise agreed to by the appropriate resource agencies and the City. No additional grading or habitat disturbance shall occur along the North Access Road beyond what is currently designated in the Road Improvement Plan included in Appendix A. All aspects of the restoration effort shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply:
>
> - All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).
>
> - The restoration specialist shall work with the Habitat Authority to select restoration sites in the Habitat Authority's Whittier Management Unit, preferably in the La Cañada Verde and Arroyo Pescadero watersheds.
>
> - A conservation easement shall be placed over any site restored under this mitigation measure. This easement will be submitted to the USFWS for review and approval.
>
> - Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not

met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority, the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-1b To prevent erosion and invasion by non-native weeds, and to help offset the Project's overall biological impacts including the temporal loss of habitat, the Applicant shall provide minimum 2:1 areal replacement of all graded slopes outside of permanent impact areas (approximately 8.03 acres; restoration

shall be revegetated exclusively with appropriate, locally indigenous plant species and will incorporate non-flammable species as appropriates. To mitigate the permanent disturbance to 12.34 acres of native habitats (7.07of chaparral and 5.27 acres of annual grassland), the Applicant shall provide minimum 1:1 areal replacement. To mitigate the temporary impacts to native and naturalized habitats due to noise impacts associated with truck hauling on the North Access Road, the Applicant shall provide minimum 1:1 areal replacement of 8.4 acres of native habitat. In total, the Applicant shall restore 22.5 acres of degraded habitats in the La Cañada Verde and Arroyo Pescadero watersheds to native communities, as agreed to by the appropriate resource agencies and the City. All contractors involved in the revegetation effort, including the revegetation specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority. Revegetation efforts shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply:

- All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant’s responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan’s long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time.

- The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-1c Restoration and revegetation efforts shall include the salvage and stockpile of weed-free topsoil (upper 12 inches of soil) from any and all areas of intact (non-weedy) native communities that are graded for Project implementation, as determined by the site monitor described in required by mitigation measure BIO-1 b, so that the soil can later be spread over graded slopes to increase native plant species diversity in the restored areas. Mature coast prickly pear, dudleya, and other translocatable species will be transplanted as feasible in the revegetation and fuel modification zones. Such salvage may also be appropriate for revegetation areas.

BIO-1d The Applicant or US Army Corps of Engineers shall consult with the US Fish and Wildlife Service to obtain an Incidental Take Statement, if needed, pursuant to Section 7 or Section 10 of the federal Endangered Species Act to cover the Project's potential "take" (which includes the permanent and temporary loss of approximately 5 acres of critical habitat and 5.49 acres of noise-related disturbance) of the coastal California gnatcatcher, a federally listed species.

(b) Facts in Support of Findings

The USFWS designates the Project Site as critical habitat for the federally threatened coastal California gnatcatcher. Two individual gnatcatchers and one family group have been observed within the Project Area boundaries during protocol surveys conducted in coastal sage scrub and riparian scrub on the Project Site. Project implementation would entail permanent loss of 4.84 acres of coastal sage scrub and 0.22 acres of riparian scrub for grading and clearing for fuel modification. Another 0.86 acres of coastal sage scrub and 0.03 acres of riparian scrub would be temporarily impacted by grading and then restored. These represent potentially significant adverse effects upon this listed species and its required habitat.

The DEIR indicates the "maximum hour noise contours" for the proposed project during operations, after noise mitigations are applied. The DEIR shows that required mitigation measures will generally reduce noise in the project area to levels between 40 and 60 dBA, although levels up to 70dBA are expected in zones extending up to approximately 200 feet from the edges of drilling pads. Noise levels below the level of 60 dBA are not expected to be adverse.

As discussed in Section 4.2.1.2 in the EIR, LSA Associates conducted noise-level surveys in the Bonita Reservoir wildlife habitat area during each year from 1996 through 2000. The Final Report concluded that California gnatcatchers can live and reproduce successfully in close proximity to roads and that "no adverse effects were observed during periods of noise levels higher than 60dBA Leq (i.e., during periods of construction activity)."

The limited area where levels are expected to increase to 60-70 dBA could be avoided by some special-status species, among them the coastal California gnatcatcher, a listed species known to occur within coastal sage scrub and riparian habitats in the local area. Therefore, increasing noise levels above 60 dBA within 5.49 acres of preserved coastal sage scrub habitat and 0.75 acres of preserved riparian habitat are identified as a potentially significant, adverse effect on the gnatcatcher and its habitats.

Hauling activities during the construction phase, which would be reduced with the Project refinements over that detailed in the EIR, have the potential to disturb nesting birds including nesting California gnatcatchers and wildlife movement. The noise contour analysis describes noise levels higher than 60dBA on 8.4 acres of native or naturalized habitats located along the North Access Road. However, this would be reduced with the Project refinements. Nevertheless, this is identified as a temporary but potentially significant impact.

One other listed species, the American peregrine falcon, has been recorded on the Project Site, but its occurrence appears to be limited to only occasional visitation during fall and winter. Project implementation would have adverse, but less-than-significant, effects upon this listed species. Several additional "special status" species that are not listed as threatened or endangered are present, or could be present, on the Project Site. The silvery legless lizard, yellow-breasted chat, pallid bat, and San Diego desert woodrat are California Species of Special Concern that are known or presumed to occur on the site (chats occur mainly in riparian areas but also utilize adjacent brushy habitats). The Project's permanent grading impacts to

approximately 13.54 acres and temporary impacts to approximately 8.03 acres of native upland habitats used by these species would be potentially less than significant with mitigation.

The remaining "special status" species either have only limited potential for occurrence on the Project Site (this includes the Los Angeles pocket mouse and black-tailed jackrabbit) or are "California Special Animals" that are widespread in the Puente-Chino Hills and elsewhere in the region.

The above identified mitigation would be imposed upon the Project to reduce these potential impacts

Regarding residual impacts, the use of the North Access Road would entail some widening and would require fuel modification clearance of 10 feet on either side. Impacts to coastal sage scrub and riparian habitats would be mitigated through 3:1 restoration of degraded areas; temporary impacts to habitats would be mitigated at a 2:1 replacement ratio to reduce the level of the temporal loss of habitat. Noise impacts associated with hauling activities on the North Access Road will be mitigated at a 1:1 replacement ratio. All areas temporarily impacted would be replanted with appropriate native habitats as designated by the HA guidelines. The existing North Access Road already passes through habitat of the federally listed California gnatcatcher. Due to the small amount of coastal dune scrub habitat (0.6 acres) that would be disturbed for all road improvements (with an additional 0.73 disturbed for fuel modification zone) and the high tolerance for noise this species has been shown to exhibit, the improvement of the road would have a negligible effect upon the local area's suitability for the continued occurrence of the gnatcatcher. Although the final geotechnical report has not been completed for the North Access Road, no new grading would be permitted along the North Access Road beyond the current grading boundaries.

As stated in section 4.2.1.2 in the EIR, "noise negatively influences bird populations and communities, and acoustic masking may be a dominant mechanism precluding many birds from breeding in noisy habitats" (Barber et al. 2009). The temporary impacts to sensitive nesting habitats resulting from construction and drilling noise would be offset by a 1:1 habitat replacement ratio.

Replacement ratios for grading of sensitive coastal sage scrub typically requires greater than 1:1 replacement. The proposed mitigation included in this analysis requires a 3:1 replacement for coastal scrub because: (1) the CDFG requested a replacement ratio of 3:1 for this Project during the Comment Phase of the previous Draft EIR; (2) the habitat loss would be located within a habitat preserve, with all this implies about existing habitat values and the sensitivity of this location in terms of being well-buffered against human intrusions and other constraints from surrounding development; (3) there would be impacts to preserved habitats that lie outside of limits of disturbance from "edge effects" that can't be completely eliminated through mitigation; (4) there would be temporal losses that would occur before the restoration efforts provide functioning habitat; and (5) ecological systems that are already under stress from surrounding intensive development exhibit a compromised capacity to rebound from disruptive processes, such as fire and human intrusion.

Implementing Mitigation Measures BIO-1a through BIO-1d would offset the proposed grading and noise impacts to coastal sage scrub and would reduce impacts to the coastal California gnatcatcher, silvery legless lizard, yellow-breasted chat, pallid bat (foraging), and San Diego desert woodrat, as well as any other special status species with potential to occur on the site, to less than significant with mitigation. Thus, the impact is reduced to a less than significant level.

2. Construction Impacts to Riparian Habitat

The proposed Project would result in the permanent and temporary loss of 1.0 acre of mulefat scrub riparian habitat, a federally protected aquatic resource as defined by Section 404 of the Clean Water Act, and increased noise could temporarily inhibit wildlife use of preserved riparian habitat. Nevertheless, mitigation is imposed that will ensure a less than significant impact.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant construction impact to riparian habitat. The following measures will ensure a less than significant impact.

> **BIO-2a** To mitigate the Project's permanent loss of 0.22 acre of riparian habitat, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the Project's noise impacts affecting 0.75 acres of riparian habitat, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 1.41 acres of degraded areas within the La Cañada Verde and Arroyo Pescadero watersheds, or as otherwise agreed to by the appropriate resource agencies and the City. The 0.12 acre of temporary grading impact would be mitigated through the 1:1 revegetation specified in BIO-1.b. All aspects of this restoration shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following points shall apply:
>
> - All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).
>
> - Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not

met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time.

- The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., CDFG, USACE, U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-2b The Project proponent shall be required to obtain all applicable federal and state permits and agreements, including: (1) a Section 404 Permit from the US Army Corps of Engineers; (2) certification, or a waiver of certification, from the Los

Angeles Regional Water Quality Control Board that the activity would not adversely affect water quality; and (3) a Streambed Alteration Agreement from the California Department of Fish and Game.

(b) Facts in Support of Findings

Project implementation would include road widening and vegetation clearing on the sides of roads, including Catalina Road, the construction of new underground oil and gas production pipelines along the Loop Road, and the installation of an underground electrical power line along the main access road from the Project Site to the tie-in of the SCE Line at Ocean View Avenue that would result in the permanent loss of 0.08 acres of mulefat scrub and riparian habitats and the temporary loss of 0.03 acres of mulefat scrub riparian habitat. Fuel modification would consume an additional 0.14 acres of this habitat, which is federally protected as defined by the USACE Section 404 of the Clean Water Act. The loss of this habitat would adversely affect these regulated and biologically sensitive resources and the special status species that depend on them, such as the yellow-breasted chat, which would be a less than significant impact with mitigation.

The area where noise levels are expected to increase to 60-70 dBA could be avoided by some special-status species, among them the coastal California gnatcatcher, a listed species known to occur within both coastal sage scrub and riparian habitats in the local area. Therefore, increasing noise levels above 60 dBA within 0.75 acres of preserved riparian habitat are identified as a potentially significant, temporary adverse effect on this habitat.

Regarding residual impacts, replacement ratios for grading sensitive riparian habitats typically require greater than 1:1 replacement depending on the quality and quantity of disturbance. The proposed mitigation included in this analysis requires 3:1 replacement for impacts to riparian habitat because: (1) the habitat loss would be within a habitat preserve, with existing habitat values and the sensitivity of this location in terms of being well-buffered against human intrusions and other constraints from surrounding development; (2) impacts to preserved habitats that lie outside of limits of disturbance from "edge effects" cannot be completely eliminated through mitigation; (3) temporal losses would occur before the restoration efforts provide functioning habitat; and (4) ecological systems already under stress from surrounding intensive development exhibit a compromised capacity to rebound from disruptive processes, such as fire and human intrusion.

The temporary impacts to sensitive nesting habitats resulting from construction and drilling noise would be offset by a 1:1 habitat replacement ratio. Implementation of Mitigation Measure BIO-2a and BIO-2b would offset and reduce impacts to streambeds and riparian habitat areas to levels less than significant with mitigation. With the mitigation described above, the impact is reduced to a less than significant level.

3. <u>Oil Spill Impacts on Riparian and Coastal Sage Scrub</u>

A rupture or leak from oil wells, pipelines, or exposure to materials from other oil field-related infrastructure has the potential to result in a substantial adverse effect on native

species and habitats, sensitive species, sensitive species habitat, and sensitive habitats including riparian and coastal sage scrub. However, with the implementation of mitigation, any impacts will be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant oil spill impact. Specifically, the following mitigation measures are imposed upon the Project to ensure a less than significant impact.

> **BIO-3a** The applicant shall prepare an Emergency Response Action Plan that would address protection of sensitive biological resources and revegetation of any areas disturbed during an oil spill or cleanup activities. The Emergency Response Action Plan shall, at a minimum, include specific measures to avoid impacts to native vegetation and wildlife habitats, plant and animal species, and environmentally sensitive habitat areas during response and cleanup operations. The Emergency Response Action Plan shall include provisions for containment and cleanup within 2 miles downstream of the Project Site. The plan shall contain detailed descriptions of various containment and cleanup alternatives for each segment of the streambed. Selection of a containment alternative would be made during an emergency event, but the approach and plan shall be reviewed by the California Division of Fish and Game, the Los Angeles Regional Water Quality Control Board, and Los Angeles County Flood Control District.
>
> Where feasible, low-impact, site-specific techniques such as hand-cutting contaminated vegetation and using low-pressure water flushing shall be specified to remove spilled material from particularly sensitive wildlife habitats, such as riparian woodlands, because procedures such as shoveling, bulldozing, and raking can cause more damage to a sensitive habitat than the oil spill itself. The Emergency Response Action Plan shall evaluate the non-cleanup option for ecologically vulnerable habitats.
>
> When habitat disturbance cannot be avoided, the Emergency Response Action Plan shall provide stipulations for development and implementation of site-specific habitat restoration plans and other site-specific and species-specific measures appropriate for mitigating impacts to local populations of special-status wildlife species and to restore native plant and animal communities to pre-spill conditions. Access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas shall be identified. The Emergency Response Action Plan shall include

species- and site-specific procedures for collection, transportation and treatment of oiled wildlife, particularly for sensitive species.

The Emergency Response Action Plan shall include procedures for timely re-establishment of vegetation that replicates the habitats disturbed (or, in the case of disturbed habitats dominated by non-native species, replaces them with suitable native species).

The Emergency Response Action Plan shall be approved by the City and Habitat Authority prior to commencing any construction activities.

BIO-3b To reduce exposure risks to wildlife in the Project Site area, all open basins containing any Project-related fluids shall either be emptied at the end of each day or fenced and covered to exclude all wildlife, including birds, bats, and amphibians. Drilling muds, concrete waste, and truck washing water shall be contained within closed Baker-style tanks or collected by a vacuum truck before the end of each day and shall not be stored overnight in open pits.

(b) Facts in Support of Findings

A rupture or leak from oil wells, pipelines, or exposure to materials from other oil field-related infrastructure has the potential to result in a substantial adverse effect on native species and habitats, sensitive species, sensitive species habitat, and sensitive habitats including riparian and coastal sage scrub. Oil field operations could result in spills due to geologic hazards, mechanical failure, structural failure, corrosion, or human error during drilling, hauling, piping, or processing operations. The most likely spills from the facility would involve crude oil and/or produced water. Such spills or cleanup activities could potentially result in impacts to biological resources onsite or offsite. Small leaks or spills, which are contained and remediated quickly, may have minor or negligible impacts to biological resources. In contrast, large spills or pipeline or tank ruptures, could spread into sensitive habitats (i.e., riparian or coastal sage scrub habitats) and substantially degrade their value, with potential long-term impacts to biological resources. Future oil development increases the potential for leaks or spills, and associated impacts to biological resources.

Depending on the location of the infrastructure rupture or failure, such a spill could flow into the riparian drainages near the Project Well Site, the proposed oil and gas pipelines running along the Loop Road, and/or the proposed access roads which will be used to haul product in haul trucks. Spills and associated contaminated storm water runoff reaching any of these waterways could have significant and widespread impacts to water quality and, consequently, to sensitive biological resources associated with this habitat. Impacts to biological resources from a potential oil spill associated with the future oil development would be potentially significant, but mitigable.

In addition, the Applicant maintains an Emergency Response Action Plan, which includes Specific Incident Response Checklists for potential piping rupture or leak, valve rupture or leak, manifold failure, and storage tank leaks. This plan prioritizes procedures for facility personnel to mitigate or prevent any discharge resulting from facility operations. Spill mitigation procedures and response guidelines are provided for discharges of crude oil and produced water that could result from such leaks or failures.

The potential for oil spills and associated impacts to biological resources is limited by mitigation measures developed for the potential impacts related to the risk of upset, hazards, and hazardous materials and related to hydrology and water resources as detailed below. Mitigation developed for the Project's potential impacts to hydrology and water resources includes secondary containment around tanks; design of retention basins; Spill Prevention, Control and Countermeasure Plan; a Pipeline Management Plan; and the requirement of an Emergency Response Action Plan; all of which would act to limit the potential for onsite spills and associated significant impacts. Where a spill or cleanup could impact sensitive species, or the loss of habitat for sensitive species, implementing Mitigation Measures BIO-3a and BIO-3b would further reduce impacts on biological resources.

Regarding residual impacts, implementing several mitigation measures, as well as infrastructure preventative maintenance, structural integrity tests, and routine inspections, would reduce the likelihood and severity of potential spill and exposure impacts to sensitive biological resources to less than significant with mitigation. Typically oil spills that occur on land are easily contained and impacts are minimized.

The Hydrology and Water Resources section of the EIR identifies potential long-term significant impacts to biological resources from a potential spill from the facility involving crude oil or produced water. Such spills could potentially result in water quality impacts to creeks and shallow groundwater. Small leaks or spills, which are contained and remediated quickly, may have minor or negligible impacts to water resources. In contrast, large spills, such as those from a tank rupture at the processing facility, well blow-out, or pipeline rupture, could spread to surface waters or groundwater and could substantially degrade water quality. However, the Project area presents limited riparian resources or sensitive species that could be affected by a substantial oil spill and this impact is considered significant and mitigable.

With the mitigation described above, the impact is reduced to a less than significant level.

4. Impacts to Wildlife Species and Migratory Corridors

The proposed Project could substantially interfere with the movement of native resident or wildlife species or with established native resident or migratory wildlife corridors, or interfere with the use of native wildlife nursery sites. With the implementation of mitigation, any potential impact will be reduced to less than significant.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant wildlife species and migratory corridors impact. Specifically, the

following mitigation measures are imposed upon the Project to ensure a less than significant impact.

BIO-4a Devices and measures shall be employed to minimize noise effects on wildlife. At a minimum, noise barriers shall surround the drill rig floor, mud mixers, cleaners, conveyers, shakers, pumps, and other oil development and operational facilities; construction activities shall be limited to daylight hours except for emergencies; construction machinery shall be operated per manufacture's specifications; and a Noise Reduction Plan and monitoring plan shall be implemented to ensure that Project activities are operating within the ranges included in mitigation measure N-4.

BIO-4b All Project lighting shall be designed and shielded with the intent of preventing spillage of light into adjacent preserved open space areas. Outdoor lighting shall be restricted to lights required by code for lighting building exteriors and for safety and security needs. All Project lighting shall be fully shielded and designed to prevent spillage of light into adjacent preserved open space areas. Lighting shall be constructed so that all light emitted by the fixture, either directly from the lamp or from a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizontal as determined by photometric test or certified by the manufacturer. Any structural part of the light fixture providing this shielding shall be permanently affixed. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency. After initial installation of Project lighting, a biological monitor acceptable to the City and Habitat Authority shall conduct a field inspection to confirm that the proper lamps have been installed and that light spillage into the Preserve has been minimized to the maximum extent feasible without compromising safety or other critical night-lighting requirements.

BIO-4c To minimize the potential for road mortality of wildlife, all roads within the Preserve boundary used to access onsite oil facilities shall have enough traffic calming devices, appropriately sized and spaced, to limit traffic to a maximum speed of 10 miles per hour. All nighttime traffic shall be minimized during the construction and operational phases and permitted only for activities required for safety reasons or emergencies; all hauling activities shall be restricted to daylight hours, defined as the hours after sunrise and before sunset. This restriction shall be in addition to any others placed on the Project, including by mitigation measure N-4, which is intended mainly to limit noise

impacts upon neighboring residential communities, consistent with the City Municipal Code. No permanent solid walls or k-rail walls shall be placed along the North Access Road. The use of k-rails in this area would require wildlife passages placed every 20 feet to allow wildlife to move freely off the road.

BIO-4d Any project landscaping shall consist entirely of species native to the Project Site and surrounding areas within the Preserve and approved by the County of Los Angeles Fire Department and the Habitat Authority. Any irrigation provided shall be limited to that required to initially establish the native plants; no permanent irrigation shall be permitted.

BIO-4e To minimize potential impacts to nesting native bird species, and in compliance with the federal Migratory Bird Treaty Act and Sections 3503, 3503.5, or 3513 of the California Fish and Game Code, initial construction of the pad sites and facilities and annual fuel modifications involving vegetation removal/trimming shall be done outside the breeding season (February 15 through August 31). If construction must be completed during this period, then surveys for nesting birds must be conducted within 3 days prior to vegetation removal or other construction-related disturbances. USFWS protocol surveys for listed avian birds (California gnatcatcher and least Bell's vireo) shall be conducted if disturbances occur in coastal sage scrub or riparian habitats. If nesting birds are observed within the vicinity, then a minimum 100-foot buffer from the nest would be established. The buffer would be delineated by orange construction fencing and signage and would remain in place until the nest is abandoned or the young have fledged. The nest monitor would be present when any buffer fencing is established. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. At minimum, the biologist would check for new active nests, and determine the status of ongoing active nests, weekly during the specified nesting season. The biologist would ensure that all fencing and signage was properly maintained, and would provide weekly e-mail updates on the status of all monitored nests to the City, Habitat Authority, CDFG, and USFWS. If the biologist determines that California gnatcatcher nesting is being disrupted, the construction activities will cease and wait until the young have fledged or the nest is determined to have failed.

BIO-4f Hawks and owls nest earlier than most other native birds. If initial construction activities, drilling, re-drilling, ground

disturbance, or vegetation clearing, or annual fuel modification involving vegetation removal/trimming occurs from December 1 through August 31, the nest monitor would conduct a pre-construction survey within 3 days prior to vegetation removal or other construction-related disturbances focused on actively nesting hawks or owls. If any actively nesting hawks or owls are found, a 300-foot buffer would be established around the nest tree to help ensure that nesting is not disrupted. If any active songbird nests are found, a 100-foot buffer would be established as described in BIO-4e. The buffer would be delineated by orange construction fencing and signage and would remain in place until the nest is either abandoned or the young have fledged. The nest monitor would be present when any buffer fencing is established. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. At a minimum, the biologist would check for new active nests, and determine the status of ongoing active nests, weekly during the specified nesting season. The biologist would ensure that all fencing and signage was properly maintained, and would provide weekly e-mail updates on the status of all monitored nests to the City, Habitat Authority, CDFG, and USFWS.

BIO-4g To avoid the direct loss of special-status bats that that could result from removal of trees that may provide maternity roost habitat (e.g., in cavities or under loose bark), the following steps shall be taken:

- Tree removal or relocation shall be scheduled between October 1 and February 28, outside of the maternity roosting season.

- If trees must be removed during the maternity season (March 1 to September 30), a qualified bat specialist (i.e., a person holding a California Department of Fish and Game collection permit and a memorandum of understanding allowing the handling and collection of bats) shall conduct a pre-construction survey to identify those trees proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. Each tree identified as potentially supporting an active maternity roost shall be closely inspected by the bat specialist a maximum of 7 days prior to tree disturbance to more precisely determine the presence or absence of roosting bats.

- Immediately after completion of the pre-construction surveys, and prior to any tree removals, the bat specialist will prepare a

report providing the results of these surveys and identifying actions to be taken to avoid or minimize potential impacts to roosting bats due to authorized tree removal or other potential bat roosting habitats.

- The pre-construction report shall be provided to the City and the Habitat Authority prior to any tree removal.

- If bats are not detected, but the bat specialist determines that roosting bats may be present, it is preferable to push the tree down using heavy machinery rather than felling it with a chainsaw.

- Maternity season lasts from March 1 to September 30. Trees determined to be maternity roosts shall be left in place until the end of the maternity season.

- A 250-foot buffer, in which no construction activities are permitted, shall be established around any tree, rock outcrop, or other occupied roost habitat until bats have left the maternity site or the end of the maternity season (whichever is later).

- The bat specialist shall document all monitoring activities, and shall prepare a summary report upon completion of tree disturbance activities. Reports would include the following:

- the number and type of affected trees determined to support or potentially support roosting bats prior to disturbance;

- any actions undertaken to safely exclude roosting bats prior to disturbance and the results of those actions;

- trees temporarily avoided to protect roosting bats; and

- roosting bats found (alive or dead) after trees were removed or relocated.

- This report shall be provided to the City and Habitat Authority within 30 days following completion of tree removals.

BIO-4h To reduce impacts to wildlife movement corridors and to provide protective cover for wildlife using the Service Tunnel, and consistent with the Resource Management Plan recommendations, the Applicant shall be required to install appropriate native screening vegetation around the western terminus of the Service Tunnel (LSA 2007). The Applicant shall consult with the Habitat Authority to identify the appropriate limits of screening vegetation. The plantings installed as

screening shall comply with the Habitat Authority's Restoration Guidelines. All contractors involved in the native screening effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority.

BIO-4i Consistent with the Resource Management Plan recommendations, Project lighting shall not be directly visible from the western terminus of the Service Tunnel.

BIO-4j Consistent with the Resource Management Plan recommendations, the Project proponent shall be required to consult with the Habitat Authority to develop and implement signage explaining the importance of limiting human disturbances in the vicinity of the Service Tunnel between sunset and sunrise.

BIO-4k A qualified biological monitor approved by the City, USFWS, CDFG, and the Habitat Authority shall be onsite during all vegetation removal and initial ground disturbance activities to ensure the compliance with all permit conditions protecting biological resources. The biological monitor shall be present to salvage wildlife species that may be otherwise killed or injured by heavy equipment and vegetation clearing. All salvaged wildlife shall be relocated to suitable adjacent habitat within the Preserve. The biological monitor shall have the authority to temporarily halt activities if permit requirements and conditions are not being met. The biological monitor shall conduct annual site inspections of the facilities, roads, and operations activities to ensure that all applicable mitigation measures are being enacted. The biological monitor shall prepare an annual summary report describing site visit observations and shall provide this report to the City, Habitat Authority and regulatory agencies (including CDFG, US ACE, and USFWS) for review.

BIO-4l The Applicant shall fund and implement a biological resources training program for all construction workers, oilfield workers, and their contractors. Training shall occur annually and as needed for new workers. Training program shall be reviewed and approved by the HA and shall include a description of important biological resources within the Preserve and all applicable conditions, permit requirements, and protection measures implemented to protect those resources.

BIO-4m All grading limits shall be delineated by orange construction fencing and permanent signage every 50 feet along the fence stating “No Entry — Sensitive Habitat.” The City and

the Habitat Authority shall approve the fencing prior to commencement of grading activities (including clearing and grubbing).

BIO-4n Recreational access to the Arroyo San Miguel Trail shall be closed during construction or drilling activities at the Drill Pad Site. To continue providing recreation access to the Arroyo San Miguel Trails (on the east side of Colima Road), the Applicant shall develop additional recreational access, in coordination with the Habitat Authority, to the Arroyo San Miguel Trail by any of the following or equivalent: (1) enhancing the parking area on the east side of Colima Road; (2) developing the parking area along La Flore Drive, approximately 1 mile east of Colima Road; or (3) developing pedestrian access along Colima Road from the Preserve parking area (on the west side of Colima Road) utilizing the new signalized intersection.

(b) Facts in Support of Findings

The Project Site has been recognized as occupying an especially sensitive and important portion of both the Preserve and the greater Chino-Puente Hills region. Data collected during several studies on the preserve show evidence of large (coyote, bobcat, mule deer, and mountain lion) and mid-size (raccoon, possum, and skunk) mammals moving through the Project area, surrounding habitat, and residential areas. Land use policies in the Whittier Hills and in the wider Chino-Puente Hills region have been designed and implemented with an understanding that the lands that include the Project Site would be restored, maintained, and preserved consistent with their special land use designations. For these reasons, loss and degradation of habitats at the Project Site could be expected to have greater adverse effects upon ecological processes and native wildlife populations than would occur in an area with comparable natural communities that does not occupy such a sensitive location within a natural Preserve.

Regarding Core Habitat Impacts, the Project Site, pipeline routes, and access roads are predominantly located in the La Cañada Verde watershed, within the Preserve's designated Core Habitat Management Zone, an area currently set aside for the sole purpose of providing undisturbed habitat for wildlife. The North Access Road is located deepest within the Core Habitat. This is the largest contiguous area in the Preserve that is well-buffered from such "edge effects" as lighting, noise, and intrusions by humans and domestic animals. It is an area that biologists characterize as a "native wildlife nursery site" for such species as the mule deer and bobcat. During the 30-year life of the Project, levels of noise, light, human presence, and vehicle traffic would increase in all parts of the Project Site, including areas that serve as nursery sites and that have been purposefully set aside for the purpose of conservation of natural communities and their constituent species. The removal of native vegetation and non-native vegetation would result in the loss of important nesting habitat for songbirds and raptors. These represent potentially significant adverse effects upon wildlife populations in the Preserve.

In the Puente Hills, the bobcat has been a focus of conservation concern, as it is a widely distributed top predator that exhibits some sensitivity to human activity. Use of the Service Tunnel by bobcats and other native wildlife species has remained high following the tunnel's opening to human use in 2002. Bobcats do show a negative response to urbanization. Research from across the region has demonstrated that other wildlife species including coyote, raccoon, and mule deer, exhibit only a moderately negative or positive response to urbanization. It is also relevant that, for many decades, extensive and unmitigated oil operations took place across a much wider portion of the La Cañada Verde and Arroyo Pescadero watersheds than is currently being proposed, and wildlife species including bobcat continue to use, or have returned to the area to use, the resources that are currently present in the Preserve. For these reasons, the proposed actions are not anticipated to result in a long-term impact to that habitat that would substantially inhibit the bobcat, other larger mammal species, migratory bird nesting habitat, and bat species' use of the La Cañada Verde watershed, either as a nursery site or as a movement corridor. It is concluded that the Project's potential impacts on bobcats and other wildlife species will be adverse, but less than significant with provision of the required mitigation measures.

Vibrations associated with drilling would vary over time. The highest vibration levels experienced by wildlife would most likely occur during the initial portion of drilling a well, during approximately the first 100 feet of drilling, and this would last a matter of hours when they are drilling close to the surface. The actual peak vibration levels during this period would be only for a sum total of a matter of minutes. One well would be drilled per month. Therefore, while it is possible that some wildlife in the vicinity of the drilling operation, such as bobcats, would experience anxiety due to vibrations produced during high-vibration periods, those periods would be rare and relatively short-lived, lasting for only a period of hours per month. Data on wildlife response to vibration impacts is not well documented; however, the typical response observed by the EIR preparers for most wildlife to a short-term, infrequent event, is short term avoidance, but if the abnormal condition (such as noise and vibration) ceases, wildlife species typically return to their normal behavior. Therefore, impacts to wildlife resulting from vibrations, expected to last only a few minutes for each well drilled, are considered to be adverse, but less than significant.

Use of the North Access Road would require road widening, the installation of retaining walls, clearance of 10 feet on either side for fuel modification, and would directly impact approximately 4.75 acres of vegetated habitats (not including the existing road area). In addition, noise impacts associated with hauling activities during the construction phase could impact and wildlife movement through the area. Hauling activities, which includes up to 84 round trip truck trips per day during the construction phase, have the potential to disturb nesting birds including nesting California gnatcatchers and wildlife movement. The noise contour analysis describes noise levels higher than 60dBA on 8.4 acres of native or naturalized habitats located along the North Access Road, which is identified as a temporary but potentially significant impact and mitigated with mitigation measure BIO-1b.

The North Access Road is located in the core habitat of the Preserve, which currently has minimal disturbances. This access road would increase pressure on an already constricted wildlife movement corridor and therefore, the overall effect would be an increase in impacts to biological resources. Installation of a k-rail wall could restrict wildlife movement on the road.

The proposed Project would have contributed an average additional 24 vehicles per day during operations and up to 84 truck trips during excavation activities that are anticipated to last 120 days during the construction phase. However, with the Project refinements, these truck trips are substantially lessened. This additional Project-related traffic would result in an increased potential for mortalities and injuries to wildlife in the vicinity of the road and would also temporarily increase noise impacts from larger trucks utilizing the North Access Road. These impacts would be the most severe during the construction phase.

Impacts to wildlife movement would be significant but mitigable in most areas of the proposed Project. However, increased levels of drilling operations and human activities in the Core Habitat, which currently has minimal disturbances, would result in substantial impacts to wildlife movement. The impacts would be most severe in those areas farthest away from existing human pressures. The increased levels of noise, light, human presence, and vehicle traffic, during both the construction and operational phases of the Project, could result in significant adverse effects upon a critical wildlife movement linkage.

The intersection of the Loop Road and Colima Road, a portion of the underground oil and gas production pipelines and metering station is located near the entrance (approximately 1,750 feet) away from the Service Tunnel, which is an important region-wide linkage for terrestrial wildlife attempting to traverse Colima Road immediately east of the Project Site. It is expected that wildlife use of the Service Tunnel would be adversely affected by activities in the eastern portion of the project area. The Service Tunnel has been identified as an important element of wildlife movements in the area and the impacts to wildlife movement would be significant. The Service Tunnel has also been utilized as a recreational resource as part of the Arroyo San Miguel trail, which passes through the tunnel and accesses the Preserve on the east side of Colima Road. Impacts from the Project could be partially mitigated by closing the Arroyo San Miguel trail that utilizes the tunnel to recreational use, at least during the most intensive activities, such as drilling or construction.

Various species of wildlife have been found along the shoulders of Colima Road in recent years due to vehicle-strikes, even though wildlife use of the Service Tunnel has also been heavy. It is expected that these patterns will not change substantially if drilling occurs approximately 1,850 feet west of the Service Tunnel, at the Project site. A network of old oilfield roads and trails feeds down to the lower Arroyo Pescadero watershed from the hills north of the proposed drilling area. Wildlife choosing to avoid the proposed drilling site by moving through the hills to the north would encounter two different roads that would provide an alternative route through the Arroyo Pescadero (which does not have any other easy crossing points except at its extreme southern edge, next to existing houses) and then proceed southeast to the Service Tunnel.

Regarding residual impacts, the Project would result in impacts on individual animals; most of the direct loss or injuries would be expected for the smaller, wildlife species such as rodent species, lizards, snakes, and amphibians, all of which have small home ranges. The removal of both native and non-native vegetation, would impact nesting habitat; however the RMP does target eucalyptus trees for removal as part of the exotic plant control program and restoration of areas with native vegetation would replace the loss of nesting habitat. Impacts to wildlife movement are expected; however, impacts are not expected to be catastrophic, or lead

to the loss of an entire species from the area. Improvements on the North Access Road, which include grading and installing retaining walls and traffic barriers on steeper slopes are not expected to substantially affect wildlife movement on the access road because the retaining walls are located in areas with steeper slopes adjacent to cuts along the existing roads (which are already less likely to be used for wildlife access) and Mitigation Measure BIO-4b, which restricts permanent solid walls or requires the placement of wildlife passage corridors, will provide wildlife with access off of the road. Most wildlife species living in the open spaces in the project area are accustomed to some level of human disturbance; the Preserve has experienced years of previous oil development and is surrounded by a densely populated residential area, and yet, wildlife still persist.

Implementing mitigation measures recommended for noise and vibration detailed below, would reduce impacts to wildlife inhabiting the Project area and species migrating through the area. Mitigation Measure N-1a limits the construction activities to daylight hours and the Traffic Section mitigation now limits all truck travel from 8 a.m. to 3 p.m. due to the parking limitations along Penn Street; mitigation measure N-1b requires that all construction machinery operate according to the manufacture's specifications. Mitigation Measure N-2a requires a Noise Reduction Plan for all drilling operations that requires appropriate noise levels, 30-foot high enclosures around drill rigs, soundproofing around other facilities and machinery, barrier composition and design, and backup indicators. Mitigation Measure N-2b requires a quiet mode for facility operations at night. Mitigation Measure N-2c requires a noise abatement study to monitor noise levels at specific sensitive resources and includes shut-down authority if noise criteria are exceeded. Mitigation Measure N-4 requires a Noise Reduction Plan for all operational activities to ensure that all Project activities operate within the dB range defined in Mitigation Measure N-4.

Implementing the proposed mitigation described above, including minimizing noise impacts (BIO-4a); designing project lighting to be shielded and directed away from open space areas (BIO-4b); reducing speed limits and night driving (BIO-4c); installing native screening around the existing Service Tunnel (BIO-4h); requiring a biological monitor onsite during ground disturbance activities to ensure protection measures are being implemented (BIO-4k); and implementing a biological resources training program (BIO-4l), would reduce impacts to wildlife nursery sites and wildlife corridors and linkages to less than significant. Thus, the impact would be reduced to a less than significant level.

5. Conflicts with Local Policies and Ordinances

The proposed Project would conflict with local policies and ordinances protecting biological resources, such as a tree preservation policy or ordinance. Nevertheless, mitigation is imposed to ensure a less than significant impact.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact. Specifically, the following mitigation measures are imposed upon the Project to ensure a less than significant impact.

BIO-1a To mitigate the Project's permanent loss of 4.84 acres of coastal sage scrub, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the loss of habitat value due to the Project's noise impacts affecting 5.49 acres of coastal sage scrub, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 19.99 acres of degraded habitats in the La Cañada Verde and Arroyo Pescadero watersheds to coastal sage scrub communities, or as otherwise agreed to by the appropriate resource agencies and the City. No additional grading or habitat disturbance shall occur along the North Access Road beyond what is currently designated in the Road Improvement Plan included in Appendix A. All aspects of the restoration effort shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply:

- All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- The restoration specialist shall work with the Habitat Authority to select restoration sites in the Habitat Authority's Whittier Management Unit, preferably in the La Cañada Verde and Arroyo Pescadero watersheds.

- A conservation easement shall be placed over any site restored under this mitigation measure. This easement will be submitted to the USFWS for review and approval.

- Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority, the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A

minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-1b To prevent erosion and invasion by non-native weeds, and to help offset the Project's overall biological impacts including the temporal loss of habitat, the Applicant shall provide minimum 2:1 areal replacement of all graded slopes outside of permanent impact areas (approximately 8.03 acres; restoration shall be revegetated exclusively with appropriate, locally indigenous plant species and will incorporate non-flammable species as appropriates. To mitigate the permanent disturbance to 12.34 acres of native habitats (7.07of chaparral and 5.27 acres of annual grassland), the Applicant shall provide minimum 1:1 areal replacement. To mitigate the temporary impacts to native and naturalized habitats due to noise impacts associated with truck hauling on the North Access Road, the Applicant shall provide minimum 1:1 areal replacement of 8.4 acres of native habitat. In total, the Applicant shall restore 22.5 acres of degraded habitats

in the La Cañada Verde and Arroyo Pescadero watersheds to native communities, as agreed to by the appropriate resource agencies and the City. All contractors involved in the revegetation effort, including the revegetation specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority. Revegetation efforts shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply:

- All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time.

- The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-1c Restoration and revegetation efforts shall include the salvage and stockpile of weed-free topsoil (upper 12 inches of soil) from any and all areas of intact (non-weedy) native communities that are graded for Project implementation, as determined by the site monitor described in required by mitigation measure BIO-1 b, so that the soil can later be spread over graded slopes to increase native plant species diversity in the restored areas. Mature coast prickly pear, dudleya, and other translocatable species will be transplanted as feasible in the revegetation and fuel modification zones. Such salvage may also be appropriate for revegetation areas.

BIO-1d The Applicant or US Army Corps of Engineers shall consult with the US Fish and Wildlife Service to obtain an Incidental Take Statement, if needed, pursuant to Section 7 or Section 10 of the federal Endangered Species Act to cover the Project's potential "take" (which includes the permanent and temporary loss of approximately 5 acres of critical habitat and 5.49 acres of noise-related disturbance) of the coastal California gnatcatcher, a federally listed species.

BIO-2a To mitigate the Project's permanent loss of 0.22 acre of riparian habitat, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the Project's noise impacts affecting 0.75 acres of riparian habitat, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 1.41 acres of degraded areas within the La Cañada Verde and Arroyo Pescadero watersheds, or as otherwise agreed to by the appropriate resource agencies and the City. The 0.12 acre of temporary grading impact would be mitigated through the 1:1

revegetation specified in BIO-1.b. All aspects of this restoration shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following points shall apply:

- All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time.

- The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., CDFG, USACE, U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). - Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-2b The Project proponent shall be required to obtain all applicable federal and state permits and agreements, including: (1) a Section 404 Permit from the US Army Corps of Engineers; (2) certification, or a waiver of certification, from the Los Angeles Regional Water Quality Control Board that the activity would not adversely affect water quality; and (3) a Streambed Alteration Agreement from the California Department of Fish and Game.

BIO-3a The applicant shall prepare an Emergency Response Action Plan that would address protection of sensitive biological resources and revegetation of any areas disturbed during an oil spill or cleanup activities. The Emergency Response Action Plan shall, at a minimum, include specific measures to avoid impacts to native vegetation and wildlife habitats, plant and animal species, and environmentally sensitive habitat areas during response and cleanup operations. The Emergency Response Action Plan shall include provisions for containment and cleanup within 2 miles downstream of the Project Site. The plan shall contain detailed descriptions of various containment and cleanup alternatives for each segment of the streambed. Selection of a containment alternative would be made during an emergency event, but the approach and plan shall be reviewed by the California Division of Fish and Game, the Los Angeles Regional Water Quality Control Board, and Los Angeles County Flood Control District.

Where feasible, low-impact, site-specific techniques such as hand-cutting contaminated vegetation and using low-pressure water flushing shall be specified to remove spilled material from particularly sensitive wildlife habitats, such as riparian woodlands, because procedures such as shoveling, bulldozing, and raking can cause more damage to a sensitive habitat than the oil spill itself. The Emergency Response Action Plan shall

evaluate the non-cleanup option for ecologically vulnerable habitats.

When habitat disturbance cannot be avoided, the Emergency Response Action Plan shall provide stipulations for development and implementation of site-specific habitat restoration plans and other site-specific and species-specific measures appropriate for mitigating impacts to local populations of special-status wildlife species and to restore native plant and animal communities to pre-spill conditions. Access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas shall be identified. The Emergency Response Action Plan shall include species- and site-specific procedures for collection, transportation and treatment of oiled wildlife, particularly for sensitive species.

The Emergency Response Action Plan shall include procedures for timely re-establishment of vegetation that replicates the habitats disturbed (or, in the case of disturbed habitats dominated by non-native species, replaces them with suitable native species).

The Emergency Response Action Plan shall be approved by the City and Habitat Authority prior to commencing any construction activities.

BIO-3b To reduce exposure risks to wildlife in the Project Site area, all open basins containing any Project-related fluids shall either be emptied at the end of each day or fenced and covered to exclude all wildlife, including birds, bats, and amphibians. Drilling muds, concrete waste, and truck washing water shall be contained within closed Baker-style tanks or collected by a vacuum truck before the end of each day and shall not be stored overnight in open pits.

BIO-4a Devices and measures shall be employed to minimize noise effects on wildlife. At a minimum, noise barriers shall surround the drill rig floor, mud mixers, cleaners, conveyers, shakers, pumps, and other oil development and operational facilities; construction activities shall be limited to daylight hours except for emergencies; construction machinery shall be operated per manufacture's specifications; and a Noise Reduction Plan and monitoring plan shall be implemented to ensure that Project activities are operating within the ranges included in mitigation measure N-4.

BIO-4b All Project lighting shall be designed and shielded with the intent of preventing spillage of light into adjacent preserved

open space areas. Outdoor lighting shall be restricted to lights required by code for lighting building exteriors and for safety and security needs. All Project lighting shall be fully shielded and designed to prevent spillage of light into adjacent preserved open space areas. Lighting shall be constructed so that all light emitted by the fixture, either directly from the lamp or from a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizontal as determined by photometric test or certified by the manufacturer. Any structural part of the light fixture providing this shielding shall be permanently affixed. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency. After initial installation of Project lighting, a biological monitor acceptable to the City and Habitat Authority shall conduct a field inspection to confirm that the proper lamps have been installed and that light spillage into the Preserve has been minimized to the maximum extent feasible without compromising safety or other critical night-lighting requirements.

BIO-4c To minimize the potential for road mortality of wildlife, all roads within the Preserve boundary used to access onsite oil facilities shall have enough traffic calming devices, appropriately sized and spaced, to limit traffic to a maximum speed of 10 miles per hour. All nighttime traffic shall be minimized during the construction and operational phases and permitted only for activities required for safety reasons or emergencies; all hauling activities shall be restricted to daylight hours, defined as the hours after sunrise and before sunset. This restriction shall be in addition to any others placed on the Project, including by mitigation measure N-4, which is intended mainly to limit noise impacts upon neighboring residential communities, consistent with the City Municipal Code. No permanent solid walls or k-rail walls shall be placed along the North Access Road. The use of k-rails in this area would require wildlife passages placed every 20 feet to allow wildlife to move freely off the road.

BIO-4d Any project landscaping shall consist entirely of species native to the Project Site and surrounding areas within the Preserve and approved by the County of Los Angeles Fire Department and the Habitat Authority. Any irrigation provided shall be limited to that required to initially establish the native plants; no permanent irrigation shall be permitted.

BIO-4e To minimize potential impacts to nesting native bird species, and in compliance with the federal Migratory Bird Treaty Act and Sections 3503, 3503.5, or 3513 of the California

Fish and Game Code, initial construction of the pad sites and facilities and annual fuel modifications involving vegetation removal/trimming shall be done outside the breeding season (February 15 through August 31). If construction must be completed during this period, then surveys for nesting birds must be conducted within 3 days prior to vegetation removal or other construction-related disturbances. USFWS protocol surveys for listed avian birds (California gnatcatcher and least Bell's vireo) shall be conducted if disturbances occur in coastal sage scrub or riparian habitats. If nesting birds are observed within the vicinity, then a minimum 100-foot buffer from the nest would be established. The buffer would be delineated by orange construction fencing and signage and would remain in place until the nest is abandoned or the young have fledged. The nest monitor would be present when any buffer fencing is established. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. At minimum, the biologist would check for new active nests, and determine the status of ongoing active nests, weekly during the specified nesting season. The biologist would ensure that all fencing and signage was properly maintained, and would provide weekly e-mail updates on the status of all monitored nests to the City, Habitat Authority, CDFG, and USFWS. If the biologist determines that California gnatcatcher nesting is being disrupted, the construction activities will cease and wait until the young have fledged or the nest is determined to have failed.

BIO-4f Hawks and owls nest earlier than most other native birds. If initial construction activities, drilling, re-drilling, ground disturbance, or vegetation clearing, or annual fuel modification involving vegetation removal/trimming occurs from December 1 through August 31, the nest monitor would conduct a pre-construction survey within 3 days prior to vegetation removal or other construction-related disturbances focused on actively nesting hawks or owls. If any actively nesting hawks or owls are found, a 300-foot buffer would be established around the nest tree to help ensure that nesting is not disrupted. If any active songbird nests are found, a 100-foot buffer would be established as described in BIO-4e. The buffer would be delineated by orange construction fencing and signage and would remain in place until the nest is either abandoned or the young have fledged. The nest monitor would be present when any buffer fencing is established. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not

violate the Migratory Bird Treaty Act or the California Fish and Game Code. At a minimum, the biologist would check for new active nests, and determine the status of ongoing active nests, weekly during the specified nesting season. The biologist would ensure that all fencing and signage was properly maintained, and would provide weekly e-mail updates on the status of all monitored nests to the City, Habitat Authority, CDFG, and USFWS.

BIO-4g To avoid the direct loss of special-status bats that that could result from removal of trees that may provide maternity roost habitat (e.g., in cavities or under loose bark), the following steps shall be taken:

- Tree removal or relocation shall be scheduled between October 1 and February 28, outside of the maternity roosting season.

- If trees must be removed during the maternity season (March 1 to September 30), a qualified bat specialist (i.e., a person holding a California Department of Fish and Game collection permit and a memorandum of understanding allowing the handling and collection of bats) shall conduct a pre-construction survey to identify those trees proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. Each tree identified as potentially supporting an active maternity roost shall be closely inspected by the bat specialist a maximum of 7 days prior to tree disturbance to more precisely determine the presence or absence of roosting bats.

- Immediately after completion of the pre-construction surveys, and prior to any tree removals, the bat specialist will prepare a report providing the results of these surveys and identifying actions to be taken to avoid or minimize potential impacts to roosting bats due to authorized tree removal or other potential bat roosting habitats.

- The pre-construction report shall be provided to the City and the Habitat Authority prior to any tree removal.

- If bats are not detected, but the bat specialist determines that roosting bats may be present, it is preferable to push the tree down using heavy machinery rather than felling it with a chainsaw.

- Maternity season lasts from March 1 to September 30. Trees determined to be maternity roosts shall be left in place until the end of the maternity season.

- A 250-foot buffer, in which no construction activities are permitted, shall be established around any tree, rock outcrop, or other occupied roost habitat until bats have left the maternity site or the end of the maternity season (whichever is later).

- The bat specialist shall document all monitoring activities, and shall prepare a summary report upon completion of tree disturbance activities. Reports would include the following:

- the number and type of affected trees determined to support or potentially support roosting bats prior to disturbance;

- any actions undertaken to safely exclude roosting bats prior to disturbance and the results of those actions;

- trees temporarily avoided to protect roosting bats; and

- roosting bats found (alive or dead) after trees were removed or relocated.

- This report shall be provided to the City and Habitat Authority within 30 days following completion of tree removals.

BIO-4h To reduce impacts to wildlife movement corridors and to provide protective cover for wildlife using the Service Tunnel, and consistent with the Resource Management Plan recommendations, the Applicant shall be required to install appropriate native screening vegetation around the western terminus of the Service Tunnel (LSA 2007). The Applicant shall consult with the Habitat Authority to identify the appropriate limits of screening vegetation. The plantings installed as screening shall comply with the Habitat Authority's Restoration Guidelines. All contractors involved in the native screening effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority.

BIO-4i Consistent with the Resource Management Plan recommendations, Project lighting shall not be directly visible from the western terminus of the Service Tunnel.

BIO-4j Consistent with the Resource Management Plan recommendations, the Project proponent shall be required to consult with the Habitat Authority to develop and implement signage explaining the importance of limiting human disturbances in the vicinity of the Service Tunnel between sunset and sunrise.

BIO-4k A qualified biological monitor approved by the City, USFWS, CDFG, and the Habitat Authority shall be onsite during all vegetation removal and initial ground disturbance activities to ensure the compliance with all permit conditions protecting biological resources. The biological monitor shall be present to salvage wildlife species that may be otherwise killed or injured by heavy equipment and vegetation clearing. All salvaged wildlife shall be relocated to suitable adjacent habitat within the Preserve. The biological monitor shall have the authority to temporarily halt activities if permit requirements and conditions are not being met. The biological monitor shall conduct annual site inspections of the facilities, roads, and operations activities to ensure that all applicable mitigation measures are being enacted. The biological monitor shall prepare an annual summary report describing site visit observations and shall provide this report to the City, Habitat Authority and regulatory agencies (including CDFG, US ACE, and USFWS) for review.

BIO-4l The Applicant shall fund and implement a biological resources training program for all construction workers, oilfield workers, and their contractors. Training shall occur annually and as needed for new workers. Training program shall be reviewed and approved by the HA and shall include a description of important biological resources within the Preserve and all applicable conditions, permit requirements, and protection measures implemented to protect those resources.

BIO-4m All grading limits shall be delineated by orange construction fencing and permanent signage every 50 feet along the fence stating "No Entry — Sensitive Habitat." The City and the Habitat Authority shall approve the fencing prior to commencement of grading activities (including clearing and grubbing).

BIO-4n Recreational access to the Arroyo San Miguel Trail shall be closed during construction or drilling activities at the Drill Pad Site. To continue providing recreation access to the Arroyo San Miguel Trails (on the east side of Colima Road), the Applicant shall develop additional recreational access, in coordination with the Habitat Authority, to the Arroyo San Miguel Trail by any of the following or equivalent: (1) enhancing the parking area on the east side of Colima Road; (2) developing the parking area along La Flore Drive, approximately 1 mile east of Colima Road; or (3) developing pedestrian access along Colima Road from the Preserve parking area (on the west side of Colima Road) utilizing the new signalized intersection.

(b) Facts in Support of Findings

Section 4.11 of the EIR, Land Use and Policy Consistency Analysis, discusses the proposed Project's conflicts with existing ordinances, plans, and permit requirements. These inconsistencies include conflicts with the City of Whittier's General Plan and Municipal Code and with the Preserve's RMP. Section 4.11 identifies inconsistencies with local policies and ordinances. These conflicts relevant to biological resources are discussed in the following paragraphs, but Section 4.11, Land Use and Policy Consistency Analysis, identifies the inconsistency analysis. The General Plan designates the Project Site as open space of "high sensitivity." Whereas many of the General Plan's open space policies identify the need to preserve and carefully manage such areas, the Plan also calls for a "balance between oil drilling activities and the protection of plant and animal communities in the hillsides."

The Project Site is zoned as OS under the Municipal Code. Therefore, reintroduction of oil exploration to the Project Site would conflict with Sections 18.09.010, 18.09.020, and 18.09.030 of the Whittier Municipal Code (see Section 4.2.2.3, Local Resource Regulations). However, oil and gas exploration and production are also allowed with a conditional use permit under Section 18.52.030.

Project implementation would conflict with various goals and objectives of the RMP, especially concerning activities identified as permissible within the Core Habitat Zone of the Preserve (including the western half of the Project Site), which the RMP limits to "authorized biological survey and some restoration and/or invasive species removal, but no unsupervised public access." A portion of the proposed project is located within the RMP Preservation Management Zone, which allows for "existing passive, low-impact recreation." The RMP as approved is not directly consistent with the overarching City of Whittier General Plan for the areas within the City of Whittier that, as previously noted, allows for oil and gas production activities to occur within the open space zone district. In addition, there are existing oil and gas production activities ongoing within the Preserve as part of the Matrix Sycamore Canyon oil production operations that are not described as part of the RMP.

However, Project implementation would also contribute funding for the Habitat Authority's management and restoration activities within the Preserve, enabling the implementation of local land-protection policies that would otherwise be expected to be unfunded or underfunded as landfill fees and other revenue sources become depleted.

As described under the Project Description in the EIR:

Solid-waste disposal fees from the Puente Hills Landfill provide the primary funding for the Habitat Authority. This funding will continue through the remaining life of the landfill, currently scheduled to close in November 2013. The Puente Hills Landfill is owned by the County of Los Angeles and is managed by the Sanitation District of the Los Angeles County Solid Waste Management Department. The Oil and Gas Lease between the City of Whittier and Matrix provides for continuing funding for the Habitat Authority with annual administrative fees and mitigation fees upon issuance and acceptance of a CUP. A successful Project would provide a stable source of funding for the Habitat Authority for as long as the wells produce oil and gas.

As noted above, without the approval of the Project and the lack of funding that would occur after 2013, the Preserve may have inadequate funding to continue current levels of restoration and preservation of the site, which in turn would prevent the Preserve of meeting the goals and objectives of the RMP.

Implementing mitigation measures BIO-1a through BIO-1d, BIO-2a and BIO-2b, BIO-3a and BIO-3b, and BIO-4a through BIO-4n would reduce the proposed Project's conflicts with local policies and ordinances protecting biological resources.

By implementing the above mitigation measures, impacts from Project-related activities can be reduced. With the mitigation described above, the impact is reduced to a less than significant level.

6. Cumulative Impact

The proposed Project could result in adverse effects on biological resources that are cumulatively considerable when evaluated in conjunction with other past or present projects in the vicinity. However, with the implementation of mitigation, this impact would be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant cumulative biological impact. Specifically, the following mitigation is imposed upon the Project to ensure a less than significant impact.

CUMULATIVE BIO-1a The applicant shall ensure, and shall demonstrate to the City of Whittier and Habitat Authority, that the existing Matrix Oil drilling operation in lower Sycamore Canyon, in the Whittier Hills, complies with Chapter 12.08.390 of the County of Los Angeles Code (Exterior Noise Standards). Compliance includes achieving an exterior noise standard of 45 dBA (L50) applicable at the property boundary (i.e., the Preserve's property boundary) of all noise-sensitive areas and residential areas, any time of the day. All Preserve areas shall be regarded as "noise-sensitive areas" for purposes of the County of Los Angeles Code and this mitigation measure.

CUMULATIVE BIO-1b No test-drilling, construction, or redrilling of wells shall be conducted simultaneously with, and within the same watershed as, construction work on the Tehachapi Renewable Transmission Project. The Applicant shall provide the City and Habitat Authority with written evidence of having coordinated construction schedules with Southern California Edison prior to commencing any construction activities.

In addition to the above mentioned mitigation measures, the following mitigation measure is provided for consideration as a recommended mitigation measure that is not required, but would nevertheless provide some benefit to the overall knowledge of wildlife movement within the larger Preserve area.

> **CUMULATIVE BIO-1c** To provide land managers at the Preserve (and those in the general area of the Chino-Puente Hills) data to better understand and manage wildlife movement conflicts and issues, the Applicant shall provide the Habitat Authority funds to conduct a multi-year, scientific study to evaluate the wildlife movement patterns of bobcats and other wildlife species utilizing the Preserve. The extent and cost of this study shall be designed, reviewed, and approved by the City, the Applicant, and the Habitat Authority prior to issuance of grading permits.

(b) Facts in Support of Findings

The Preserve represents a limited area of natural open space surrounded by intensive urban development and crossed by numerous roads. Much of the Preserve is already subject to noise impacts from existing land uses, including the existing Matrix Oil drilling operation in lower Sycamore Canyon, in the Whittier Hills. Project implementation would increase noise levels within one of the quieter parts of the Preserve. Increased noise associated with the implementation of the proposed project, or any alternative, would represent a cumulatively considerable increase in the level of noise in the Preserve. Most of the cumulative projects listed in Section 3.0 of the EIR, Cumulative Projects Description, involve infill or modifications to existing developments outside of locations where sensitive biological resources have been recorded. It is unlikely that such projects would disturb sensitive habitats that potentially support special-status plant or wildlife species, or constrain the movement of wildlife through the local area.

The Matrix City of La Habra Heights project is a proposed oil development Project south of the Preserve in the City La Habra Heights. Since the development is proposed for an existing oil development area, impacts on biological sensitive habitats that potentially support special-status plant or wildlife species, or constrain the movement of wildlife through the local area, would be less than significant.

The following projects do have potential to contribute to cumulatively considerable adverse effects upon biological resources in the local area, including increasing pressures on general wildlife movement in the area:

• La Habra Heights Trail Connectors Plan. This proposed Project would plan for the removal of numerous sick and dying trees; replanting of native species; leveling of turf along trail at Oak Creek Park; revegetation of additional areas; rebuild of amphitheater at Creek Park; installation of interpretive signage regarding the wildlife and native vegetation in the area; replacement of two bridges damaged by previous storms; repair of horse trail paths and planting native vegetation along the sides; re-sloping the path to the public restroom facilities;

and installation of three "stormceptor" devices along La Mirada Creek to keep pollutants from entering the stream.

• Southern California Edison's Tehachapi Renewable Transmission Project (TRTP), Segments 4 through 11, comprises approximately 173 miles of new and upgraded transmission infrastructure for new wind generation development projects. The TRTP transmission route extends south from Kern County through Los Angeles County and east to San Bernardino County. Segment 8A of this project passes through the Chino-Puente Hills open space, generally following the right-of-way of an existing transmission line. As summarized by Aspen Environmental Group (2010), the Draft EIR/EIS and Final EIR for this Project identifies the following potential impacts to biological resources that exist in Chino-Puente Hills (prior to avoidance and/or mitigation):

• Construction activities would result in temporary and permanent losses of native vegetation;

• Loss of wetland and riparian habitats;

• Establishment and spread of noxious weeds;

• Construction activities, including the use of access roads and helicopter construction, would result in disturbance to wildlife and may result in wildlife mortality;

• Construction activities conducted during the breeding season would result in the loss of nesting birds or raptors;

• Loss of foraging habitat for wildlife; Most of the cumulative projects listed in Section 3.0, Cumulative Projects Description, involve infill or modifications to existing developments outside of locations where sensitive biological resources have been recorded. It is unlikely that such projects would disturb sensitive habitats that potentially support special-status plant or wildlife species, or constrain the movement of wildlife through the local area.

These projects would be or have been subject to CEQA review and would incorporate mitigation measures, as appropriate. Nevertheless, natural open space lands in the Project vicinity are highly constrained by surrounding intensive development, and the habitat that is preserved is fragmented by numerous existing roads. Ecological systems placed under such stresses exhibit a compromised capacity to rebound from disruptive processes, such as fire and human intrusion. For this reason, concerns about the cumulative impacts of multiple projects are greatest in already-stressed systems.

The mitigation measures identified throughout these findings and in the EIR are designed to bolster the ecological resilience of the Preserve in the Project vicinity, counteracting the adverse effects of the proposed Project, both considered alone and in the context of contributions to cumulatively considerable impacts of other planned Projects. Specifically, measures BIO-1a through BIO-1e and BIO-2a and BIO-2b require greater than equal-area replacement of sensitive habitat types that would be permanently impacted by grading; BIO-1a through BIO-1e would also result in revegetation of temporarily graded slopes, some which consist of disturbed and predominantly non-native vegetation in the

existing condition. Otherwise, this report has identified a variety of feasible measures designed to avoid or minimize the Project's potential adverse effects upon special-status species and the natural ecological systems that support them. The mitigation program specified in this report effectively addresses the anticipated effects of the proposed Project in the context of past and planned future projects in the Project vicinity, and therefore the Project's contributions to cumulatively considerable biological impacts are deemed less than significant with mitigation. The cumulative projects (see Section 3.0 of the EIR, Cumulative Projects Description) will result in increased infill of open areas, increased human presence, and temporary and permanent loss of habitat in the general area that is already under extreme pressure from surrounding residential and urban areas. These results will increase impacts to established wildlife migratory corridors in the general area. Cumulative impacts to wildlife movement in the general area would be significant.

If test-drilling, construction, or redrilling of wells for the proposed project or project alternatives conducted simultaneously with, and within the same watershed as, construction work on the Tehachapi Renewable Transmission Project, could result in cumulatively considerable effects on biological resources in the local area.

The recommended scientific study of the movement of wildlife through the Project area would benefit land managers in the Project area tasked with evaluating and managing wildlife movement issues in the Puente Hills. Existing conditions in the Puente Hills open space, with or without the proposed Project, would benefit from increased levels of study so that managers may better understand local wildlife corridor issues and more effectively allocate their resources. The purpose of such a study would not be to provide corrective action for the proposed Project, or to alleviate any possible impacts that might be identified through the study. Rather, funding of such a study would represent an appropriate and beneficial use of City proceeds generated by the proposed Project.

With implementation of mitigation measures CUMULATIVE BIO-1 and CUMULATIVE BIO-2, the Project's potential cumulatively considerable impacts would be less than significant.

D. SAFETY, RISK OF UPSET, AND HAZARDOUS MATERIALS

1. Potential for Accidental Release

The proposed Project could introduce risk to the public associated with accidental releases from well drilling and processing operations. In order to avoid any significant impact, mitigation is imposed to ensure a less than significant impact.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact from accidental release. Specifically, the following mitigation measures are imposed upon the Project to ensure a less than significant impact.

SR-1a The Applicant shall implement site security methods, including but not limited to: (1) enclosing all wells and

equipment (including the metering station) with 8-foot block walls with barbed wire on the inside at 7 feet; (2) Secure gates located at all entrances with automatic opening/closing and secure access; (3) Limitation of climbable landscaping near the facility; (4) Installation of video surveillance systems and burglar/intrusion alarm systems; (5) Contact information and site access limitations shall be posted in specific locations easily visible to the public, shall be provided to neighboring residents within a set radius, and shall be placed in Preserve information kiosks and on the Habitat Authority and City websites; (6) Visitor sign-in/sign-out and security policies for employees regarding access control, pre-employment screening, post-employment issues, vehicles, access keys, codes, and card security.

SR-1b The Applicant shall conduct a third-party audit of the gas and crude oil plants and pipelines, once constructed, including the well pads, to ensure compliance with Fire Code, applicable API and NFPA codes, EPA RMP, OSHA PSM, and SPCC and emergency response plans requirements. The review shall include a seismic assessment of equipment to withstand earthquakes prepared by a seismic engineer in compliance with Local Emergency Planning Committee Region 1 CalARP guidance. All audit items shall be implemented in a timely fashion, and the audit shall be updated periodically, as directed by the City and the Los Angeles County Fire Department.

SR-1c The Applicant shall ensure that all crude-oil truck haulers are trained in HAZMAT spill response and that each truck carries a spill response kit.

(a) Facts in Support of Findings

Releases of flammable gas from the proposed Project Well Pad and Processing Pad facilities would not impact nearby residences or public trails as the facilities are located too far away from receptors. Releases from the metering station located near Colima Road, however, could impact nearby residences. However, these releases are estimated to occur at a low frequency and would therefore not produce unacceptable risk levels.

Some releases at facilities are caused by vandalism, such as opening of valves or sabotaging of equipment integrity. This could increase the frequency of releases. These impacts can be reduced by securing the facilities to reduce the probability of vandalism. Risks could also be increased if the facilities are not built and maintained to current codes and standards. This impact could be reduced by ensuring that audits are conducted periodically to ensure code and standards compliance. Failure to implement appropriate site security measures or to ensure that the facilities are designed and operated and maintained according to applicable codes and standards would be a significant impact.

Since trucks would transport crude for periods of the Project, an accident and subsequent spill could cause environment impacts with the release of crude oil or diesel fuel. Ensuring that drivers are trained and equipped would mitigate this impact.

By implementing the above mitigation measures, impacts from Project-related activities can be reduced.

Regarding residual impacts, site security issues could increase the likelihood of vandalism and subsequent failure of equipment resulting in spills or releases of material. Appropriate site security would minimize these incidents to less than a significant impact.

The risk curves associated with the proposed Project operations would be the same even if the wells are never pressurized, since releases from pressurized well are not estimated to reach receptors.

With the mitigation described above, the impact is reduced to a less than significant level.

2. Potential for Pipeline Release

The proposed Project could introduce risk to the public associated with the transportation of natural gas along Colima Road. Nevertheless, mitigation will be imposed to ensure this impact is less than significant.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant pipeline release impact. Specifically, the following mitigation measures are imposed upon the Project to ensure a less than significant impact.

> **SR-2a** The Applicant shall install automatic valves that will automatically shut down under a low pressure scenario at the Processing Facility Area for all pipelines leaving the processing plant, and a backflow prevention device or automatic shut-down valve at the tie-in location at Lambert Road, to prevent the release of gas from the main transmission pipeline in the event of a rupture in the Colima Road pipeline.
>
> **SR-2b** The Applicant shall ensure that warning tape is installed above the pipeline within the pipeline trench to warn third parties that a pipeline is located below the warning tape and that the pipeline is capable of utilizing a smartpig.

(b) Facts in Support of Findings

Pipeline failures and releases of natural gas can cause significant impacts to nearby residences. Although the proposed Project gas pipeline (6 inches) is substantially smaller than the San Bruno pipeline (30 inches) that ruptured and caused extensive damage in 2010, it could

produce impacts to nearby residences and cause fatalities that would exceed significance levels. Impacts from pipeline releases are generally produced when the natural gas ignites, thereby causing large flame jets or fires and the resulting radiation impacts to nearby populations, particularly if the release continues for an extended period of time.

These impacts can be reduced by installing automatic shutdown valves, which reduce the release duration to only a few minutes, installing warning tape above the pipeline to reduce the probability of third-party impacts, and ensuring that the pipeline can be inspected.

By implementing the above mitigation measures, impacts from Project-related activities can be reduced.

Regarding residual impacts, installation of automatic shutoff valves and backflow prevention valves would reduce the duration that a release occurs. In the event that a pipeline rupture occurs, the Colima Road pipeline would release the majority of its gas inventory in a short time, within 2 to 5 minutes. However, if gas were to flow from the main transmission pipeline along Lambert Road back into the Colima Road pipeline, this would be a large source of gas that could substantially extend the length of time of the release causing more impacts. The installation of a backflow prevention device (a check valve or a shut-down valve) at the tie-in location would prevent this scenario and would reduce the duration of the release and the fraction of persons that would be exposed to radiation or flammable gas above the levels of concern.

Installing an automatic valve at the Processing Facility Area that automatically shuts down on low pressure would ensure that the Processing Facility Area does not continue to feed a break in the Colima Road pipeline or the landfill pipeline and extend the duration of the release.

Third party impacts to pipelines, caused by construction projects that accidentally excavate and damage the pipeline, are a large contributor to pipeline failures. Nationwide accidental third-party impacts are responsible for nearly 20 percent of pipeline failures and within California they cause up to 45 percent of pipeline failures. The installation of warning tape within the Colima Road pipeline trench would help to warn people that a pipeline is present and reduce the number of pipeline failures due to third-party activities.

Ensuring that the Colima Road pipeline is constructed in a manner that allows for the pipeline to be inspected by instruments, or "smart-pigged," would ensure that the pipeline integrity is checked in the future and would reduce the frequency of releases.

With the mitigation measures described above, the impact is reduced to a less than significant level.

3. Soil Contamination Mobilization

The proposed Project could mobilize soil contamination that could affect groundwater and environmental and public health. Nevertheless, mitigation is imposed to ensure a less than significant impact.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant soil contamination impact. Specifically, the following mitigation measure is imposed upon the Project to ensure a less than significant impact.

> **SR-3** The Applicant shall conduct a site assessment of the Project Site before commencing Project construction and shall sample soils and excavated materials associated with construction to ensure that the soils are not contaminated. Contaminated soils shall be completely excavated and the contaminated areas cleaned to LARWQCB specifications before moving forward with construction of the proposed Project components.

(b) Facts in Support of Findings

Excavation and construction at the drilling site, or associated with the new processing facility or truck loading area installation, could encounter contaminated soils and mobilize them, affecting surface and groundwater quality and thereby environmental and public health. An aerial photo suggests that previous owners used the area as tank and equipment areas. However, implementing assessments of the sites so that contaminated soils are indentified and dealt with appropriately before construction would reduce the potential for mobilizing contaminated soils. Site assessments are an established practice in site remediation projects.

By implementing the above mitigation measure, impacts from Project-related activities can be reduced.

Regarding residual impacts, soil could be contaminated in areas affected by Project components. Although some areas have been sampled, there are areas of planned construction that have not been tested, including the truck loading area. Ensuring appropriate assessments and cleanup would ensure that existing site contamination does not adversely affect ground and surface waters. After implementing this mitigation measure, the impact would be less than significant with mitigation.

E. GEOLOGICAL RESOURCES

1. Rupture of Facilities from Seismically Induced Ground Shaking

Seismically induced ground shaking could damage proposed structures and infrastructure, potentially resulting in loss of property, risk to human health and safety, and oil spills. Implementation of mitigation would reduce this potential impact to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant seismic ground shaking impact. Specifically, the following mitigation is imposed upon the Project to ensure a less than significant impact.

GR1-a Proposed drilling, production, processing, storage, and transportation infrastructure shall be designed and constructed to withstand anticipated ground acceleration in the Project Area, based on the California Building Code. The calculated design base ground motion for project components shall consider the soil type, potential for liquefaction, and the most current and applicable seismic attenuation methods that are available.

GR1-b All surface facilities and equipment shall have suitable foundations and anchoring design, surface restraints, and moment-limiting supports to withstand seismically induced groundshaking.

GR1-c All conceptual geotechnical recommendations provided by Heathcote Geotechnical (2011) shall be followed during grading and construction at the Project Site. In addition, a Registered Civil Engineer and Certified Engineering Geologist shall perform an updated geotechnical evaluation of the Project Site, as the proposed building pad and slope configuration has changed since completion of the geotechnical report completed in 2010 (Heathcote Geotechnical 2011). The updated evaluation shall include an estimation of both vertical and horizontal anticipated peak ground accelerations, since the Heathcote Geotechnical report only included horizontal peak ground acceleration values.

GR-1d This report shall be completed prior to completion of the final project design and shall be submitted to the City of Whittier for review and approval and any new recommendations not included in the Heathcote Geotechnical (2011) report shall be adhered to. The project design must conform to the recommendations within the updated geotechnical evaluation.

GR-1e All proposed slope construction, roadways, and work pads shall be properly engineered, with fill placed in accordance with requirements of the 2011 County of Los Angeles Building Code (Title 26), which is based on the 2010 California Building Code and the 2009 International Building Code.

GR-1f All proposed pipelines shall be placed in properly constructed trenches and backfilled with bedding and engineered

fill that increases the freedom of movement of the pipelines, or alternatively anchored to prevent pipeline movement, as determined by a California Registered Civil Engineer, in accordance with California Building Code, 2010, Los Angeles County requirements, and the American Public Works Association Greenbook.

GR-1g All facilities and equipment, including spill containment berms and Project-related pipelines, shall be designed for the seismic loading in accordance with applicable codes, including the California Building Code, 2010.

GR-1h The Applicant shall cease any non-essential drilling and production activities and inspect all project-related facilities, equipment, and pipelines following any seismic event that generates a ground acceleration of 15 percent of gravity. The Applicant/Operator shall prepare a written report of all inspections and findings to the City for review and approval prior to the recommencement of any operations. The City will respond to the Applicant within 5 working days of the report submittal.

(b) Facts in Support of Findings

The active Whittier Fault is at its closest point approximately 1,500 feet north and northeast of the Project Site and proposed pipeline route, respectively. In addition, the Puente Hills blind fault system underlies the Project Area. Because the surface trace of the Whittier Fault does not traverse the Project Area, the potential for fault surface rupture is low. However, up to 60 directionally drilled wells would potentially be completed across the Whittier Fault and/or the Puente Hills Thrust Fault. In the event that an earthquake occurred along either of these faults, the integrity of the well bore would potentially be comprised at the point where the borehole traverses the fault. In the unlikely event that this occurred, under a worst-case scenario, the oil well boreholes would potentially be sheared and sealed, thus preventing additional oil and gas production from that well. Similarly, injection well boreholes would potentially be sheared and sealed, thus preventing additional disposal of produced water in that well. Although such a scenario would necessitate well abandonment and would be detrimental to oil and gas production and associated disposal operations, the potential for spills or releases of oil and gas or produced water to the environment would be lessened with respect to normal drilling, production, and disposal activities, due to partial or complete sealing of the well as a result of the seismically induced ground motion.

Although the potential for liquefaction is low at the Project Site, areas where the proposed pipeline traverses alluvial filled canyon bottoms would be prone to liquefaction. In addition, other earthquake-related hazards, such as ground acceleration and ground shaking cannot be avoided in the Whittier region, and in particular in the vicinity of the Whittier Fault and Puente Hills thrust fault. Strong-to-intense ground shaking due to an earthquake on these or other regional active faults would potentially result in peak ground accelerations of 0.4861 g. Such ground movement could cause differential settlement and lateral spreading, resulting in

potential damage of proposed oil and gas drilling equipment, proposed pipelines, and related Project facilities. Such damage would potentially result in a release of oil and gas into the environment.

As discovered during the 1971 San Fernando earthquake and the 1994 Northridge earthquake, existing building codes are often inadequate to completely protect engineered structures from hazards associated with large ground accelerations. Therefore, potential seismic impacts and associated damage to structures from a major earthquake on the nearby Whittier Fault, Puente Hills thrust fault, or any other regional fault, would be considered significant.

However, by implementing the above mitigation measures, impacts from Project-related activities can be reduced to less than significant.

2. Expansive Soils

Moderately expansive soils are prone to swelling and shrinking as a result of increased or decreased water content, which could potentially damage proposed structures and infrastructure, resulting in loss of property and oil spills. However, with the implementation of mitigation, any potential impact will be reduced to less than significant.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant expansive soils impact. Specifically, the following mitigation will ensure a less than significant impact.

> **GR1-c** All conceptual geotechnical recommendations provided by Heathcote Geotechnical (2011) shall be followed during grading and construction at the Project Site. In addition, a Registered Civil Engineer and Certified Engineering Geologist shall perform an updated geotechnical evaluation of the Project Site, as the proposed building pad and slope configuration has changed since completion of the geotechnical report completed in 2010 (Heathcote Geotechnical 2011). The updated evaluation shall include an estimation of both vertical and horizontal anticipated peak ground accelerations, since the Heathcote Geotechnical report only included horizontal peak ground acceleration values.
>
> **GR-2** Thickened slabs, extending slab edges, and additional reinforcement shall be utilized to reduce negative impacts resulting from expansive soil movement if any construction occurs within moderately expansive soils. In addition, the use of a capillary break under slabs shall be utilized to reduce the potential for moisture transport and pumping that leads to moisture infiltration as a result of heat and moisture gradients. An alternative would be the use of low to non expansive soils for

slab support, which would eliminate the potential risk. This can be accommodated by importing select materials. Select grading techniques during grading could utilize the granular soils in site for subsequent use. Measures shall be as described or as otherwise approved by the City Engineer.

(b) Facts in Support of Findings

Onsite soils consist of interbedded sand, silt and clay, which have a very low to medium soil expansion potential. Expansive soils can heave foundations, slabs, and adversely deflect pipelines. These adverse effects could result in damage or catastrophic failure to the Project components. Foundations constructed on expansive soils require special design considerations to mitigate the hazard. Failure to implement these measures could result in a significant impact.

By implementing the above mitigation measures, impacts from Project-related activities can be reduced to a level of insignificance. All of the above detailed measures will ensure that special design considerations are addressed in order to ensure expansive soils do not cause a significant impact.

3. Impacts from Existing Uncertified Fill On-Site

Existing uncertified fill onsite could potentially be subject to hydroconsolidation, excessive settlement, expansive soil shrink and swell, and differential settlement/expansion, thus potentially damaging proposed structures and infrastructure, resulting in loss of property and oil spills. However, with mitigation, any potential impact will be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact with regard to existing uncertified fill onsite. Specifically, the following mitigation will ensure a less than significant impact.

GR1-c All conceptual geotechnical recommendations provided by Heathcote Geotechnical (2011) shall be followed during grading and construction at the Project Site. In addition, a Registered Civil Engineer and Certified Engineering Geologist shall perform an updated geotechnical evaluation of the Project Site, as the proposed building pad and slope configuration has changed since completion of the geotechnical report completed in 2010 (Heathcote Geotechnical 2011). The updated evaluation shall include an estimation of both vertical and horizontal anticipated peak ground accelerations, since the Heathcote Geotechnical report only included horizontal peak ground acceleration values.

(b) Facts in Support of Findings

Based on the report prepared by Heathcote Geotechnical, a review of aerial photographs, and observations of the site, uncertified fill has been placed across the site at various locations, to a depth of approximately 10 feet. The exact locations and the horizontal and vertical limits of uncertified fill have not been clearly discerned. Existing uncertified fill onsite could potentially be subject to hydroconsolidation, excessive settlement, expansive soil shrink and swell, and differential settlement/expansion, thus potentially damaging proposed structures and infrastructure, resulting in loss of property.

By implementing mitigation measure GR-1c in association with artificial fill impacts, impacts from Project-related activities can be reduced. This measure would require that all recommendations from any geotechnical evaluation be implemented.

4. Impacts from Landslide Prone Slopes

Landslide prone slopes are present in the Project Area. Such slopes could potentially damage proposed structures and infrastructure, resulting in loss of property and oil spills. However, with implementation of mitigation, any landslide impact will be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant landslide impact. Specifically, the following mitigation will ensure a less than significant impact.

> **GR1-c** All conceptual geotechnical recommendations provided by Heathcote Geotechnical (2011) shall be followed during grading and construction at the Project Site. In addition, a Registered Civil Engineer and Certified Engineering Geologist shall perform an updated geotechnical evaluation of the Project Site, as the proposed building pad and slope configuration has changed since completion of the geotechnical report completed in 2010 (Heathcote Geotechnical 2011). The updated evaluation shall include an estimation of both vertical and horizontal anticipated peak ground accelerations, since the Heathcote Geotechnical report only included horizontal peak ground acceleration values.

(b) Facts in Support of Findings

The California Division of Mines and Geology has mapped mountainous areas that are potentially prone to seismically induced slope failures, including, rockfalls, debris flows, slumps, and landslides. Based on these maps, the west-facing slopes immediately east of the Project Site are prone to earthquake-induced landslides. In addition, the slopes along the east side of Arroyo Pescadero, which is traversed by the proposed pipeline route, are prone to landslides. In addition, a geotechnical investigation of the Project Site indicated the

topography is prone to surficial slope failure, due to the friable nature of the Fernando Formation, which forms the slopes within the Project Site.

Bedding within the Fernando Formation also dips out of slope, creating adverse, or unsupported bedding conditions that are prone to failure, especially if undercut at the toe during grading and construction. The overall gross stability of the slopes directly adjacent to or east of the Project Site has a factor of safety of 1.93. The standards from the California Building Code (2010) mandate a factor of safety of 1.5 for finished stability and 1.1 for seismic stability. The seismic gross factor of safety for the overall stability of the hillside range is 1.47. Therefore, these slopes will have a factor of safety above 1.1, with respect to seismic stability. However, the slopes are not surficially stable in general and surficial slope failures were observed in abundance. This is considered a potentially significant impact.

By implementing mitigation measure GR-1c in association with slope stability impacts, impacts from Project-related activities can be reduced to a level of insignificance. This measure would require that all recommendations from any geotechnical evaluation be implemented.

5. Impacts from Temporary Excavations

Temporary excavations could impact and adversely affect adjacent properties or de-stabilize the existing hillside. However, with the implementation of mitigation any potential impact will be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact with regard to temporary excavations. Specifically, the following mitigation will ensure a less than significant impact.

> **GR-5a** Temporary shoring shall be designed to protect the temporary excavations, structures to remain in place, and adjacent properties. This shoring shall be designed by a State of California Registered Civil Engineer to take into account all lateral load parameters. Shoring can include steel cage, timber supports, sheet piling, soil nailing, shotcrete walls, or as otherwise approved by the City Engineer.
>
> **GR-5b** Slot cut excavation schemes shall be implemented during grading and foundation excavations to the extent possible, to reduce the potential for failure along temporary cuts, by limiting the area exposed by temporary cuts.
>
> **GR-5c** All excavations for structures and buildings shall comply with all applicable regulations of the California Occupational Safety and Hazard Administration guidelines as they pertain to excavations.

(b) Facts in Support of Findings

The proposed Project may involve numerous proposed temporary excavations for grading, slope and landslide repair, inadequate soil removal, and trench excavations. Proposed temporary cuts are anticipated to be approximately 5 to 20 feet. Temporary excavations into the existing alluvial deposits at slopes greater than approximately 2:1 (horizontal to vertical) may be prone to collapse, which could remove lateral adjacent support from roads, utilities, and buildings in close proximity to the excavations. Impacts are considered potentially significant.

However, with the implementation of mitigation, this impact would be reduced to a level of insignificance. These measures require temporary shoring, slot cut excavation schemes, and compliance with all excavation regulations of the California Occupational Safety and Hazard Administration.

6. Corrosion Impacts on Structural Components and Pipelines

Corrosion could potentially damage the structural components and pipelines which would result in a pipe burst and subsequent oil spill. However, with the implementation of mitigation, any impact would be reduced to the extent feasible and to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact with regard to corrosion. Specifically, the following mitigation will ensure a less than significant impact.

GR-6a Site specific chemical testing of soil and bedrock shall be performed to assess corrosion and other adverse chemical aspects. A report with the lab tests shall be submitted to the City of Whittier with any appropriate mitigation measures included. The project design must conform to the recommendations within the geotechnical evaluation, or as per the City Engineer, and should occur prior to completion of the final project design.

GR-6b All buried metal pipelines shall be coated and placed under impressed cathodic protection. To monitor for internal corrosion, corrosion coupons or equivalent measures can be utilized.

GR-6c External pipe inspections shall be conducted for the exposed pipeline sections to ensure atmospheric coatings are in good conditions. All external inspections shall be documented and reviewed by the operations management and repairs documented, when necessary.

GR-6d In accordance with California Division of Oil, Gas, and Geothermal Resources pipeline regulations for environmentally sensitive pipelines, a pipeline management plan shall be implemented (Public Resources Code Sections 3013 and 3782).Mechanical testing, including ultrasonic and hydrostatic testing, shall be completed in coordination with the California Department of Conservation Division of Oil, Gas, and Geothermal Resources staff.

GR-6e All concrete in contact with the high sulfate or corrosive soils can be Type V concrete in accordance with the 2010 California Building Code.

(b) Facts in Support of Findings

Soils and bedrock throughout Southern California have varying degrees of sulfate and corrosion potential. Long-term production could result in corrosion of pipelines and other components in contact with the soil and bedrock. Such corrosion could result in oil leaks. No chemical testing was available to assess the various components that may pose a hazard to the proposed concrete and metal components and improvements. If corrosion of pipelines were to occur, the pipelines would be weakened and increase the potential for an oil discharge. Degradation of concrete hold downs, slabs, and foundations could compromise the structural integrity of the elements. Therefore, the impacts due to corrosion would be significant.

With the mitigation described above, the impact is reduced to a less than significant level. The measures would require chemical testing of the soil and bedrock occur to determine corrosion potential, that piping be coated, and that inspections take place to ensure no corrosion occurs. As such, all impacts will be reduced to a level of insignificance.

7. Ground Subsidence Caused by Oil Withdrawal

Oil withdrawal could result in ground subsidence. However, with the implementation of mitigation, any impact would be reduced to less than significant.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant ground subsidence impact. Specifically, the following mitigation will ensure a less than significant impact.

GR-7a Subsidence monitoring shall be completed annually in the vicinity of the wells. Surveying for both vertical and horizontal ground movement shall be completed along the perimeter and throughout the interior of the oil field, utilizing Global Positioning System technology in combination with a network of ground stations. The results shall be forwarded to the Division of Oil, Gas and Geothermal Resources and the City of Whittier for review.

GR-7b In the event that the Global Position System monitoring indicates that subsidence is occurring in and/or around the Project Area, wastewater or water reinjection operations shall be increased to alleviate such subsidence. The Applicant shall coordinate with the California Division of Oil, Gas and Geothermal Resources in determining appropriate increased levels of wastewater reinjection operations. The Applicant will also coordinate with the City of Whittier to verify that subsidence has been mitigated sufficiently.

(b) Facts in Support of Findings

Subsidence due to oil, gas and groundwater withdrawal generally occurs over a large area. As a result, differential settlement damage due to subsidence is typically only evident in long linear features, such as pipelines, roadways, or aqueducts. No evidence of significant subsidence or problems related to subsidence was identified for the Project Area.

The project will remove an unknown volume of oil, gas, and associated water. In the absence of injection of produced water back into the subsurface, the potential for settlement of the infrastructure increases. Produced water reinjection is a standard practice in the oil and gas industry, not only for the disposal of wastewater, but also to prevent ground subsidence. Although reinjection of produced water in proposed injection wells would substantially reduce the potential for ground subsidence, impacts would be potentially significant in the absence of subsidence monitoring to verify that subsidence is not occurring.

With the mitigation described above, the impact is reduced to a less than significant level. The measures will ensure monitoring for subsidence and will allow for wastewater or water reinjection operations to increase alleviating any potential subsidence.

F. NOISE

1. Construction Noise from Machinery

Construction machinery would increase noise levels. However, with the implementation of mitigation, any potential impact will be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant construction noise impact. Specifically, the following mitigation measures will ensure a less than significant impact.

N-1a Limit all construction activity at the Project Site (including deliveries and arriving and departing workers, and construction activities during the testing phase) to the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays and prohibit activities on Sundays and federal holidays. In addition, for construction work within the County of

Los Angeles unincorporated areas, the Applicant shall ensure that noise levels do not exceed County municipal code levels with a noise study and monitoring and measures, including high grade mufflers, engine tuning, and management of backup alarms. All contracts with construction personnel shall specify the allowable work hours and the study and monitoring requirements.

N-1b Maintain all construction machinery according to the manufacturers' specifications and ensure that mufflers and silencers are maintained properly. Back-up OSHA noise indicators shall be ambient sensitive and self-adjusting to minimize backup indicator noise or flaggers shall be used in the place of backup alarms (as allowed by OSHA).

N-1c Relocate the construction parking and staging area farther from the school and residences on Catalina Avenue to an area north of the Ranger Residence or equivalent.

(b) Facts in Support of Findings

Several construction activities would generate noise, including clearing the site for drilling, potential shredding of vegetative debris, grading, constructing the Processing Facility Area and Gas Plant Area, installing permanent processing equipment, and pipeline construction. Construction would last from a few weeks for pad clearing to approximately 2 years for the Processing Facility Area and Gas Plant Area.

The estimated construction noise levels at some of the receptor locations would be higher than the measured background due to the construction activities.

Estimates of noise levels from construction equipment utilized the FHWA and the Environmental Protection Agency (EPA) studies documenting noise generated by equipment as well as the equipment requirements and use detailed by the Applicant. The worst-case scenario for noise levels would be grading and transporting soil from those areas. However, even in the worst-case scenario, construction would only generate noise during daytime.

Noise modeling utilizing the SoundPlan model indicated that residences along Catalina Avenue, Ocean View Avenue, Romero Drive, and San Lucas Drive and near the proposed Project Site would experience noise levels from 52 to 56 dBA peak hour average during daytime for grading.

The ranger residence, immediately south of the Processing Facility Area and approximately 600 feet away, would experience daytime average noise levels up to 61 dBA (hourly average). The school play yard would experience average daytime noise levels up to 57 dBA. The noise level at the closest recreational area along the Loop Trail would experience a daytime average hour of up to 66 dBA. Although these noise levels would be within the General Plan limits, they would exceed the current baseline daytime levels by up to 18 dbA and would be clearly noticeable. This would be considered a significant impact if the

construction activity occurred outside of the hours allowed for construction by the City Municipal Code.

During construction, construction vehicles would use Catalina Avenue and the North Access Road, which would increase noise levels. Construction noise levels with traffic would peak at a 54 dBA hourly average during daytime construction hours at Catalina Avenue. Short-period noise levels (e.g., a passing truck) could range up to 62 dBA at the closest residence property line. Noise levels along the North Access Road would peak at about 61 dBA hourly average during the grading phase when soils are being exported.

During the Design and Construction Phase, construction truck traffic would utilize Penn Street after the North Access Road is constructed to the Landfill and Penn Street. FHWA modeling along Penn Street for the Design and Construction Phase indicates that noise levels would increase by 0.4 dBA if soil is deposited at the Landfill (so soil trucks do not utilize Penn Street) or by 1.1 dBA increase if soil trucks use Penn Street (to transport soil to another location). SoundPlan modeling indicates that noise levels along Penn Street would increase by 1.4 dBA, 50 feet from the roadway centerline, during the peak hour if trucks transport soil along Penn Street.

This would be considered a significant impact if the construction occurred outside of the City Municipal Code allowed hours for construction.

Construction of the pipeline along Colima Road would generate noise at nearby residences. This would be considered a significant impact if the construction traffic occurred outside of the City Municipal Code allowed hours for construction. Some portions of the pipeline would be constructed within the County of Los Angeles unincorporated areas. Construction activities in these areas would need to comply with the County Municipal Code requirements as detailed above. Noise impacts from pipeline construction would be similar to the noise impacts associated with pad grading at the Loop Trail receptor. This would be below the County Municipal Code level of 75 dBA. Failure to comply with County requirements for construction within the County could also be a significant impact.

Regarding residual impacts, limiting the construction hours would ensure that the applicable codes for construction-related noise would not be exceeded.

Studies by the FHWA indicate that backup alarms constitute 41 percent of complaints from construction noise. Measures to reduce or eliminate the use of backup indicators (some signaling, either alarms or flaggers are required by the Occupational Safety and Health Administration [OSHA]) and to maintain construction equipment would reduce the impact of construction noise on nearby sensitive receptors.

Construction noise could exceed County thresholds for construction along Colima Road within the County of Los Angeles. Noise monitoring, in combination with measures, such as equipment muffling, engine tuning, and management of backup alarms, would reduce the impacts to less than significant.

The staging and parking area would be in close proximity to residences and the school. Although noise calculations, including construction time limits, indicate that noise levels

would be less than significant with mitigation, equipment loading and unloading at the staging and parking area could create periodic disturbances for nearby residences and the school. Relocating the staging and parking area north of the Ranger Residence would reduce these impacts on the school and the residences.

Residual noise impacts would be less than significant with mitigation.

With the implementation of all mitigation that requires limiting construction to certain hours, ensuring construction equipment is properly maintained, and moving the construction and staging area further away from the school and residences on Catalina Avenue to an area north of the Ranger Residence or equivalent, any potential impact will be reduced to less than significant levels.

2. Noise from Drilling Activities

Drilling activities during the Drilling and Testing Phase would increase noise levels in the area. With the implementation of mitigation, any noise from the drilling activities will be reduced to less than significant.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant noise impact from drilling activities. Specifically, the following mitigation will ensure a less than significant impact.

> **N-2a** The Applicant shall develop and implement a Noise Reduction Plan for all drilling (testing, development, and re-drills and workovers) to ensure that the Leq noise levels from activities, measured as a 1-hour Leq, is less than a 3-dBA increase at the closest sensitive residential receptor and less than a 5-dBA increase at the closest sensitive recreational receptor. The Plan shall be prepared by an acoustic consultant approved by the City and the Plan shall be subject to City review and concurrence. The measures in the Plan shall include but not be limited to the following: (1) enclose the drill rig area in soundproof barriers 30 feet high on the south and west sides; (2) utilize a central generator type drilling rig, with the generators the only diesel engines onsite and enclosed in a soundproofed generator house with appropriate grade muffler systems, or install sound enclosures around all diesel engines with appropriate grade muffler systems; (3)install noise barriers around the drill rig floor, mud mixers, cleaners, conveyers, and shakers; (4) enclose drawworks brake area with soundproofing shroud; (5) install pads on V-door and other appropriate areas, timbers and pads on drill deck, pads between drill and casing pipe while in storage, and pad and timbers at the boards on the mast to reduce metal-on-metal noise (for both drilling and workover operations); (6)

enclose the drilling mast boards area (on drilling and workover rigs) with barriers 2 inches thick and 2 pounds per square foot in density at least 5 feet above and below any noise sources; and (7) install ambient sensitive backup indicators on all equipment requiring backup indicators.

N-2b The Applicant shall institute a quiet-mode for all drilling activities between 7 p.m. and 7 a.m. Quiet-mode operation would apply to both drilling and operations and would involve: (1) using signalers for all backup operations instead of backup alarms and turning off backup alarms; (2) using radios instead of voice communication; (3) minimizing crane use and pipe handling operations, pipe offloading from trucks and board loading during daytime to the maximum extent feasible and nighttime loading only for safety reasons; (4) prohibiting material and supply deliveries to the Project Site between the hours of 7 p.m. and 7 a.m., with exceptions only for safety; and (5) limiting process alarms and communications over the broadcast system to the maximum extent feasible during all operations and use only for safety reasons.

N-2c Provide a comprehensive noise abatement study, including noise and vibration monitoring at nearby sensitive receptors and continuous monitoring near drilling activities, under contract and supervision of the City, to monitor noise and vibration from the drilling and operations in the community. The City shall have the authority to shut-down operations and require additional mitigation if the noise criteria are exceeded.

(b) Facts in Support of Findings

The EIR estimated noise impacts with standard noise propagation equations codified into complex computer models that take into account noise reduction and attenuation due to barriers (e.g., man-made walls, hills, and other natural obstructions), weather effects, and ground absorption. The model used was SoundPlan, which is a commonly used high level noise assessment model in the acoustical industry. Results of the calculations are CNEL and peak-hour noise contours that estimate which areas would experience noise levels above a given threshold.

Large diesel engines used for drilling would likely be the noisiest activity associated with the proposed Project. Drilling operations continue during evening and nighttime hours, exacerbating the noise impacts. Regulatory restrictions on noise are stricter during evening and nighttime than during daytime. Major noise sources associated with drilling activities include metal-on-metal contact, internal combustion engines, electric motors, drawworks brakes, the mud shakers and mixers, warning devices (e.g., equipment backup alarms, H2S monitors), and personnel communicating instructions and commands.

Most of the metal-on-metal noise generated on the rig would be at ground level and from the rig floor. The only source of noise above the rig floor would be at the boards, partway up the drilling rig, where the derrick man would use the pipe elevators to engage or disengage stands of drill pipe as it is pulled from or lowered into the hole. Metal-on-metal noise can be characterized as clanking sounds varying in duration and sound level. Since the clanking noise is loud and short in duration, it may be perceived as more annoying than steady noise from other sources.

This equipment, at various locations and different heights within the drilling site, would not be above the drilling rig floor. Several equipment pieces are truck-mounted and therefore would be slightly elevated. Other equipment would be located on the drill floor, at a height of 19 feet for the Kenai Drilling number 14 rig.

The drilling rig and most of the associated drilling equipment would be diesel powered. The proposed diesel engines are those for the drilling rig mud pumps, the drawworks, and the rig generator. Additionally, the cementing equipment, slickline, wireline equipment, crane, and coil-tubing unit are used less frequently and are mounted on trucks and use the truck engines for power. Miscellaneous small hydraulic-powered equipment (e.g., shakers) would be powered by electricity from diesel-powered generators.

The slickline, well–logging, and cementing unit and the coil tubing units would not be used at the same time the drilling rig is operating since they perform services on the well when pipe is not being drilled. The crane is used only for moving pipe and is assumed to operate 20 percent of the time. All other equipment is assumed to operate 90 percent of the time. The metal-on-metal noise and backup alarms are assumed to have a duration of 1 second and to occur 500 times per day. Back-up alarm noise levels are assumed to be 5 dBA more than the crane's peak noise level.

Noise from the equipment, particularly the equipment at the drilling site ground level, would be partially attenuated by the terrain. This effect is included in the noise model.

Several studies were examined to estimate the noise levels from the drilling equipment, including studies conducted on drilling sites by the Bureau of Land Management and studies in Los Angeles urban areas by Arup Acoustics and Behrens and Associates. Kenai Drilling also provided some noise monitoring data from the drilling rig that was gathered to ensure OHSA compliance with worker hearing protection requirements.

Bureau of Land Management drilling noise studies indicate noise levels from drilling of 83 dBA at 50 feet. A noise study performed for drilling operations in Los Angeles at the Baldwin Hills oilfield indicates equivalent noise levels of 82 dBA from drilling operations. However, information on the specific activities undertaken and details of the equipment arrangements, such as noise reduction techniques, were not available for these studies, so a direct comparison is not possible.

The Baldwin Hills Environmental Impact Report (EIR), prepared for an urban oilfield development in Los Angeles County, conducted noise monitoring of ongoing drilling activities and pumping units. Noise levels during drilling, casing, and cementing activities were 77, 73,

and 80 to 82 dBA at 50 feet, respectively. Additional noise monitoring at the Baldwin Hills by Behrens and Associates indicated that noise levels associated with drilling range up to 80 dBA 50 feet from drilling equipment.

As a worst case, the EIR compiled noise estimates for each piece of equipment and activity and assigned noise levels and associated use factors. Estimating noise levels from each piece of equipment, as opposed to assigning a noise level for the entire drilling process, has the advantage of identifying which pieces of equipment are creating impacts and might require mitigation. Large diesel engine (the mud pumps, generator, and the drawworks engines) noise levels are based on Kenai Drilling Company noise monitoring within the rig area.

Trucks and other vehicles that visit the Processing Facility Area and the Well Area were calculated in the model using the vehicle types and traffic levels. These sources generate noise at the Project Site and along Catalina Road (or the North Access Road depending on the phase of drilling). The noise model takes into account the terrain and grade of the road and it corrects the vehicle noise accordingly; for example, trucks laboring uphill produce more noise than trucks on a level surface.

SoundPlan noise modeling indicated that noise levels 50 feet from the drilling equipment arrangement would be approximately 85 dBA Leq. This noise level is somewhat higher than that measured near drilling operations in Los Angeles. However, this level does not include any mitigation (e.g., noise barriers) and is, therefore, considered a conservative, worst-case unmitigated analysis.

The highest noise levels would be encountered at the Ranger Residence and the recreational sensitive receptors within the Preserve along the Loop Trail. The greatest impact on residential sensitive receptors would be at the Romero Drive, Lodosa Drive, and Catalina Avenue receptors.

The primary contributors to noise levels are large diesel engines (e.g., mud pumps, diesel generators, drawworks engine), the cutting conveyer, and pipe clanging at the boards on the drilling rig.

Drilling traffic contributes to the noise impacts to residences along Catalina Avenue during the test drilling to levels averaging an Leq peak hour of approximately 45 dBA 50 feet from the roadway.

In combination with the existing baseline levels, peak hour noise levels at only the residential receptors would increase by an average of almost 3 dBA (not including the Ranger Residence or trail receptors) with the range from less than 1 dBA along Ocean View Avenue to 5 dBA along Catalina Ave.

Noise levels at the Loop Trail location closest to the drilling activities would increase by more than 14 dBA over the minimum baseline peak hour.

Noise increases over baseline would exceed the General Plan levels at the Ranger Residence and the 3 to 5 dBA increase would be exceeded at multiple locations. This would be a significant impact.

Extensive noise control measures could be implemented to reduce noise levels. These measures, used at other oilfields, such as Baldwin Hills, are proven to substantially reduce noise levels.

Regarding residual impacts, the noise reduction methods in the mitigation measures are established practices in the drilling industry that reduce noise levels in drilling situations.

The barrier blankets range in size from 1 to 2 inches thick and density from 1 to 2.5 pounds per square feet. The thicker, denser material achieves greater sound reduction. A sound enclosure differs from a sound barrier because a sound enclosure surrounds the entire piece of equipment, can be made from wood and various thicknesses of sound absorbing material, and is effectively a container in which the equipment is placed (i.e., similar to a generator house). A sound barrier is a wall erected out of sound barrier blanket material or solid material.

Several companies produce exhaust systems that reduce noise from heavy-duty diesel engines; these systems could be used to reduce the noise from diesel engines used during drilling operations. These systems have a range of noise reduction levels and they can attenuate the exhaust noise by 23 to 35 dBA.

Generally, noise reduction levels associated with barriers are approximately 8 to 15 dBA, depending on proximity to the equipment. Measurements at Baldwin Hills oil field indicate that a 30-foot high noise barrier wall and a steel support structure with noise barrier blankets can reduce noise levels by at least 8 dBA. Noise blankets immediately adjacent to and around noise sources, such as the mud pit area, can reduce noise levels by more than 15 dBA.

A variety of companies produce enclosures that can reduce noise levels by as much as 23 dBA. If the enclosures are insulated with additional foam, noise reduction could increase by 6 to 8 dBA (up to 31 to 33 dBA). Measurements taken at Kenai rigs by Kenai Drilling indicate that a generator house can reduce noise levels by at least 13 to 15 dBA.

Regardless of mitigation, these noise levels would occur during day and night because drilling would occur 24 hours per day. The highest noise levels from drilling would occur at the Loop Trail and the Ranger Residence and along Catalina Avenue due to traffic. The largest contributors to the noise levels after mitigation would be diesel generators, the cutting conveyer, backup alarms, and annunciators.

These estimates of noise levels are comparable to actual, measured values at the Baldwin Hills oilfield, which utilizes a similar list of mitigation measures. At residences 750 feet from the mitigated Baldwin Hills drilling operations, noise levels from drilling are less than 42 dBA during the maximum hour drilling operations. At Baldwin Hills, mitigation required noise monitoring devices to be installed 100 feet from drilling equipment that continuously monitor noise levels. Average hourly noise levels for the most recent drilling activity at Baldwin Hills range are from 51 to 60 dBA at 100 feet, which would correlate to 33 to 42 dBA at 820 feet (the closest receptor to the proposed Project drilling site). These noise levels would be less than the measured baseline levels in the Project area and are from an existing, current in-field drilling project. The closest residences to the Well Area drilling

operations (aside from the Ranger Residence) would be at Ocean View Avenue, Romero Road, and Catalina Avenue. The Loop Trail receptor is approximately 820 feet from the drilling activities and the noise level from the Project contribution (without the baseline) during the peak hour at the Loop Trail is estimated to be approximately 43 dBA, which is comparable to noise levels estimated at the Baldwin Hills Oilfield with drilling mitigation.

Some of the mitigation measures recommended for the Project have been implemented at the existing, operating Matrix Honolulu Terrance facility. Documented complaints regarding noise from the Honolulu Terrace facility range 100 feet to approximately 1,000 feet from the facility site. Most complaints originate within 500 feet of the site.

The proposed Project equipment arrangement would be similar to Honolulu Terrace operations, except that the Honolulu Terrace facility is in very close proximity to residences; drilling occurs within approximately 100 feet of residences and that facility only utilizes a subset of the extensive range of noise control devices recommended for this Project.

Peak hour mitigated noise level increases at the residential receptors only (not including the Ranger residence or trail receptors) would average 0.4 dBA increase ranging up to a 1.8 dBA increase along Catalina (primarily due to traffic).

The mitigation measures would reduce the noise levels at the nearest residence and at all sensitive receptors to below levels specified in the General Plan and would prevent noise levels from increasing by more than 3 to 5 dBA at all receptor locations The impacts of drilling would be less than significant with mitigation. Even though hourly average noise levels are less than the significance criterion, periodic noises would still be heard. Annunciators and pipe clangs, even with the mitigation measures, would be heard for short durations.

With the mitigation described above, the impact is reduced to a less than significant level.

3. Operational Noise Impacts

Operational activities would increase noise levels in the area. However, with the implementation of mitigation, this impact would be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact with regard to operational noise impacts. Specifically, the following mitigation will ensure a less than significant impact.

> **N-4** The Applicant shall develop and implement a Noise Reduction Plan for all operations to ensure that Leq noise levels from operational activities, measured as 1-hour Leq, produce less than a 3 dBA increase over the minimum baseline hourly average level at the closest residential receptor to the facility. The measures in the Plan shall include, but not be limited to: (1) installing sound enclosures or buildings around all compressors;

(2) installing noise barriers around all pumps and air coolers; (3) installing ambient-sensitive backup indicators on all equipment requiring backup indicators; (4) installing sound enclosures or buildings around all the oil area pumps (e.g., shipping, IGFC, water injection, water booster, reject pumps); (5) installing sound enclosures or buildings around refrigeration units; (6) installing a secondary, 16-foot tall sound wall on the south, west and north sides of the gas plant; (7) ensuring that all office equipment (i.e., air conditioners, heating, ventilation) produces low noise levels or is surrounded by noise barriers; and (8) limiting traffic on the North Access Road to within 7 a.m. to 7 p.m., except for emergencies.

(b) Facts in Support of Findings

Operational activities would include pumps and compressors at the Processing Facility Area and at the Well Area, as well as transformers, heaters, air coolers, annunciators, and equipment at the Gas Plant Area.

Noise levels would increase at all receptor locations compared to the lowest baseline levels measured. For example, at the overlook near the Preserve parking lot, noise levels would increase over the low nighttime baseline values, but during the daytime baseline noise levels are 9 dBA higher due to traffic on Colima Road and the increase in noise levels would be minimal. Operations would be similar during day and night. Unmitigated noise levels 50 feet from the gas plant processing equipment would be approximately 90 dBA within the Gas Plant Area wall.

Traffic to and from the site is assumed to utilize both Catalina Avenue and the North Access Road through Penn Street. Traffic from operations and from drilling would generate noise along traffic routes. Daytime peak hour noise levels along the North Access Road would be as much as 58 dBA during operations when drilling equipment would be delivered (peak drilling truck traffic), as much as 52 dBA during operations with drilling, and a maximum of 46 dBA with only operational traffic (no drilling).

Noise levels along Penn Street are estimated to increase by approximately 0.1 dBA from relatively low levels of operational traffic. Traffic noise levels along Catalina Avenue would be less than 40 dBA.

Peak-hour noise level increases at the residential receptors only (not including the Ranger Residence or trail receptors) would average almost 6 dBA during the nighttime, ranging from a 1.7-dBA peak-hour increase along Ocean View Avenue to a 7.8-dBA peak-hour increase along Catalina Avenue.

Noise levels at the Loop Trail would increase by more than 16 dBA during the peak hour, which would be clearly noticeable.

Project operations would increase CNEL levels at multiple locations and the maximum hour noise levels would increase by more than 3 to 5 dBA at most locations, exceeding the

limits defined in the General Plan and the thresholds. This would be a potentially significant impact.

The noise reduction methods contained in the above referenced mitigation measures are established practices to reduce noise levels in urban situations in the oil and gas industry. The largest noise sources, the compressors and largest pumps, would be enclosed and insulated with noise barriers or solid noise-attenuation material. This type of structure would reduce noise levels 23 to 33 dBA.

Additional noise sources include various pumps at the Well Area and at the air coolers used to cool process streams. Noise barriers would be installed around these sources to minimize the noise levels. The refrigeration unit would also be enclosed in a noise barrier or building or placed inside the compressor building.

Even with these mitigation measures, noise levels at the public Deer Loop Trail could exceed the significance criteria. Therefore, a 16-foot tall noise wall would be installed on the south, west, and north sides of the Gas Plant equipment (a 20-foot retaining wall around the east side acts as a noise barrier). This wall would not only reduce noise levels at the Loop Trail recreational receptor, but it would reduce noise levels within the Preserve and canyon area, which would reduce impacts on biology. Noise levels 50 feet from the gas plant equipment would be reduced to 77 dBA for the maximum hour within the Gas Plant Area wall. Peak hour mitigated noise levels at the residential receptors would increase by less than 0.5 dBA (not including the Ranger Residence or trail receptors), and would range up to an increase of 1.3 at Catalina Avenue due primarily to Project traffic. Noise levels at the Loop Trail, the closest area to the Project activities, would increase by less than 5 dBA during the peak hour. Impacts would be less than the CNEL specified by the General Plan for all receptors, and all receptors would experience less than a 3- to 5-dBA noise level increase. Therefore, the impacts would be less than significant.

4. Concurrent Operational and Drilling Activity Noise

Concurrent operational activities and drilling activities during periods of the Project would increase noise levels in the area. With the implementation of mitigation, this impact would be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant noise impact from concurrent operational and drilling activities. Specifically, the following mitigation will ensure a less than significant impact.

> **N-1a** Limit all construction activity at the Project Site (including deliveries and arriving and departing workers, and construction activities during the testing phase) to the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays and prohibit activities on Sundays and federal holidays. In addition, for construction work within the County of Los Angeles unincorporated areas, the Applicant shall ensure that

noise levels do not exceed County municipal code levels with a noise study and monitoring and measures, including high grade mufflers, engine tuning, and management of backup alarms. All contracts with construction personnel shall specify the allowable work hours and the study and monitoring requirements.

N-1b Maintain all construction machinery according to the manufacturers' specifications and ensure that mufflers and silencers are maintained properly. Back-up OSHA noise indicators shall be ambient sensitive and self-adjusting to minimize backup indicator noise or flaggers shall be used in the place of backup alarms (as allowed by OSHA).

N-2a The Applicant shall develop and implement a Noise Reduction Plan for all drilling (testing, development, and re-drills and workovers) to ensure that the Leq noise levels from activities, measured as a 1-hour Leq, is less than a 3-dBA increase at the closest sensitive residential receptor and less than a 5-dBA increase at the closest sensitive recreational receptor. The Plan shall be prepared by an acoustic consultant approved by the City and the Plan shall be subject to City review and concurrence. The measures in the Plan shall include but not be limited to the following: (1) enclose the drill rig area in soundproof barriers 30 feet high on the south and west sides; (2) utilize a central generator type drilling rig, with the generators the only diesel engines onsite and enclosed in a soundproofed generator house with appropriate grade muffler systems, or install sound enclosures around all diesel engines with appropriate grade muffler systems; (3)install noise barriers around the drill rig floor, mud mixers, cleaners, conveyers, and shakers; (4) enclose drawworks brake area with soundproofing shroud; (5) install pads on V-door and other appropriate areas, timbers and pads on drill deck, pads between drill and casing pipe while in storage, and pad and timbers at the boards on the mast to reduce metal-on-metal noise (for both drilling and workover operations); (6) enclose the drilling mast boards area (on drilling and workover rigs) with barriers 2 inches thick and 2 pounds per square foot in density at least 5 feet above and below any noise sources; and (7) install ambient sensitive backup indicators on all equipment requiring backup indicators.

N-2b The Applicant shall institute a quiet-mode for all drilling activities between 7 p.m. and 7 a.m. Quiet-mode operation would apply to both drilling and operations and would involve: (1) using signalers for all backup operations instead of backup alarms and turning off backup alarms; (2) using radios instead of voice communication; (3) minimizing crane use and pipe handling

operations, pipe offloading from trucks and board loading during daytime to the maximum extent feasible and nighttime loading only for safety reasons; (4) prohibiting material and supply deliveries to the Project Site between the hours of 7 p.m. and 7 a.m., with exceptions only for safety; and (5) limiting process alarms and communications over the broadcast system to the maximum extent feasible during all operations and use only for safety reasons.

N-2c Provide a comprehensive noise abatement study, including noise and vibration monitoring at nearby sensitive receptors and continuous monitoring near drilling activities, under contract and supervision of the City, to monitor noise and vibration from the drilling and operations in the community. The City shall have the authority to shut-down operations and require additional mitigation if the noise criteria are exceeded.

N-4 The Applicant shall develop and implement a Noise Reduction Plan for all operations to ensure that Leq noise levels from operational activities, measured as 1-hour Leq, produce less than a 3 dBA increase over the minimum baseline hourly average level at the closest residential receptor to the facility. The measures in the Plan shall include, but not be limited to: (1) installing sound enclosures or buildings around all compressors; (2) installing noise barriers around all pumps and air coolers; (3) installing ambient-sensitive backup indicators on all equipment requiring backup indicators; (4) installing sound enclosures or buildings around all the oil area pumps (e.g., shipping, IGFC, water injection, water booster, reject pumps); (5) installing sound enclosures or buildings around refrigeration units; (6) installing a secondary, 16-foot tall sound wall on the south, west and north sides of the gas plant; (7) ensuring that all office equipment (i.e., air conditioners, heating, ventilation) produces low noise levels or is surrounded by noise barriers; and (8) limiting traffic on the North Access Road to within 7 a.m. to 7 p.m., except for emergencies.

(b) Facts in Support of Findings

During the test phase drilling of the proposed Project, drilling would occur at the Well Area; however, the Processing Facility Area and Gas Plant Area would not yet be constructed and would not be operating. If the test wells prove to be viable, the Processing Plant Area and Gas Plant Area would be constructed and drilling would thereafter commence at the Well Area. This drilling would last for at least an estimated 5 years and during this time, both drilling and processing noise would occur simultaneously. After 5 years, or until the Applicant drills all the initial wells, drilling would occur periodically (up to 3 months per year) to re-drill wells.

In addition, well workovers would use a smaller, truck mounted portable drilling rig. The truck engines would power this rig to service the wells. Noise levels from workover rigs would be substantially less than from the full-sized rig, but they could introduce some increase in noise levels similar in magnitude to a truck engine. Workovers would not occur at the same time as drilling.

During the drilling period and re-drills, both operations and drilling would affect noise levels, which have been discussed independently. Modeling indicates that drilling would increase noise levels at the Deer Loop Trail receptor, at Catalina Avenue (primarily due to traffic), and at all other receptors by less than the significance criteria.

Implementing Mitigation Measures N-1a and N-1b, N-2a through N-2c, and N-4 would reduce impacts to less than significant.

G. TRANSPORTATION AND CIRCULATION

1. Traffic Increase from Test Drilling, Construction Operations, and Operations and Drilling

Potential test drilling, Construction, and Operations and Drilling at the Whittier Mail Oil Field would increase traffic in the area. Implementation of mitigation would reduce potential traffic impacts to below the level of significance

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact with regard to traffic. Specifically, the following mitigation will ensure a less than significant impact.

T-1a During all phases at Intersection 6 - Catalina Avenue and Mar Vista Street, provide striping enhancements for southbound lanes to convert the existing single lanes to a left and right lane. Parking shall be restricted immediately north and south of the intersections, according to City Engineer recommendations.

T-1b A worker carpooling program shall be instituted offsite and away from congested areas to reduce Project traffic through congested areas during all Project phases, in coordination with the City traffic engineer.

T-1c During all phases, limit truck and employee access via Catalina Avenue and Mar Vista Street to no more than 40 daily round-trips and a peak hour of 12 one-way trips. No vehicles with more than two axles or weighing more than 3 tons (generally trucks) or vehicles towing large trailers shall be allowed on Catalina Avenue during Phase 2 (except for the initial stages of the North Access Road construction) or Phase 3.

T-1d Implement safety and access improvements, including: (1) During Phase 1, provide a wider turning radius at the northeast corner of Catalina Avenue to improve right turn movements, according to City Engineer recommendations; (2) Prohibit parking on the east side of Catalina Avenue north of Mar Vista Street from 7 a.m. to 6 p.m. Monday through Friday and from 8 a.m.to 5 p.m. on Saturdays to provide additional capacity for trucks during Phase 1, according to City Engineer recommendations; (3) Provide flagmen for truck access on Mar Vista Street during Phase 1; (4) Applicant shall maintain a record of vehicular traffic moving in and out of the Catalina Avenue Gate; (5) Implement a pavement monitoring program to ensure Mar Vista Street and Catalina Avenue are maintained and damage from truck traffic is appropriately repaired, under direction of city engineers; and (6) Clearly posted speed limit signs on Catalina Avenue. (7) Cover all haul vehicles and sweep or remove any debris that could fall off the truck and impact other drivers before the truck enters public streets.

T-1e During Phase 2 soil export, if it is not deposited at the Savage Canyon Landfill, restrict truck traffic to non-am peak hours at the intersection of Hadley Street and Whittier Blvd. Also, prescribe truck routes for soil-transport and crude-haul trucks to ensure avoidance of impacted intersections. (will no longer apply with Project refinements)

T-1f Implement a Penn Street Traffic Program, in coordination with the City, evaluating: (1) Traffic levels and periods of heavy traffic along Penn Street: (2) Longer-term traffic monitoring to capture events and variation in traffic flow due to student populations and event traffic; (3) Construction truck traffic impacts on roadway capacity due to parking limitations and event activities; (4) Coordination with Whittier College to reduce impacts of events and parking issues along Penn Street; (5) Alternative parking locations and routes for Whittier College events; (6) Implementing safety improvements, including enhanced pedestrian crosswalks and signage; (7) Identifying sources of landfill traffic and ensuring the proposed Project truck traffic during operations (not construction) does not increase average truck traffic levels on Penn Street; (8) Limited hours for proposed Project truck traffic on Penn Street to avoid congested or impacted periods (e.g., limit truck traffic to periods when the landfill is open, i.e. between 8:00 a.m and 3:00 p.m.); (9) Coordinate periods of heavy traffic flow on Penn Street due to events and prevent use of Penn Street for proposed Project-related construction truck traffic during these events. (10) Prohibiting parking of Project-related traffic along any residential

street for non-emergency purposes. (11) Implementing policies for trucks along Penn Street, including speed limits for trucks, yielding requirements to automobiles, and other issues as applicable.

(a) Facts in Support of Findings

Under worst-case conditions, significant impacts would occur at the intersection of Catalina Avenue and Mar Vista Street, during Phase 1, 2 and 3 and at Hadley Street and Whittier Blvd during Phase 2 only. A significant impact would also occur along one street segment, Mar Vista west of Colima Road during Phase 1 only. These impacts would be significant.

Impacts along Penn Street could occur if peak Project-related traffic during construction coincides with large events at Whittier College or William Penn Park. This would be considered a significant impact.

Mitigation Measure T-1a requires that during all phases at Intersection 6 - Catalina Avenue and Mar Vista Street, striping enhancements are provided for southbound lanes to convert the existing single lanes to a left and right lane. Parking shall be restricted immediately north and south of the intersections, according to City Engineer recommendations.

Mitigation Measure T-1b requires that a worker carpooling program be instituted offsite and away from congested areas to reduce Project traffic through congested areas during all Project phases, in coordination with the City traffic engineer.

Mitigation Measure T-1c requires that during all phases, there be a limit on truck and employee access via Catalina Avenue and Mar Vista Street to no more than 40 daily round-trips and a peak hour of 12 one-way trips. No vehicles with more than two axles or weighing more than 3 tons (generally trucks) or vehicles towing large trailers shall be allowed on Catalina Avenue during Phase 2 (except for the initial stages of the North Access Road construction) or Phase 3.

Mitigation Measure T-1d requires implementation of safety and access improvements.

Mitigation Measure T-1e requires that during Phase 2 soil export, if it is not deposited at the Savage Canyon Landfill, truck traffic be restricted to non-am peak hours at the intersection of Hadley Street and Whittier Blvd. Also, prescribe truck routes for soil-transport and crude-haul trucks to ensure avoidance of impacted intersections. However, as detailed in Appendix O detailing the Project refinements, this measure would no longer apply as soil hauling would no longer occur.

Mitigation Measure T-1f requires implementation of a Penn Street Traffic Program, in coordination with the City.

Regarding residual impacts, the intersection of Catalina Avenue and Mar Vista Street (Intersection 6) would experience impacts during the a.m. and p.m. peak hours of Phase 1 and the p.m. peak hours of Phase 2 and 3. Currently, Catalina Avenue north of Mar Vista Street has

very low traffic volumes. Mitigation Measures T-1a and T-1b would reduce the significant impacts to less than significant by improving traffic flow and reducing Project-related traffic. To ensure traffic levels do not produce significant impacts, Mitigation Measure T-1c limits the traffic levels on Catalina during all phases of the project to levels that would not produce significant impacts. This would reduce impacts associated with Intersection 6 to less than significant.

Traffic utilizing Catalina would also produce impacts along Mar Vista Street (Segment 9) during Phase 1. Unless temporary measures, such as removal of traffic calming bulge-outs, are implemented along Mar Vista Street west of Colima Road, the roadway would experience significant impacts during peak hours of Phase 1 of the Project. Temporary elimination of the bulge-outs was determined to be infeasible. Therefore, these impacts would be reduced to less than significant by limiting employee traffic along Catalina Avenue and Mar Vista Street (Mitigation Measure T-1c) during Phase 1. This could be achieved by establishing offsite parking and car-pooling to the site (Mitigation Measure T-1b). With these mitigation measures, impacts would be less than significant with mitigation by reducing Project-related traffic.

Safety and access improvements are also included in Mitigation Measure T-1d. These are related to safe access to Catalina Avenue off of Mar Vista Street. Impacts would be less than significant with mitigation.

Impacts at Hadley Street and Whittier Blvd could be eliminated by limiting project traffic to non-a.m. peak periods, thereby avoiding periods when significant impacts could occur.

The development and implementation of the Penn Street Traffic Program (Mitigation Measure T-1f) would reduce the potential for the impacts related to peak Project construction traffic coinciding with large events that impact Penn Street to less than significant with mitigation.

With the mitigation described above, the impact is reduced to a less than significant level.

2. Pipeline Construction Traffic Impacts

Construction of the pipeline along area streets could cause significant impacts. Implementation of mitigation would reduce impacts to below the level of significance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant traffic impact from pipeline construction. Specifically, the following mitigation will ensure a less than significant impact.

> **T-2** A Traffic Management Plan shall be submitted to the City of Whittier and County of Los Angeles Traffic Engineers for approval, as required, prior to issuance of encroachment permits.

The Plan could include the following measures: provide methods to safeguard traffic flow; identify detours (if necessary); identify the placement of traffic control devices (e.g. signs, traffic cones) and flaggers (if needed); and provide other appropriate traffic control measures. Additional measures shall include: (1) One travel lane shall be left open in each direction (delineated by temporary traffic cones/barricades) along roadways during construction (i.e. roads will not be closed). Any temporary street closures shall occur in coordination with city staff. (2) Construction on major roadways through major signalized intersections will not be conducted during peak periods (6 to 9 a.m. and 3 to 6 p.m.), except where requested by the city to alleviate traffic impacts. (3) All trenches in areas without safety fencing shall be metal plated during non-construction hours. All trenches that interfere with access to residential and business driveways shall be metal plated to provide access. (4) Edges of steel plates shall be made safe for cyclists. (5) All county and municipal fire, police, and paramedic departments shall be notified of the schedule and duration of construction activities. (6) As required, alternative routes shall be identified for emergency vehicles to avoid construction areas. (7) Coordination shall be undertaken with appropriate transit authorities to ensure uninterrupted service along bus or train routes, which shall be crossed or paralleled by the pipeline construction. (8) Alternative pedestrian and bicycle routes shall be identified to avoid construction areas if existing routes are obstructed by pipeline construction activities. (9) Transit stops shall be relocated as necessary to provide access during construction. (10) Staging areas for construction equipment and service truck traffic shall be located off the roadway. (11) Provision shall be made for off-street parking for worker vehicles in areas where parking is limited. (12) Advance notifications shall be made to affected residents and businesses through public information, such as a web site or mailings, and shall include construction scheduling and identify the pipeline as a natural gas pipeline. (13) Schedule construction adjacent to critical land uses so that at least one driveway is left unblocked at all hours or during business hours and ensuring resident and business access during trenching/construction. (14) Ensure that damaged roads are restored to at least their pre-construction condition and to the satisfaction of the responsible agency.

(a) Facts in Support of Findings

Pipeline construction along Colima Road and La Mirada Boulevard could potentially cause traffic impacts that temporarily reduce the capacity of the street system, resulting in substantial increase in the v/c ratio on roads and LOS, or congestion at intersections; inhibit

emergency response by paramedic, fire, ambulance, and police vehicles; affect existing roadside parking; and inhibit access to private and commercial driveways.

Mitigation Measure T-2 requires a Traffic Management Plan be submitted to the City of Whittier and County of Los Angeles Traffic Engineers for approval, as required, prior to issuance of encroachment permits. The Plan could include the following measures: provide methods to safeguard traffic flow; identify detours (if necessary); identify the placement of traffic control devices (e.g. signs, traffic cones) and flaggers (if needed); and provide other appropriate traffic control measures.

With the application of the recommended mitigation, impacts would be reduced to less than significant. All of the potential impacts are only associated with the pipeline construction; the operation of the pipeline will have no impact on transportation/traffic.

With the mitigation described above, the impact is reduced to a less than significant level.

3. Cumulative Traffic Impact

Future conditions and other projects in the area could cause significant cumulative traffic impacts in the area. However, mitigation is imposed upon the Project to ensure a less than significant cumulative impact.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant cumulative traffic impact. Specifically, the following mitigation will ensure a less than significant impact.

T-1a During all phases at Intersection 6 - Catalina Avenue and Mar Vista Street, provide striping enhancements for southbound lanes to convert the existing single lanes to a left and right lane. Parking shall be restricted immediately north and south of the intersections, according to City Engineer recommendations.

T-1b A worker carpooling program shall be instituted offsite and away from congested areas to reduce Project traffic through congested areas during all Project phases, in coordination with the City traffic engineer.

T-1c During all phases, limit truck and employee access via Catalina Avenue and Mar Vista Street to no more than 40 daily round-trips and a peak hour of 12 one-way trips. No vehicles with more than two axles or weighing more than 3 tons (generally trucks) or vehicles towing large trailers shall be allowed on Catalina Avenue during Phase 2 (except for the initial stages of the North Access Road construction) or Phase 3.

T-1d Implement safety and access improvements, including: (1) During Phase 1, provide a wider turning radius at the northeast corner of Catalina Avenue to improve right turn movements, according to City Engineer recommendations; (2) Prohibit parking on the east side of Catalina Avenue north of Mar Vista Street from 7 a.m. to 6 p.m. Monday through Friday and from 8 a.m.to 5 p.m. on Saturdays to provide additional capacity for trucks during Phase 1, according to City Engineer recommendations; (3) Provide flagmen for truck access on Mar Vista Street during Phase 1; (4) Applicant shall maintain a record of vehicular traffic moving in and out of the Catalina Avenue Gate; (5) Implement a pavement monitoring program to ensure Mar Vista Street and Catalina Avenue are maintained and damage from truck traffic is appropriately repaired, under direction of city engineers; and (6) Clearly posted speed limit signs on Catalina Avenue. (7) Cover all haul vehicles and sweep or remove any debris that could fall off the truck and impact other drivers before the truck enters public streets.

T-1e During Phase 2 soil export, if it is not deposited at the Savage Canyon Landfill, restrict truck traffic to non-am peak hours at the intersection of Hadley Street and Whittier Blvd. Also, prescribe truck routes for soil-transport and crude-haul trucks to ensure avoidance of impacted intersections. (will no longer apply with Project refinements)

T-1f Implement a Penn Street Traffic Program, in coordination with the City, evaluating: (1) Traffic levels and periods of heavy traffic along Penn Street: (2) Longer-term traffic monitoring to capture events and variation in traffic flow due to student populations and event traffic; (3) Construction truck traffic impacts on roadway capacity due to parking limitations and event activities; (4) Coordination with Whittier College to reduce impacts of events and parking issues along Penn Street; (5) Alternative parking locations and routes for Whittier College events; (6) Implementing safety improvements, including enhanced pedestrian crosswalks and signage; (7) Identifying sources of landfill traffic and ensuring the proposed Project truck traffic during operations (not construction) does not increase average truck traffic levels on Penn Street; (8) Limited hours for proposed Project truck traffic on Penn Street to avoid congested or impacted periods (e.g., limit truck traffic to periods when the landfill is open, i.e. between 8:00 a.m and 3:00 p.m.); (9) Coordinate periods of heavy traffic flow on Penn Street due to events and prevent use of Penn Street for proposed Project-related construction truck traffic during these events. (10) Prohibiting parking of Project-related traffic along any residential

street for non-emergency purposes. (11) Implementing policies for trucks along Penn Street, including speed limits for trucks, yielding requirements to automobiles, and other issues as applicable.

(b) Facts in Support of Findings

Impacts from the proposed Project and cumulative projects would be significant at several intersections and a single roadway segment in the area. Table 4.7-18 in the EIR lists these intersections and roadways segments and the cumulative impacts for each.

Improvements could be implemented at intersections to mitigate the significant cumulative impacts. These improvements would be implemented through a fair-share cost sharing program with the cumulative projects. However, implementing mitigation measures T-1a through T-1d would also reduce the cumulative impacts to less than significant.

Improvement projects at the impacted intersections through a fair share agreement system could reduce the cumulative impacts. The proposed Project contribution to these mitigation measures would need to be evaluated through a fair-share analysis by the City or applicable authority.

In addition to mitigation measures T-1d, additional mitigation would include:

• Intersection #12 - Colima Road and Whittier Boulevard: Phase 1, 2, 3. Fair share contribution towards widening and improving the south leg of the intersection to provide a dual northbound left turn lane. Provide signal and striping improvements.

• Segment #9 - Mar Vista Street west of Colima Road: Phase 1, 2. The intersection of Colima Road and Mar Vista Street has adequate eastbound approach with a wider roadway and additional lanes. However, west of Colima Road to Catalina Avenue the roadway features bump outs at some corners and landscaped medians. These measures assist in reducing speed and creating an aesthetically pleasing environment. They also reduce roadway capacity. In order to address potential future cumulative impacts, this segment would need to remove the roadway enhancements.

• Intersection #3 - Hadley Street and Whittier Boulevard: Phase 2. Fair share contribution towards widening and improving the east and north leg of Whittier Boulevard at Hadley Street. Alter the existing striping to provide two southbound left turn lanes and a dedicated westbound right turn lane. These improvements are not likely to be accommodated within the existing right-of-way and additional right-of-way may need to be acquired.

Impacts associated with the Matrix City of La Habra Heights project, a proposed oil development project 1.6 miles south of the Preserve in the City of La Habra Heights, would also not produce cumulative impacts. Although Matrix has no defined the traffic route from this development, these traffic routes would likely require vehicles travelling south and east through the City of La Habra Heights, most likely along Las Palomas Drive to Hacienda Road or Santa Gertrudes Avenue towards Whittier Boulevard. There is no connection from the La Habra Heights site to Mar Vista Street and Colima Road.

With the recommended mitigation measures, cumulative impacts would be reduced to less than significant by improving intersections through a fair share program and implementing limits on the Project-related traffic and avoiding impacted areas.

H. HYDROLOGY AND WATER RESOURCES

1. Surface Runoff Caused by Site Grading and Drainage

Site grading and drainage improvements would alter existing drainage patterns and increase impervious surfaces, which could increase surface runoff, cause flooding, and adversely impact water quality. With the implementation of mitigation, any potential impact will be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant site grading and drainage impact. Specifically, the following mitigation will ensure a less than significant impact.

WR-1a A registered civil engineer experienced in drainage shall prepare a hydrologic study, using the corresponding hydraulic calculations for interception, conveyance, and discharge of runoff. Based on these studies, the engineer shall prepare a drainage plan in accordance with City and County requirements.

WR-1b A registered civil engineer experienced in drainage shall design and implement onsite detention facilities to reduce runoff to existing levels. Onsite detention ponds would attenuate the runoff intensity, such that an excessive peak flow would not occur during high intensity storms and there would be no increase in runoff intensity over existing conditions. The project engineer shall conduct an onsite hydrologic study to determine the approximate increase in storm runoff to accurately scale any onsite detention facilities.

Detention System Design

Onsite detention facilities have the potential to create habitats for mosquito breeding. Any onsite detention facilities shall be designed as a 'dry system' in accordance with the California Department of Public Health. A dry system requires that the facility be designed to discharge all captured water within 4 days. The design slope shall be adequate and properly compacted to prevent standing water and a low flow channel shall be incorporated to direct low flows to the system outlet. The basin shall also provide access for maintenance and inspection.

All catch basins and drainage facilities, including grass swales and bio-retention facilities shall also be designed to prevent standing water.

An operation and maintenance plan shall be incorporated to remove vegetation, sediment, and debris accumulation biannually with an inspection at the beginning of the wet season. Waste from maintenance shall be disposed of according to local and state regulations.

Onsite detention facilities shall be inspected quarterly for burrowing vector damage. Vector control measures shall be incorporated and maintained to prevent damage to the detention facility.

Onsite detention facilities shall be surrounded by 6-foot fencing and provided access with a gate and access road per Los Angeles County standards.

Discharge systems from onsite detention facilities shall be capable of discharging water from the basin while preventing a discharge of oil from the surface of the basin using a weir or subsurface discharge type design to prevent oil discharges from the basin in the event the basin reaches capacity and there is a crude oil spill.

WR-1c Impervious surfaces shall be minimized to prevent pollutant runoff. Gravel roads and parking areas shall be constructed to allow infiltration of stormwater and limit downstream runoff.

WR-1d Structural Best Management Practices shall be used to mitigate the increased pollutant runoff. Runoff from impervious areas shall be directed to grass swales, bio-swales, or detention ponds to aid in filtering out suspended solids and potential contaminants. Grass bio-swales shall not be planted with invasive species. The Best Management Practices shall be designed by a California registered, Qualified Storm Water Pollution Prevention Plan Developer.

WR-1e Pollution control products, such as catch basins with basket inserts, shall be used to catch trash and debris along with filtering elements such as silt fences, straw wattles and absorbent sponges within catch basins. Filter technology may be used to catch sediment, debris, oil, and pollutants.

WR-1f Permanent water quality testing, drainage device, and erosion control maintenance shall be implemented. Sampling and

analysis shall be completed in accordance with National Pollutant Discharge Elimination System requirements.

WR-1g A California registered, Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee and monitor construction Best Management Practices and stormwater management programs, in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.

(b) Facts in Support of Findings

Access road improvements, well pads, storage tank foundations, processing facilities, and other similar improvements would increase impervious area within the Project Site. Approximately 12.2 acres would be disturbed during construction of the facilities, with 6.9 acres remaining disturbed and mostly unpaved during operations. In addition, 8.9 acres would be disturbed during construction for road improvements, temporary construction staging areas, and parking areas, with 3.8 acres remaining as paved roadways during operations. The addition of asphalt and concrete paving within the Project Site boundaries would alter the runoff coefficients and increase overall storm runoff from the site. An increased storm runoff value could alter storm flow paths and increase storm flow velocities, which could ultimately overwhelm downstream storm drains. In addition, increased runoff intensities could result in increased erosion, sediment transport, and pollutant transport, causing alterations in adjacent stream flow pH, water temperature, turbidity, nutrients, organic compounds, and suspended sediment. In addition, the Project would include construction of steep cut slopes and sloped paved roads, which would further increase the impacts of the increased storm flows.

Mitigation Measure WR-1a requires a registered civil engineer experienced in drainage to prepare a hydrologic study, using the corresponding hydraulic calculations for interception, conveyance, and discharge of runoff. Based on these studies, the engineer shall prepare a drainage plan in accordance with City and County requirements.

Mitigation Measure WR-1b requires a registered civil engineer experienced in drainage to design and implement onsite detention facilities to reduce runoff to existing levels. Onsite detention ponds would attenuate the runoff intensity, such that an excessive peak flow would not occur during high intensity storms and there would be no increase in runoff intensity over existing conditions. The project engineer shall conduct an onsite hydrologic study to determine the approximate increase in storm runoff to accurately scale any onsite detention facilities.

Mitigation Measure WR-1c requires impervious surfaces to be minimized to prevent pollutant runoff. Gravel roads and parking areas shall be constructed to allow infiltration of stormwater and limit downstream runoff.

Mitigation Measure WR-1d requires Structural Best Management Practices to be used to mitigate the increased pollutant runoff. Runoff from impervious areas shall be directed to grass swales, bio-swales, or detention ponds to aid in filtering out suspended solids and potential contaminants. Grass bio-swales shall not be planted with invasive species. The Best

Management Practices shall be designed by a California registered, Qualified Storm Water Pollution Plan Developer.

Mitigation Measure WR-1e requires pollution control products, such as catch basins with basket inserts, to be used to catch trash and debris along with filtering elements such as silt fences, straw wattles and absorbent sponges within catch basins. Filter technology may be used to catch sediment, debris, oil, and pollutants.

Mitigation Measure WR-1f requires Permanent water quality testing, drainage device, and erosion control maintenance shall be implemented. Sampling and analysis shall be completed in accordance with National Pollutant Discharge Elimination System requirements.

Mitigation Measure WR-1g requires a California registered, Qualified Storm Water Pollution Prevention Plan Practitioner to oversee and monitor construction Best Management Practices and stormwater management programs, in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.

By implementing the above mitigation measures, impacts from Project-related activities can be reduced to a less than significant level.

2. Erosion Impacts Caused by Site Grading and Drainage Improvements

Site grading and drainage improvements would alter existing drainage patterns at the Project Site, which could increase erosion and impact water quality on or off-site. With the implementation of mitigation, any potential impact will be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant erosion impact. More specifically, the following mitigation will reduce any potential impact to less than significant levels.

> **WR-2a** During construction operations, the Applicant shall implement stormwater management protection measures and wet weather measures. These measures would include temporary and permanent Best Management Practices to reduce the potential for erosion and sediment transport. Conventional measures typically recommended by the State Water Resource Board and the California Department of Transportation would reduce potentially significant erosion and runoff impact to less than significant levels:
>
> Implement permanent erosion and sediment control measures:
>
> - Minimize grading, clearing, and grubbing to preserve existing vegetation;

- Use mulches and hydroseed free of invasive plants to protect exposed soils;

- Use geotextiles and mats to stabilize soils;

- Use drainage swales and dissipation devices; and

- Use erosion control measures outlined in the California Stormwater Quality Association Best Management Practice Handbook.

Implement temporary Best Management Practice mitigation measures:

- Use silt fences, sandbags, and straw wattles;

- Use temporary sediment basins and check dams; and

- Use temporary Best Management Practices outlined in the California Stormwater Quality Association Best Management Practice Handbook.

Implement tracking control Best Management Practices to reduce tracking sediment offsite.

- Use stabilized construction entrance and exit with steel shakers;

- Use tire wash areas; and

- Use tracking control Best Management Practices outlined in the California Stormwater Quality Association Best Management Practice Handbook.

WR-2b The Applicant shall implement a Storm Water Pollution Prevention Plan using Best Management Practices and monitor and maintain stormwater pollution control facilities identified in the Storm Water Pollution Prevention Plan, in a manner consistent with the provisions of the Federal Water Pollution Control Act (National Pollutant Discharge Elimination System Program).Stormwater management protection measures and wet weather measures shall be designed by a California registered, Qualified Storm Water Pollution Prevention Plan Developer. In addition, a California registered, Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee and monitor construction Best Management Practices and stormwater management, in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.

(b) Facts in Support of Findings

Site grading and drainage improvements would alter existing drainage patterns at the Project Site, which could increase erosion and impact water quality on- or off-site. The Drilling and Testing Phase would include clearing and grubbing operations, access road improvements, and test well pad construction. The Design and Construction Phase would include full-scale grading and earthmoving, including construction of the paved access roads, both to the north and the south, grading the drilling pads, gas plant area, oil processing site, and truck loading area. Excavations would also be necessary to construct the proposed well cellars.

Grading the Project Site would include cut and fill. In addition to the grading operations, oil and gas pipelines and underground utilities, including water, gas and electricity, would be installed under the existing and new access roads. A sewer is also proposed to extend from the southwest portion of the Project Site, beneath the roadway, but above La Canada Verde Creek, and then extend southward, adjacent and parallel to the creek, until reaching a sewer tie-in on Catalina Avenue. Pipeline and sewer construction would necessitate temporary stockpiling of excavated soil adjacent to the trench.

These grading and construction activities would temporarily increase the amount of suspended solids in surface flows derived from the site during storm events, due to sheet erosion of exposed soil, thus potentially resulting in significant water quality impacts to La Canada Verde and Arroyo Pescadero creeks.

Mitigation Measure WR-2a requires that during construction operations, the Applicant shall implement stormwater management protection measures and wet weather measures. These measures would include temporary and permanent Best Management Practices to reduce the potential for erosion and sediment transport.

Mitigation Measure WR-2b requires the Applicant to implement a Storm Water Pollution Prevention Plan using Best Management Practices and monitor and maintain stormwater pollution control facilities identified in the Storm Water Pollution Prevention Plan, in a manner consistent with the provisions of the Federal Water Pollution Control Act (National Pollutant Discharge Elimination System Program). Stormwater management protection measures and wet weather measures shall be designed by a California registered, Qualified Storm Water Pollution Prevention Plan Developer. In addition, a California registered, Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee and monitor construction Best Management Practices and stormwater management, in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.

By implementing the above mitigation measures, impacts from Project-related activities can be reduced.

3. <u>Degradation of Surface Water Quality</u>

New grading and construction, potential soil remediation, and/or drilling operations could degrade surface water quality. With the implementation of mitigation, this impact would be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant surface water quality impact. More specifically, the following mitigation will reduce any potential impact to less than significant levels.

> **WR-3a** The proposed well cellar shall be lined with an impermeable membrane to prevent oil-based substances from seeping into groundwater supplies. All drilling muds storage shall be contained within Baker-type enclosed tanks.
>
> **WR-3b** An 18-inch berm shall be placed around the entire drilling rig to capture any spilled fluids.
>
> **WR-3c** Personnel at the site shall be trained in equipment use and containment and cleanup of an oil spill. Dry cleanup methods, such as absorbents, shall be used on paved and impermeable surfaces. Spills in dirt areas shall be immediately contained with an earthen dike and the contaminated soil shall be dug up and discarded in accordance with local and state regulations.
>
> **WR-3d** Oil spills shall be contained and cleaned according to measures outlined in the California Stormwater Quality Association Best Management Practice Handbook.
>
> **WR-3e** An approved response manual and Oil Spill Contingency Plan shall be implemented to outline response actions in the event of a spill, including a spill response trailer, equipment, and personnel training. The plan shall be completed prior to the Drilling and Testing phase. Spill cleanup shall be completed under the oversight of the lead regulatory agency, with respect to oil spills, as identified in the Oil Spill Contingency Plan.

(b) Facts in Support of Findings

New well pad, road, pipeline, and related infrastructure construction activities could result in degradation of local drainages and creeks, including nearby La Canada Verde, Arroyo Pescadero, Arroyo San Miguel, and Leffingwell creeks, as well as two other nearby unnamed creeks. Potential construction related contaminants include solid and sanitary wastes, phosphorous, nitrogen, pesticides, oil and grease, concrete washout, construction chemicals, and construction debris. Similarly, operations could result in an incidental release of oil, oil-based mud, generator fuel, or maintenance related hazardous materials, which could introduce such substances to surface soils and waters.

Excavation and construction at the Project Site could encounter contaminated soils, which could be mobilized such that adjacent creek waters are adversely affected. Potential soil remediation activities (e.g., excavation, on-site biofarming [i.e., bioremediation], and/or offsite disposal of contaminated soil) could also result in incidental spills of petroleum products from excavation and grading equipment. Such contaminants would potentially impair surface water runoff.

The drilling operations would require approximately 4,500 gallons of water per day from a fire hydrant installed near the drill site. The drilling rig and associated equipment would be routinely exposed to water and small quantities of mud or petroleum-based substances, which could be spilled directly onto the surrounding ground surface. In addition, the proposed well cellars would be recessed below the ground surface. Incidental oil leakage or spills of oil-based substances could seep into the underlying groundwater and significantly impact water quality.

However, a pollution pan would be installed under the rig floor to contain and collect any oil-based drilling mud that may spill on the rig floor. The mud would be captured and contained in the catch pan and then returned to the active mud pit system by a cellar pump. The drilling pad would be constructed to allow any fluids spilled directly around the rig to flow into the well cellar. In addition, a 6-inch berm, lined with an impermeable membrane, would be placed around the entire drilling rig after rig installation. In the event that a leak should occur in the mud handling system, the leak would be contained directly around the rig and flow toward the well cellar. Rainwater accumulations within the bermed area around the rig would similarly flow into the well cellar, before being pumped into the active mud pit system. Stormwater from all other areas and facilities would be collected in a bermed water detention basin, located immediately adjacent to the Oil Processing Plant area and allowed to percolate into the ground. No stormwater would be allowed to drain from the Project Site into the surrounding area. As an extra precaution, a spill trailer at the drilling site would be equipped with absorbent material, small spill booms to contain and direct flow, plastic sheets, personal protective equipment, and rakes, shovels, and hand tool, to be used in the event of an oil spill.

Mitigation Measure WR-3a requires the proposed well cellar be lined with an impermeable membrane to prevent oil-based substances from seeping into groundwater supplies.

Mitigation Measure WR-3b requires an 18-inch berm be placed around the entire drilling rig to capture any spilled fluids.

Mitigation Measure WR-3c requires personnel at the site be trained in equipment use and containment and cleanup of an oil spill.

Mitigation Measure WR-3d requires oil spills be contained and cleaned according to measures outlined in the California Stormwater Quality Association Best Management Practice Handbook.

Mitigation Measure WR-3e requires an approved response manual and Oil Spill Contingency Plan be implemented to outline response actions in the event of a spill, including a spill response trailer, equipment, and personnel training.

By implementing the above mitigation measures, impacts from Project-related activities can be reduced to a less than significant level.

4. Depletion of Groundwater Supplies

Although the Project is not anticipated to cause a depletion of groundwater supplies, mitigation is recommended to reduce any already less than significant impact even further.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure the already less than significant depletion of groundwater supplies impact is reduced even further. More specifically, the following mitigation is imposed.

> **WR-6a** Where feasible, the City of Whittier shall supply reclaimed water during construction and well drilling operations, to reduce water supply impacts.
>
> **WR-6b** Where feasible, the Applicant shall implement water conservation measures during construction and well drilling operations, to reduce water supply impacts.

(b) Facts in Support of Findings

Approximately 2,000 gallons per day of water would be required for clearing and grading operations during the approximate four-week Drilling and Testing Phase and the six-month Design and Construction Phase. Following earth-moving activities, water would be used for concrete curing, hydro testing pipes, and general construction activities. It is anticipated that an average of 1,000 gallons of water would be required each month to finish construction of the well pad and facilities. Subsequently, approximately 0.4 acre-feet (130,000 gallons) of water would be consumed while drilling each well, for a total of up to 60 wells. On a daily basis, approximately 4,500 gallons per day would be required.

Water would be obtained from the City of Whittier via its existing hydrant at the entry gate at Catalina Avenue. The City has indicated that there is sufficient water available for this increased water demand associated with oil drilling operations at the Project Site. As indicated in Section 4.13 of the EIR, Public Services and Utilities, the water demand associated with this Project would be minor compared to the overall water demand in the area. The Project would not require a new off-site water supply or new or expanded water entitlements. Therefore, there would be no impact on groundwater supplies such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. However, mitigation is imposed in order to reduce the already less than significant impact to an even lower level.

I. CULTURAL RESOURCES

1. Historical Resources

Ground disturbance could cause impacts to historical resources, such as well pads, roadways, and the landscape. However, with the implementation of mitigation, any impact would be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant historical resources impact. Specifically, the following mitigation will ensure a less than significant impact.

> **CR-1** Develop a monitoring plan, subject to City and Habitat Authority approval, for treatment of areas of direct impact to elements identified as contributing components of the Whittier Main Oil Field including, but not limited to, the following:
>
> - Monitoring concurrent with construction grubbing at the locations of all oil well pads, allowing time for detailed field recordation of each pad that could not be obtained during survey level recording efforts due to heavy vegetation. Recordation should include photographs in digital or 35mm format, scaled plan-view drawings of the well pads, and written documentation that describes construction methods, details, and associated material composition.
>
> - Monitoring concurrent with alteration of existing historic-period roadways to allow for detailed mapping of existing roadways as well as recordation of construction along a representative segment(s) of the roadway to document the methods used over time as the oil fields evolved; first relying on dirt roads, followed by oil-paved roads, and finally asphalt-paved roads.
>
> - Collection, analysis, reporting, and curation of any associated artifacts that might be unearthed during monitoring activities described above.
>
> - Completion of a report of findings and update of appropriate Department of Parks and Recreation 523 forms to document the information obtained as a result of the mitigation/monitoring program.

(b) Facts in Support of Findings

The Project as currently proposed involves a limited number of alterations of well pad locations within the historic Whittier Oil Field and construction of roads and pipelines. As

such, the proposed Project does not require Historic American Engineering Record documentation.

To ensure that the current Project does not result in a substantial adverse change to the significance of the Whittier Oil Field as a historical resource under CEQA, Mitigation Measure CR-1 is recommended.

Mitigation Measure CR-1 requires the Applicant to develop a monitoring plan, subject to City and Habitat Authority approval, for treatment of areas of direct impact to elements identified as contributing components of the Whittier Main Oil Field.

Monitoring must be conducted by a trained archaeologist under the supervision of a Los Angeles County Certified Archaeologist. The monitor must be empowered to halt or redirect construction equipment to be able to document any oil field-related features exposed as a result of construction, as well as to evaluate and document any previously unanticipated discoveries that may be uncovered.

If isolated artifacts are collected during monitoring, once analyzed, they would be donated to the Preserve for display purposes. Monitoring the Colima Road gas and crude pipeline is not recommended since archaeological sensitivity along the developed roadway appears low. Nonetheless, if unidentified archaeological deposits are exposed, construction must cease and a qualified monitor must evaluate the find.

With the mitigation described above, the impact is reduced to a less than significant level.

2. Human Remains

Construction could result in unanticipated disturbance to human remains. If human remains were encountered during grading and excavation, the potential for disturbance of these remains would be a significant impact. With the implementation of mitigation, this impact would be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant human remains impact. Specifically, the following mitigation will ensure a less than significant impact.

> **CR-2** If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has been notified and can make the necessary findings as to origin and disposition of the remains pursuant to Public Resources Code 5097.98. Construction must halt in the area of the discovery of

human remains, the area must be protected, and consultation and treatment shall occur as prescribed by law.

(b) Facts in Support of Findings

According to CEQA, "Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5 of the State Health and Safety Code." The State Public Resources Code also ensures the protection of human remains (Sections 5097.94, 5097.98, and 5097.99). Therefore, Mitigation Measure CR-2 is proposed.

Mitigation Measure CR-2 requires that if human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has been notified and can make the necessary findings as to origin and disposition of the remains pursuant to Public Resources Code 5097.98. Construction must halt in the area of the discovery of human remains, the area must be protected, and consultation and treatment shall occur as prescribed by law.

If the remains were determined to be of Native American origin, the remains would be protected in place and the Native American Heritage Commission must be contacted by the Los Angeles County Coroner, and a Most Likely Descendant must be designated. Any further treatment of the remains would occur in consultation with the Most Likely Descendant, the Native American Heritage Commission, and a qualified archaeologist.

With the mitigation described above, the impact is reduced to a less than significant level.

3. Paleontological Resources

The Project could result in unanticipated disturbance to paleontological resources. Through mitigation, this impact would be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant paleontological resources impact. Specifically, the following mitigation will ensure a less than significant impact.

CR-3 If any paleontological resources are encountered during ground-disturbing activities in the Project area, activities in the immediate area of the find shall be halted and the discovery assessed (LSA 2007). A qualified paleontologist must evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology. A paleontological resource impact mitigation program for treatment of the resources would be developed and implemented.

(b) Facts in Support of Findings

At present, there are no known paleontological resources or unique geologic formations or sites located within the Project area. However, the Preserve is underlain by sedimentary formations that are considered to have a high sensitivity in regard to their potential for containing fossilized remains. Therefore, it is possible that paleontological resources could be discovered during ground disturbing activities associated with construction of Project components, including wells, road, pipelines, or other Project infrastructure. However, implementation of Mitigation Measure CR-3 would reduce potential impacts to unknown paleontological resources to a level less than significant.

Mitigation Measure CR-3 requires that if any paleontological resources are encountered during ground-disturbing activities in the Project area, activities in the immediate area of the find shall be halted and the discovery assessed. A qualified paleontologist must evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology. A paleontological resource impact mitigation program for treatment of the resources would be developed and implemented.

With the mitigation described above, the impact is reduced to a less than significant level.

4. Cumulative Cultural Resources Impact

The Project, along with other projects, has the potential to cause a cumulative cultural resources impact. However, with mitigation, this impact would be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant cumulative impact. Specifically, the following mitigation will ensure a less than significant impact.

> **CR-1** Develop a monitoring plan, subject to City and Habitat Authority approval, for treatment of areas of direct impact to elements identified as contributing components of the Whittier Main Oil Field including, but not limited to, the following:
>
> - Monitoring concurrent with construction grubbing at the locations of all oil well pads, allowing time for detailed field recordation of each pad that could not be obtained during survey level recording efforts due to heavy vegetation. Recordation should include photographs in digital or 35mm format, scaled plan-view drawings of the well pads, and written documentation that describes construction methods, details, and associated material composition.

- Monitoring concurrent with alteration of existing historic-period roadways to allow for detailed mapping of existing roadways as well as recordation of construction along a representative segment(s) of the roadway to document the methods used over time as the oil fields evolved; first relying on dirt roads, followed by oil-paved roads, and finally asphalt-paved roads.

- Collection, analysis, reporting, and curation of any associated artifacts that might be unearthed during monitoring activities described above.

- Completion of a report of findings and update of appropriate Department of Parks and Recreation 523 forms to document the information obtained as a result of the mitigation/monitoring program.

CR-2 If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has been notified and can make the necessary findings as to origin and disposition of the remains pursuant to Public Resources Code 5097.98. Construction must halt in the area of the discovery of human remains, the area must be protected, and consultation and treatment shall occur as prescribed by law.

CR-3 If any paleontological resources are encountered during ground-disturbing activities in the Project area, activities in the immediate area of the find shall be halted and the discovery assessed (LSA 2007). A qualified paleontologist must evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology. A paleontological resource impact mitigation program for treatment of the resources would be developed and implemented.

(b) Facts in Support of Findings

Erosion and increased site usage, such as the opening of previously inaccessible land, restoration efforts, establishment of new transportation routes and increased access or removal of vegetation, can result in cumulative impacts to archaeological deposits or structural remains. These additions would also alter the terrain, which is considered an important component of the Whittier Oil Field landscape. Mitigation measures proposed for Project impacts would reduce the impacts to be insignificant. Based on the records and literature search there would be no cumulative impacts to known prehistoric resources. A historical archaeological resource itself, the Whittier Oil Field would be impacted, and there is a potential for cumulative impacts to previously unrecorded prehistoric or historical archaeological deposits. These same

archaeological deposits may have been impacted by historical exploitation of the oil field, and additional construction could further erode these non-renewable resources.

Either way, with the implementation of the above identified mitigation, any cumulative impact will be reduced to less than significant.

J. WASTEWATER

1. Sanitary Wastewater Generation Impact on Treatment Facility Capacity

The proposed Project would generate sanitary wastewater that could exceed the existing capacity of downstream sewer and wastewater treatment facilities. Through the implementation of mitigation, any impact would be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant sanitary wastewater generation impact. Specifically, the following mitigation will ensure a less than significant impact.

> **WAS-1** A Registered Civil Engineer shall evaluate the capacity of the existing sewer line system, beginning at the proposed tie-in at Catalina Avenue and continuing downstream to the County Sanitation Districts of Los Angeles County sewer system, prior to any connections. A 7-day capacity performance test shall be performed, based on County Sanitation Districts of Los Angeles County average wastewater generation factors, to determine baseline and peak flows, and to ensure the sewer has adequate capacity in the downstream areas. The capacity analysis shall be submitted to the District for review and approval. In the event that existing sanitary sewer facilities are insufficient to accommodate increased flows from the proposed Project Site, the Applicant shall provide temporary mobile sanitary facilities (i.e., toilet, sink, and urinal) for onsite personnel, as necessary.

(b) Facts in Support of Findings

During the Design and Construction Phase and Operations and Maintenance Phase, Project operations could impact the capacity of existing sanitation services, as a result of construction and use of new restrooms at the Project Site.

In general, a maximum of 30 personnel is estimated to create 20 to 100 gallons per day of additional effluent. Matrix would construct a new 4-inch sewer pipeline from the new facility office within the Project Site to the existing City of Whittier Sewer and Water District sewer system, along Catalina Avenue. The sewer pipeline would service two restrooms at the Project Site. Portable toilets would also be provided at other strategic locations throughout the Project Area.

It is unclear whether the existing sewer along Catalina Avenue, as well as downstream sewer and wastewater treatment facilities, have the capacity to support the increased sewage volume associated with the Project. Overloading sanitary sewer systems can ultimately result in releases of untreated sewage to surface waters and/or the ocean. Therefore, impacts are considered potentially significant.

Mitigation Measure WAS-1 requires a registered Civil Engineer evaluate the capacity of the existing sewer line system, beginning at the proposed tie-in at Catalina Avenue and continuing downstream to the County Sanitation Districts of Los Angeles County sewer system, prior to any connections. With the mitigation described, the impact is reduced to a less than significant level.

2. Wastewater Generation Impact on Water Quality

The proposed Project would generate wastewater that could impact water quality of nearby drainages and creeks. With mitigation, this impact would be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant wastewater generation impact on water quality. Specifically, the following mitigation will ensure a less than significant impact.

WR-3a The proposed well cellar shall be lined with an impermeable membrane to prevent oil-based substances from seeping into groundwater supplies. All drilling muds storage shall be contained within Baker-type enclosed tanks.

WR-3b An 18-inch berm shall be placed around the entire drilling rig to capture any spilled fluids.

WR-3c Personnel at the site shall be trained in equipment use and containment and cleanup of an oil spill. Dry cleanup methods, such as absorbents, shall be used on paved and impermeable surfaces. Spills in dirt areas shall be immediately contained with an earthen dike and the contaminated soil shall be dug up and discarded in accordance with local and state regulations.

WR-3d Oil spills shall be contained and cleaned according to measures outlined in the California Stormwater Quality Association Best Management Practice Handbook.

WR-3e An approved response manual and Oil Spill Contingency Plan shall be implemented to outline response actions in the event of a spill, including a spill response trailer, equipment, and personnel training. The plan shall be completed prior to the

Drilling and Testing phase. Spill cleanup shall be completed under the oversight of the lead regulatory agency, with respect to oil spills, as identified in the Oil Spill Contingency Plan.

(b) Facts in Support of Findings

During the Drilling and Testing Phase, up to 7,200 barrels per day of wastewater would be produced during oil well drilling. These liquids would be temporarily stored in onsite tanks and then transported offsite by trucks. Therefore, with the exception of possible spills, water quality impacts within adjacent drainages and creeks would be less than significant with mitigation.

Similarly, during the Operations and Maintenance Phase, up to 7,200 barrels per day of wastewater would be produced during oil well drilling. However, up to eight injection wells would be drilled for disposal of produced water, which would be injected into the oil producing formations from which the water was originally derived. Therefore, with the exception of possible spills and groundwater impacts associated with injection activities, water quality impacts within adjacent drainages and creeks would be less than significant with mitigation.

Surface wastewater could be generated during construction, drilling, oil processing, and truck loading. This wastewater could contain various pollutants associated with these activities. However, a pollution pan would be installed under the rig floor to contain and collect any oil-based drilling mud that may spill on the rig floor. The mud would be captured and contained in the catch pan and then returned to the active mud pit system by a cellar pump. The drilling pad would be constructed to allow any fluids spilled directly around the rig to flow into the well cellar. In addition, a 6-inch berm, lined with an impermeable membrane, would be placed around the entire drilling rig after rig installation. In the event that a leak should occur in the mud handling system, the leak would be contained directly around the rig and flow toward the well cellar.

Rainwater accumulations within the bermed area around the rig would similarly flow into the well cellar, before being pumped into the active mud pit system. Stormwater from all other areas and facilities would be collected in a bermed water detention basin, located immediately adjacent to the Oil Processing Plant area and allowed to percolate into the ground. Excess stormwater would be hauled offsite in a vacuum truck .No stormwater would be allowed to drain from the Project Site into the surrounding area. As an extra precaution, a spill trailer at the drilling site would be equipped with absorbent material, small spill booms to contain and direct flow, plastic sheets, personal protective equipment, and rakes, shovels, and hand tools, to be used in the event of an oil spill. As a result, water quality within adjacent drainages and creeks would be less than significant with mitigation.

Implementing mitigation measures WR-3a through WR-3e would reduce the severity of wastewater spill impacts to less than significant.

K. LAND USE POLICY AND CONSISTENCY

1. <u>Noise Incompatibility from Drilling, Construction, and Operations</u>

Noise generated independently from test drilling, construction, and potential future operations could be incompatible with adjacent land uses. Through the implementation of mitigation, this impact will be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant noise land use incompatibility impact. Specifically, the following mitigation will ensure a less than significant impact.

N-1a Limit all construction activity at the Project Site (including deliveries and arriving and departing workers, and construction activities during the testing phase) to the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays and prohibit activities on Sundays and federal holidays. In addition, for construction work within the County of Los Angeles unincorporated areas, the Applicant shall ensure that noise levels do not exceed County municipal code levels with a noise study and monitoring and measures, including high grade mufflers, engine tuning, and management of backup alarms. All contracts with construction personnel shall specify the allowable work hours and the study and monitoring requirements.

N-1b Maintain all construction machinery according to the manufacturers' specifications and ensure that mufflers and silencers are maintained properly. Back-up OSHA noise indicators shall be ambient sensitive and self-adjusting to minimize backup indicator noise or flaggers shall be used in the place of backup alarms (as allowed by OSHA).

N-2a The Applicant shall develop and implement a Noise Reduction Plan for all drilling (testing, development, and re-drills and workovers) to ensure that the Leq noise levels from activities, measured as a 1-hour Leq, is less than a 3-dBA increase at the closest sensitive residential receptor and less than a 5-dBA increase at the closest sensitive recreational receptor. The Plan shall be prepared by an acoustic consultant approved by the City and the Plan shall be subject to City review and concurrence. The measures in the Plan shall include but not be limited to the following: (1) enclose the drill rig area in soundproof barriers 30 feet high on the south and west sides; (2) utilize a central generator type drilling rig, with the generators the only diesel engines onsite and enclosed in a soundproofed generator house with appropriate grade muffler systems, or install sound enclosures around all diesel engines with appropriate grade muffler systems; (3)install noise barriers around the drill rig floor, mud mixers, cleaners, conveyers, and shakers; (4) enclose

drawworks brake area with soundproofing shroud; (5) install pads on V-door and other appropriate areas, timbers and pads on drill deck, pads between drill and casing pipe while in storage, and pad and timbers at the boards on the mast to reduce metal-on-metal noise (for both drilling and workover operations); (6) enclose the drilling mast boards area (on drilling and workover rigs) with barriers 2 inches thick and 2 pounds per square foot in density at least 5 feet above and below any noise sources; and (7) install ambient sensitive backup indicators on all equipment requiring backup indicators.

N-2b The Applicant shall institute a quiet-mode for all drilling activities between 7 p.m. and 7 a.m. Quiet-mode operation would apply to both drilling and operations and would involve: (1) using signalers for all backup operations instead of backup alarms and turning off backup alarms; (2) using radios instead of voice communication; (3) minimizing crane use and pipe handling operations, pipe offloading from trucks and board loading during daytime to the maximum extent feasible and nighttime loading only for safety reasons; (4) prohibiting material and supply deliveries to the Project Site between the hours of 7 p.m. and 7 a.m., with exceptions only for safety; and (5) limiting process alarms and communications over the broadcast system to the maximum extent feasible during all operations and use only for safety reasons.

N-2c Provide a comprehensive noise abatement study, including noise and vibration monitoring at nearby sensitive receptors and continuous monitoring near drilling activities, under contract and supervision of the City, to monitor noise and vibration from the drilling and operations in the community. The City shall have the authority to shut-down operations and require additional mitigation if the noise criteria are exceeded.

(b) Facts in Support of Findings

The drilling, construction, and potential future operations would be in close proximity to land uses zoned as open space and residential. Short-term noise monitoring was performed at a total of six locations around the perimeter of the proposed Project Site. These locations were selected to represent the closest residential and recreational uses to the proposed Project Site. Proposed Project activities during all phases may generate significant noise impacts that would be incompatible with these adjacent land uses.

Implementing mitigation measures N-1a through N-1b and N-2a through N-2c would be necessary to minimize impacts to less than significant levels. Mitigation measures include, but are not limited to, noise barriers, limited hours of operation where applicable, equipment selection and maintenance, and relocation of the ranger residence.

With the mitigation described above, the impact is reduced to a less than significant level.

2. Noise Incompatibility from Concurrent Drilling and Operations

Concurrent drilling and operational activities at the Project Site would increase noise levels that could be incompatible with adjacent land uses. With mitigation, however, this impact would be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant noise land use incompatibility impact. Specifically, the following mitigation will ensure a less than significant impact.

N-1a Limit all construction activity at the Project Site (including deliveries and arriving and departing workers, and construction activities during the testing phase) to the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays and prohibit activities on Sundays and federal holidays. In addition, for construction work within the County of Los Angeles unincorporated areas, the Applicant shall ensure that noise levels do not exceed County municipal code levels with a noise study and monitoring and measures, including high grade mufflers, engine tuning, and management of backup alarms. All contracts with construction personnel shall specify the allowable work hours and the study and monitoring requirements.

N-1b Maintain all construction machinery according to the manufacturers' specifications and ensure that mufflers and silencers are maintained properly. Back-up OSHA noise indicators shall be ambient sensitive and self-adjusting to minimize backup indicator noise or flaggers shall be used in the place of backup alarms (as allowed by OSHA).

N-2a The Applicant shall develop and implement a Noise Reduction Plan for all drilling (testing, development, and re-drills and workovers) to ensure that the Leq noise levels from activities, measured as a 1-hour Leq, is less than a 3-dBA increase at the closest sensitive residential receptor and less than a 5-dBA increase at the closest sensitive recreational receptor. The Plan shall be prepared by an acoustic consultant approved by the City and the Plan shall be subject to City review and concurrence. The measures in the Plan shall include but not be limited to the following: (1) enclose the drill rig area in soundproof barriers 30 feet high on the south and west sides; (2) utilize a central generator type drilling rig, with the generators the

only diesel engines onsite and enclosed in a soundproofed generator house with appropriate grade muffler systems, or install sound enclosures around all diesel engines with appropriate grade muffler systems; (3)install noise barriers around the drill rig floor, mud mixers, cleaners, conveyers, and shakers; (4) enclose drawworks brake area with soundproofing shroud; (5) install pads on V-door and other appropriate areas, timbers and pads on drill deck, pads between drill and casing pipe while in storage, and pad and timbers at the boards on the mast to reduce metal-on-metal noise (for both drilling and workover operations); (6) enclose the drilling mast boards area (on drilling and workover rigs) with barriers 2 inches thick and 2 pounds per square foot in density at least 5 feet above and below any noise sources; and (7) install ambient sensitive backup indicators on all equipment requiring backup indicators.

N-2b The Applicant shall institute a quiet-mode for all drilling activities between 7 p.m. and 7 a.m. Quiet-mode operation would apply to both drilling and operations and would involve: (1) using signalers for all backup operations instead of backup alarms and turning off backup alarms; (2) using radios instead of voice communication; (3) minimizing crane use and pipe handling operations, pipe offloading from trucks and board loading during daytime to the maximum extent feasible and nighttime loading only for safety reasons; (4) prohibiting material and supply deliveries to the Project Site between the hours of 7 p.m. and 7 a.m., with exceptions only for safety; and (5) limiting process alarms and communications over the broadcast system to the maximum extent feasible during all operations and use only for safety reasons.

N-2c Provide a comprehensive noise abatement study, including noise and vibration monitoring at nearby sensitive receptors and continuous monitoring near drilling activities, under contract and supervision of the City, to monitor noise and vibration from the drilling and operations in the community. The City shall have the authority to shut-down operations and require additional mitigation if the noise criteria are exceeded.

N-4 The Applicant shall develop and implement a Noise Reduction Plan for all operations to ensure that Leq noise levels from operational activities, measured as 1-hour Leq, produce less than a 3 dBA increase over the minimum baseline hourly average level at the closest residential receptor to the facility. The measures in the Plan shall include, but not be limited to: (1) installing sound enclosures or buildings around all compressors; (2) installing noise barriers around all pumps and air coolers; (3)

installing ambient-sensitive backup indicators on all equipment requiring backup indicators; (4) installing sound enclosures or buildings around all the oil area pumps (e.g., shipping, IGFC, water injection, water booster, reject pumps); (5) installing sound enclosures or buildings around refrigeration units; (6) installing a secondary, 16-foot tall sound wall on the south, west and north sides of the gas plant; (7) ensuring that all office equipment (i.e., air conditioners, heating, ventilation) produces low noise levels or is surrounded by noise barriers; and (8) limiting traffic on the North Access Road to within 7 a.m. to 7 p.m., except for emergencies.

(b) Facts in Support of Findings

The drilling and potential future operations would be in proximity to land uses zoned as open space and residential. Short-term noise monitoring was performed at a total of six locations around the perimeter of the proposed Project Site. These locations were selected to represent the closest residential and recreational uses to the proposed Project Site. Proposed Project activities during all phases could generate significant noise impacts that would be incompatible with these adjacent land uses.

Noise generated by drilling at the Project Site and operations activities at the Project Site taking place at the same time are sufficiently distant from sensitive receptors and would be considered less than significant with mitigation relative to adjacent recreational uses.

Implementing mitigation measures N-1a through N-1b, N-2a through N-2c, and N-4 would be necessary to minimize impacts to less than significant levels. Mitigation measures include, but are not limited to, noise barriers, limited hours of operation where applicable, equipment selection and maintenance, and relocation of the ranger residence.

With the mitigation described above, the impact is reduced to a less than significant level.

3. Glare and Nighttime Lighting Incompatibility

Future oil field development could increase nighttime lighting and glare inconsistent with surrounding land uses. However, with mitigation, this impact would be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant glare and nighttime lighting incompatibility impact. Specifically, the following mitigation will ensure a less than significant impact.

AE-1b Within 30 days of installation, all structures visible from public locations at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a

color or textured surface in consultation with the City, so that they are less obtrusive to the surrounding area.

(b) Facts in Support of Findings

Introducing night lighting in areas surrounding the proposed Project Site may create visual impacts that would be potentially significant but could be mitigated to less than significant levels by complying with existing city regulations and implementing mitigation measure AE-1b.

Drilling at the proposed Project Site would be continuous, 24 hours per day, seven days per week. After full field development is complete, an estimated average of three wells will be re-drilled per year for the life of the proposed Project. Night lighting for safety during new well drilling and 24-hour operations may also create visual impacts. In these cases, the requirement to shield the fixed lighting sources on the drill rig would reduce temporary night lighting from the drill rig. During the operations phase, lighting would be appropriately shielded at night.

Therefore, the impacts to surrounding land uses from nighttime lighting and glare would be considered significant. However, by implementing mitigation measures AE-1b impacts would be reduced to less than significant.

With the mitigation described above, the impact is reduced to a less than significant level.

4. Incompatibility from Emissions and Odors

Emissions and odors from drilling and operations could be incompatible with adjacent land uses. However, with mitigation, this impact would be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant emissions and odor incompatibility impact. Specifically, the following mitigation will ensure a less than significant impact.

AQ-1a The Applicant shall submit and implement a Fugitive Dust Control Plan that includes SCAQMD mitigations for fugitive dust mitigation, according to Rule 403, and SCAQMD CEQA Guidelines. The Plan shall also address fugitive dust measure impacts to native habitats. Fugitive dust mitigation measures in the plan should include the following:

- Apply water every 3 hours to disturbed areas within a construction site (61% reduction).

- Require minimum soil moisture of 12% for earthmoving, by using a moveable sprinkler system or water truck. Moisture content can be verified by lab sample or moisture probe (69% reduction).

- Limit on-site vehicle speeds on unpaved roads to 15 mph with radar enforcement (57% reduction) and posting of speed limits.

- Replace ground cover, approved by the Habitat Authority, in disturbed areas as quickly as possible (5% reduction).

- All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches (91% reduction).

- Install gravel bed trackout apron (3 inches deep, 25 feet long, 12 feet wide per lane, and edged by rock berm or row of stakes) to reduce mud and dirt trackout from unpaved truck exit routes (46 to 80% reduction). Water industrial unpaved road three times per day (61% reduction).

- Water industrial unpaved road three times per day (61% reduction).

- Water storage piles by hand or apply cover when wind events are declared, according to SCAQMD Rule 403 when instantaneous wind speeds exceed 25 miles per hour (90% reduction).

- Appoint a construction relations officer to act as a community liaison concerning onsite construction issues, such as dust generation.

AQ-1b Treat all dirt roads with water three times per day prior to and during the Drilling and Resting Phase pad clearing to substantially reduce dirt road fugitive dust emissions.

AQ-1c Treat all roads (pave or apply non-toxic soil binders as approved by the Habitat Authority with at least 80% effectiveness) before beginning the development phase pad grading and facility construction to substantially reduce dirt road fugitive dust emissions during those phases of construction.

AQ-1d The Applicant shall implement a NOx reduction program including the following, or equivalent, measures:

- All off-road construction equipment shall be tuned and maintained according to manufacturers' specifications.

- Any temporary electric power shall be obtained from the electrical grid, rather than portable diesel or gasoline generators.

- Soil hauling shall be coordinated with the Savage Canyon Landfill to receive the soil to limit haul truck travel distance, and utilize trucks that comply with the EPA 2010 model year emissions requirements.

- All off-road diesel construction equipment with greater than 100-horsepower engines shall meet Tier 4 NOx requirements. If the lead agency determines that a Tier 4 fleet or portion thereof cannot be obtained, the lead agency shall require the use of construction equipment that meets Tier 3 emissions requirements or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction.

- During the pad and access road grading phase, all off-road dump trucks shall meet EPA 2010 model year NOx emission requirements. If the lead agency determines that a 2010 model year truck fleet or portion thereof cannot be obtained the lead agency shall require the use of trucks that meet EPA 2007 model year NOx emissions requirements. If the Project's fleet requirements cannot be met with 2010 or 2007 EPA model year truck emissions or portion thereof the lead agency shall require a certified NOx emissions level of less than 2.0g/bhp-hour for trucks used at the Project Site during the pad and access road grading phase.

- Limit onsite truck idling to less than 5 minutes.

- A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.

AQ-2a The Applicant shall comply with all SCAQMD regulations, including but not limited to Regulation IV (Prohibitions), Regulation XIII (New Source Review), Regulation XI (Source Specific Standards), and Regulation XIV (New Source Review for Toxic Air Contaminants). The operator shall implement best available control technology and obtain emission offsets as required by SCAQMD Regulation XIII and/or Regulation XX for new and modified permitted emission sources. Emission offsets are required for all emission increases associated with stationary sources, thus, minimizing the impacts associated with emissions from stationary sources.

AQ-2b The Applicant shall implement a program to reduce NOx, VOC, and PM emissions, including:

- All drilling engines shall meet EPA Tier 3 emissions levels, or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction, or utilize electric engines.

- Treat all used Preserve dirt roads that will be used (gravel or apply soil binders with at least 80% effectiveness) or pave all Preserve dirt roads that will be used during test drilling.

- Limit onsite truck idling to less than 5 minutes.

- Electrify service equipment and auxiliary power units where feasible.

- Use clean street sweepers during operations.

- Pave roads and road shoulders during operational phase.

- Utilize trucks that meet EPA 2010 emission standards and off-road equipment that meets EPA 2015 emissions levels to the extent feasible.

- A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.

- Install only internal floating roof tanks, or utilize a more efficient vapor recovery system for handling organic liquids (crude oil) or some other equivalent method to reduce fugitive emissions to less than the SCAQMD CEQA thresholds.

- Use low-emissions flare systems to achieve flare NOx emissions of less than 0.06 lb/mmBTU, according to SCAQMD BACT requirements.

- Limit flaring and drilling during the peak day to the equivalent of drilling and full-flow flaring combined to less than 3 hours per day (at full gas plant flow or the equivalent throughput) or limiting flaring only to less than 4 hours per day (at full gas plant flow or the equivalent throughputs).

- Prohibit use of workover rigs at the same time as drilling rigs to reduce peak day emissions

- Further reduce NOx emission by either (1) Purchasing emission offsets to reduce remaining NOx emissions to less than significant levels or (2) utilizing Tier 4 engines on the drilling rig sufficient to reduce daily emissions to less than the thresholds, or (3) electrifying all or portions of the drilling rig engines to reduce NOx emissions to less than the thresholds.

AQ-3a The Operator shall have a gas buster and SCAQMD-approved portable flare at the oil field and available for immediate use to circulate out and combust any gas encountered during drilling. The flare shall be capable of recording the volume of gas that is flared. The operator shall report any flared gas from drilling to the Los Angeles County Fire Chief and the SCAQMD.

AQ-3b The Operator shall install a detection system that will monitor vapor space on all crude oil tanks. The detection system shall be capable of monitoring pressure in the vapor space of the tanks and notifying the operator via an alarm when the pressure in the tanks gets within 10 percent of the tank relief pressure. If the tank pressure exceeds the relief pressure, the Operator shall report the incident to the SCAQMD as a breakdown pursuant to Rule 430, and submit a report of the breakdown to the Los Angeles County Fire Chief and the SCAQMD, which shall detail the corrective actions the Operator shall take to avoid exceeding the tank relief pressure.

AQ-3c The Operator shall develop an Odor Minimization Plan. The Odor Minimization Plan shall address potential sources of odors from all oil field equipment, including wells and drilling operation, and measures to reduce or eliminate these odors (e.g., containment, design modifications, carbon canisters). The Plan shall address issues such as facility information, buffer zones, signs with contact information, logs of odor complaints, the protocol for handling odor complaints and odor event investigations and methods instituted to prevent a re-occurrence.

AQ-3d The Operator shall develop an Air Monitoring Plan. The Plan shall provide for the monitoring of total hydrocarbon vapors and hydrogen sulfide at each well drill and re-drilling site and total hydrocarbon vapors at the gas plant. At all times during drilling and redrilling operations, the Operator shall maintain monitoring equipment that shall monitor and digitally record the levels of hydrogen sulfide and total hydrocarbon vapors. Monitors shall be installed at the edge of the drill pad and around the outer edge of the gas plant. Such monitors shall provide automatic alarms that are audible or visible to the Operator of the

drilling equipment for the drill rig monitors, and gas plant for the gas plant monitors, and shall be triggered by the detection of hydrogen sulfide or total hydrocarbon vapors. Alarm points shall be set at a maximum of 5 and 10 ppm H2S and 500 and 1,000 ppm hydrocarbons, with the higher level requiring shut-down of drilling or gas plant operations and notification to appropriate agencies, including the Los Angeles County Fire Department and SCAQMD. A meteorological station to monitor wind speed and direction under the guidance and specification of the SCAQMD shall be installed at the Processing, or applicable location.

AQ-3e The Operator shall use an odor suppressant spray system or vapor capture hood and carbon filter system on the mud shaker tables, and shall install carbon capture canisters on all tanks (permanent and portable) that are not equipped with vapor recovery, containing potentially odiferous materials (for example; the mud baker-type tanks) for all drilling operations so that no odor can be detected at the closest receptor (e.g., residences, hiking trails, Ranger Residence).

AQ-5 The Applicant shall install CARB-verified Level 3 diesel catalysts on all diesel-powered drilling equipment or utilize diesel engines that have an equivalent PM emission rate (Tier 4 engines) or electric drilling rigs. The current list of CARB-Verified Level 3 diesel catalysts is available from http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm. Catalysts or engine certifications shall demonstrate achieving 85% reduction for diesel particulate matter

(b) Facts in Support of Findings

New equipment and new drilling could cause emissions and odor events. Various components in the new equipment could leak and cause odors. New operations would include using tanks that could potentially lead to odor impacts. New drilling would result in emissions from drilling muds during operations. Some of these types of releases could reach recreational and residential areas surrounding the proposed Project Site. These would be considered a significant impact. However, by implementing mitigation measures AQ-1a through AQ-1d, AQ-2a and AQ-2b, AQ-3a through AQ-3e, AQ-4, and AQ-5, impacts would be reduced to less than significant.

With the mitigation described above, the impact is reduced to a less than significant level. Generally, these measures require that a fugitive dust plan be adopted, SCAQMD regulations be followed, a program to reduce NOx, VOC and PM emissions be established, that an odor minimization plan be adopted and that installation of diesel catalyst be put in place. With these various measures, any incompatibility will be eliminated.

5. Conflict with Adopted Land Use Plans, Policies, and Ordinances

The proposed Project conflicts with adopted land use plans, policies, ordinances, habitat conservation plans, or planning efforts to protect the recreational resources of the area. However, through the adoption of mitigation, no incompatibility will exist.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant land use incompatibility impact from a conflict with adopted plans, policies and ordinances. Specifically, the following mitigation will ensure a less than significant impact.

AE-1a Landscaping with native vegetation shall be planted at the periphery of the Project Site for the specific purpose of beautifying and screening the operations from adjoining residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address berms, screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and the Habitat Authority. The Habitat Authority and a certified landscape architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition.

AE-1b Within 30 days of installation, all structures visible from public locations at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a color or textured surface in consultation with the City, so that they are less obtrusive to the surrounding area.

AE-4 All point lighting sources that may be introduced onsite in support of nighttime operations shall be screened and directed to prevent offsite spillover lighting effects. Spillover lighting shall be limited to 0.1 fc within 30 feet of facility boundaries. Outdoor lighting should be restricted to only those lights that are required by code for lighting building exteriors and safety and security needs. Consistent with public safety needs, street lighting, pedestrian walkway lighting, and parking lot lighting shall use light fixtures that shield and direct light with a backlight shield or other equivalent type of shielding to minimize light spill-over effects into adjacent areas. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency.

AQ-1a The Applicant shall submit and implement a Fugitive Dust Control Plan that includes SCAQMD mitigations for fugitive dust mitigation, according to Rule 403, and SCAQMD CEQA Guidelines. The Plan shall also address fugitive dust measure impacts to native habitats. Fugitive dust mitigation measures in the plan should include the following:

- Apply water every 3 hours to disturbed areas within a construction site (61% reduction).

- Require minimum soil moisture of 12% for earthmoving, by using a moveable sprinkler system or water truck. Moisture content can be verified by lab sample or moisture probe (69% reduction).

- Limit on-site vehicle speeds on unpaved roads to 15 mph with radar enforcement (57% reduction) and posting of speed limits.

- Replace ground cover, approved by the Habitat Authority, in disturbed areas as quickly as possible (5% reduction).

- All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches (91% reduction).

- Install gravel bed trackout apron (3 inches deep, 25 feet long, 12 feet wide per lane, and edged by rock berm or row of stakes) to reduce mud and dirt trackout from unpaved truck exit routes (46 to 80% reduction). Water industrial unpaved road three times per day (61% reduction).

- Water industrial unpaved road three times per day (61% reduction).

- Water storage piles by hand or apply cover when wind events are declared, according to SCAQMD Rule 403 when instantaneous wind speeds exceed 25 miles per hour (90% reduction).

- Appoint a construction relations officer to act as a community liaison concerning onsite construction issues, such as dust generation.

AQ-1b Treat all dirt roads with water three times per day prior to and during the Drilling and Resting Phase pad clearing to substantially reduce dirt road fugitive dust emissions.

AQ-1c Treat all roads (pave or apply non-toxic soil binders as approved by the Habitat Authority with at least 80% effectiveness) before beginning the development phase pad grading and facility construction to substantially reduce dirt road fugitive dust emissions during those phases of construction.

AQ-1d The Applicant shall implement a NOx reduction program including the following, or equivalent, measures:

- All off-road construction equipment shall be tuned and maintained according to manufacturers' specifications.

- Any temporary electric power shall be obtained from the electrical grid, rather than portable diesel or gasoline generators.

- Soil hauling shall be coordinated with the Savage Canyon Landfill to receive the soil to limit haul truck travel distance, and utilize trucks that comply with the EPA 2010 model year emissions requirements.

- All off-road diesel construction equipment with greater than 100-horsepower engines shall meet Tier 4 NOx requirements. If the lead agency determines that a Tier 4 fleet or portion thereof cannot be obtained, the lead agency shall require the use of construction equipment that meets Tier 3 emissions requirements or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction.

- During the pad and access road grading phase, all off-road dump trucks shall meet EPA 2010 model year NOx emission requirements. If the lead agency determines that a 2010 model year truck fleet or portion thereof cannot be obtained the lead agency shall require the use of trucks that meet EPA 2007 model year NOx emissions requirements. If the Project's fleet requirements cannot be met with 2010 or 2007 EPA model year truck emissions or portion thereof the lead agency shall require a certified NOx emissions level of less than 2.0g/bhp-hour for trucks used at the Project Site during the pad and access road grading phase.

- Limit onsite truck idling to less than 5 minutes.

- A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.

AQ-2a The Applicant shall comply with all SCAQMD regulations, including but not limited to Regulation IV (Prohibitions), Regulation XIII (New Source Review), Regulation XI (Source Specific Standards), and Regulation XIV (New Source Review for Toxic Air Contaminants). The operator shall implement best available control technology and obtain emission offsets as required by SCAQMD Regulation XIII and/or Regulation XX for new and modified permitted emission sources. Emission offsets are required for all emission increases associated with stationary sources, thus, minimizing the impacts associated with emissions from stationary sources.

AQ-2b The Applicant shall implement a program to reduce NOx, VOC, and PM emissions, including:

- All drilling engines shall meet EPA Tier 3 emissions levels, or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction, or utilize electric engines.

- Treat all used Preserve dirt roads that will be used (gravel or apply soil binders with at least 80% effectiveness) or pave all Preserve dirt roads that will be used during test drilling.

- Limit onsite truck idling to less than 5 minutes.

- Electrify service equipment and auxiliary power units where feasible.

- Use clean street sweepers during operations.

- Pave roads and road shoulders during operational phase.

- Utilize trucks that meet EPA 2010 emission standards and off-road equipment that meets EPA 2015 emissions levels to the extent feasible.

- A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.

- Install only internal floating roof tanks, or utilize a more efficient vapor recovery system for handling organic liquids (crude oil) or some other equivalent method to reduce fugitive emissions to less than the SCAQMD CEQA thresholds.

- Use low-emissions flare systems to achieve flare NOx emissions of less than 0.06 lb/mmBTU, according to SCAQMD BACT requirements.

- Limit flaring and drilling during the peak day to the equivalent of drilling and full-flow flaring combined to less than 3 hours per day (at full gas plant flow or the equivalent throughput) or limiting flaring only to less than 4 hours per day (at full gas plant flow or the equivalent throughputs).

- Prohibit use of workover rigs at the same time as drilling rigs to reduce peak day emissions

- Further reduce NOx emission by either (1) Purchasing emission offsets to reduce remaining NOx emissions to less than significant levels or (2) utilizing Tier 4 engines on the drilling rig sufficient to reduce daily emissions to less than the thresholds, or (3) electrifying all or portions of the drilling rig engines to reduce NOx emissions to less than the thresholds.

AQ-3a The Operator shall have a gas buster and SCAQMD-approved portable flare at the oil field and available for immediate use to circulate out and combust any gas encountered during drilling. The flare shall be capable of recording the volume of gas that is flared. The operator shall report any flared gas from drilling to the Los Angeles County Fire Chief and the SCAQMD.

AQ-3b The Operator shall install a detection system that will monitor vapor space on all crude oil tanks. The detection system shall be capable of monitoring pressure in the vapor space of the tanks and notifying the operator via an alarm when the pressure in the tanks gets within 10 percent of the tank relief pressure. If the tank pressure exceeds the relief pressure, the Operator shall report the incident to the SCAQMD as a breakdown pursuant to Rule 430, and submit a report of the breakdown to the Los Angeles County Fire Chief and the SCAQMD, which shall detail the corrective actions the Operator shall take to avoid exceeding the tank relief pressure.

AQ-3c The Operator shall develop an Odor Minimization Plan. The Odor Minimization Plan shall address potential sources of odors from all oil field equipment, including wells and drilling operation, and measures to reduce or eliminate these odors (e.g., containment, design modifications, carbon canisters). The Plan shall address issues such as facility information, buffer zones, signs with contact information, logs of odor complaints, the

protocol for handling odor complaints and odor event investigations and methods instituted to prevent a re-occurrence.

AQ-3d The Operator shall develop an Air Monitoring Plan. The Plan shall provide for the monitoring of total hydrocarbon vapors and hydrogen sulfide at each well drill and re-drilling site and total hydrocarbon vapors at the gas plant. At all times during drilling and redrilling operations, the Operator shall maintain monitoring equipment that shall monitor and digitally record the levels of hydrogen sulfide and total hydrocarbon vapors. Monitors shall be installed at the edge of the drill pad and around the outer edge of the gas plant. Such monitors shall provide automatic alarms that are audible or visible to the Operator of the drilling equipment for the drill rig monitors, and gas plant for the gas plant monitors, and shall be triggered by the detection of hydrogen sulfide or total hydrocarbon vapors. Alarm points shall be set at a maximum of 5 and 10 ppm H2S and 500 and 1,000 ppm hydrocarbons, with the higher level requiring shut-down of drilling or gas plant operations and notification to appropriate agencies, including the Los Angeles County Fire Department and SCAQMD. A meteorological station to monitor wind speed and direction under the guidance and specification of the SCAQMD shall be installed at the Processing, or applicable location.

AQ-3e The Operator shall use an odor suppressant spray system or vapor capture hood and carbon filter system on the mud shaker tables, and shall install carbon capture canisters on all tanks (permanent and portable) that are not equipped with vapor recovery, containing potentially odiferous materials (for example; the mud baker-type tanks) for all drilling operations so that no odor can be detected at the closest receptor (e.g., residences, hiking trails, Ranger Residence).

AQ-4 The Applicant shall implement a program to quantify and reduce greenhouse gas emissions associated with operations, such as using green electrical power to run equipment, using high efficiency pumps and electrical devices, requiring diesel engines to use biodiesel, or offsite measures that could offset greenhouse gas emissions. Operations GHG emissions levels shall be quantified and reported to the City and to the SCAQMD annually, and, if GHG emissions exceed the SCAQMD thresholds, a GHG emission reduction program shall be implemented to reduce emissions to less than the threshold value of 10,000 metric tonnes CO2e annually. Reductions or offsets of GHG emissions shall be quantified according to applicable protocols, and submitted to the City and AQMD. The reduction

program shall focus on onsite and local basin-area methods for GHG reductions.

AQ-5 The Applicant shall install CARB-verified Level 3 diesel catalysts on all diesel-powered drilling equipment or utilize diesel engines that have an equivalent PM emission rate (Tier 4 engines) or electric drilling rigs. The current list of CARB-Verified Level 3 diesel catalysts is available from http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm. Catalysts or engine certifications shall demonstrate achieving 85% reduction for diesel particulate matter.

BIO-1a To mitigate the Project's permanent loss of 4.84 acres of coastal sage scrub, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the loss of habitat value due to the Project's noise impacts affecting 5.49 acres of coastal sage scrub, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 19.99 acres of degraded habitats in the La Cañada Verde and Arroyo Pescadero watersheds to coastal sage scrub communities, or as otherwise agreed to by the appropriate resource agencies and the City. No additional grading or habitat disturbance shall occur along the North Access Road beyond what is currently designated in the Road Improvement Plan included in Appendix A. All aspects of the restoration effort shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply:

- All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- The restoration specialist shall work with the Habitat Authority to select restoration sites in the Habitat Authority's Whittier Management Unit, preferably in the La Cañada Verde and Arroyo Pescadero watersheds.

- A conservation easement shall be placed over any site restored under this mitigation measure. This easement will be submitted to the USFWS for review and approval.

- Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards,

Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority, the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-1b To prevent erosion and invasion by non-native weeds, and to help offset the Project's overall biological impacts including the temporal loss of habitat, the Applicant shall provide

minimum 2:1 areal replacement of all graded slopes outside of permanent impact areas (approximately 8.03 acres; restoration shall be revegetated exclusively with appropriate, locally indigenous plant species and will incorporate non-flammable species as appropriates. To mitigate the permanent disturbance to 12.34 acres of native habitats (7.07of chaparral and 5.27 acres of annual grassland), the Applicant shall provide minimum 1:1 areal replacement. To mitigate the temporary impacts to native and naturalized habitats due to noise impacts associated with truck hauling on the North Access Road, the Applicant shall provide minimum 1:1 areal replacement of 8.4 acres of native habitat. In total, the Applicant shall restore 22.5 acres of degraded habitats in the La Cañada Verde and Arroyo Pescadero watersheds to native communities, as agreed to by the appropriate resource agencies and the City. All contractors involved in the revegetation effort, including the revegetation specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority. Revegetation efforts shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply:

- All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant’s responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan’s long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g.,

U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time.

- The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-1c Restoration and revegetation efforts shall include the salvage and stockpile of weed-free topsoil (upper 12 inches of soil) from any and all areas of intact (non-weedy) native communities that are graded for Project implementation, as determined by the site monitor described in required by mitigation measure BIO-1 b, so that the soil can later be spread over graded slopes to increase native plant species diversity in the restored areas. Mature coast prickly pear, dudleya, and other translocatable species will be transplanted as feasible in the revegetation and fuel modification zones. Such salvage may also be appropriate for revegetation areas.

BIO-1d The Applicant or US Army Corps of Engineers shall consult with the US Fish and Wildlife Service to obtain an Incidental Take Statement, if needed, pursuant to Section 7 or Section 10 of the federal Endangered Species Act to cover the Project's potential "take" (which includes the permanent and

temporary loss of approximately 5 acres of critical habitat and 5.49 acres of noise-related disturbance) of the coastal California gnatcatcher, a federally listed species.

BIO-2a To mitigate the Project's permanent loss of 0.22 acre of riparian habitat, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the Project's noise impacts affecting 0.75 acres of riparian habitat, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 1.41 acres of degraded areas within the La Cañada Verde and Arroyo Pescadero watersheds, or as otherwise agreed to by the appropriate resource agencies and the City. The 0.12 acre of temporary grading impact would be mitigated through the 1:1 revegetation specified in BIO-1.b. All aspects of this restoration shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following points shall apply:

- All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service).

- Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority the City, USFWS, and CDFG prior to implementation.

- Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years.

- Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time.

- The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority.

- If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., CDFG, USACE, U.S. Fish and Wildlife Service).

- The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). - Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).

BIO-2b The Project proponent shall be required to obtain all applicable federal and state permits and agreements, including: (1) a Section 404 Permit from the US Army Corps of Engineers; (2) certification, or a waiver of certification, from the Los Angeles Regional Water Quality Control Board that the activity would not adversely affect water quality; and (3) a Streambed Alteration Agreement from the California Department of Fish and Game.

BIO-3a The applicant shall prepare an Emergency Response Action Plan that would address protection of sensitive biological resources and revegetation of any areas disturbed during an oil spill or cleanup activities. The Emergency Response Action Plan shall, at a minimum, include specific measures to avoid impacts to native vegetation and wildlife habitats, plant and animal species, and environmentally sensitive habitat areas during response and cleanup operations. The Emergency Response Action Plan shall include provisions for containment and cleanup within 2 miles downstream of the Project Site. The plan shall contain detailed descriptions of various containment and cleanup alternatives for each segment of the streambed. Selection of a containment alternative would be made during an emergency

event, but the approach and plan shall be reviewed by the California Division of Fish and Game, the Los Angeles Regional Water Quality Control Board, and Los Angeles County Flood Control District.

Where feasible, low-impact, site-specific techniques such as hand-cutting contaminated vegetation and using low-pressure water flushing shall be specified to remove spilled material from particularly sensitive wildlife habitats, such as riparian woodlands, because procedures such as shoveling, bulldozing, and raking can cause more damage to a sensitive habitat than the oil spill itself. The Emergency Response Action Plan shall evaluate the non-cleanup option for ecologically vulnerable habitats.

When habitat disturbance cannot be avoided, the Emergency Response Action Plan shall provide stipulations for development and implementation of site-specific habitat restoration plans and other site-specific and species-specific measures appropriate for mitigating impacts to local populations of special-status wildlife species and to restore native plant and animal communities to pre-spill conditions. Access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas shall be identified. The Emergency Response Action Plan shall include species- and site-specific procedures for collection, transportation and treatment of oiled wildlife, particularly for sensitive species.

The Emergency Response Action Plan shall include procedures for timely re-establishment of vegetation that replicates the habitats disturbed (or, in the case of disturbed habitats dominated by non-native species, replaces them with suitable native species).

The Emergency Response Action Plan shall be approved by the City and Habitat Authority prior to commencing any construction activities.

BIO-3b To reduce exposure risks to wildlife in the Project Site area, all open basins containing any Project-related fluids shall either be emptied at the end of each day or fenced and covered to exclude all wildlife, including birds, bats, and amphibians. Drilling muds, concrete waste, and truck washing water shall be contained within closed Baker-style tanks or collected by a vacuum truck before the end of each day and shall not be stored overnight in open pits.

BIO-4a Devices and measures shall be employed to minimize noise effects on wildlife. At a minimum, noise barriers shall surround the drill rig floor, mud mixers, cleaners, conveyers, shakers, pumps, and other oil development and operational facilities; construction activities shall be limited to daylight hours except for emergencies; construction machinery shall be operated per manufacture's specifications; and a Noise Reduction Plan and monitoring plan shall be implemented to ensure that Project activities are operating within the ranges included in mitigation measure N-4.

BIO-4b All Project lighting shall be designed and shielded with the intent of preventing spillage of light into adjacent preserved open space areas. Outdoor lighting shall be restricted to lights required by code for lighting building exteriors and for safety and security needs. All Project lighting shall be fully shielded and designed to prevent spillage of light into adjacent preserved open space areas. Lighting shall be constructed so that all light emitted by the fixture, either directly from the lamp or from a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizontal as determined by photometric test or certified by the manufacturer. Any structural part of the light fixture providing this shielding shall be permanently affixed. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency. After initial installation of Project lighting, a biological monitor acceptable to the City and Habitat Authority shall conduct a field inspection to confirm that the proper lamps have been installed and that light spillage into the Preserve has been minimized to the maximum extent feasible without compromising safety or other critical night-lighting requirements.

BIO-4c To minimize the potential for road mortality of wildlife, all roads within the Preserve boundary used to access onsite oil facilities shall have enough traffic calming devices, appropriately sized and spaced, to limit traffic to a maximum speed of 10 miles per hour. All nighttime traffic shall be minimized during the construction and operational phases and permitted only for activities required for safety reasons or emergencies; all hauling activities shall be restricted to daylight hours, defined as the hours after sunrise and before sunset. This restriction shall be in addition to any others placed on the Project, including by mitigation measure N-4, which is intended mainly to limit noise impacts upon neighboring residential communities, consistent with the City Municipal Code. No permanent solid walls or k-rail walls shall be placed along the North Access Road. The use of k-

rails in this area would require wildlife passages placed every 20 feet to allow wildlife to move freely off the road.

BIO-4d Any project landscaping shall consist entirely of species native to the Project Site and surrounding areas within the Preserve and approved by the County of Los Angeles Fire Department and the Habitat Authority. Any irrigation provided shall be limited to that required to initially establish the native plants; no permanent irrigation shall be permitted.

BIO-4e To minimize potential impacts to nesting native bird species, and in compliance with the federal Migratory Bird Treaty Act and Sections 3503, 3503.5, or 3513 of the California Fish and Game Code, initial construction of the pad sites and facilities and annual fuel modifications involving vegetation removal/trimming shall be done outside the breeding season (February 15 through August 31). If construction must be completed during this period, then surveys for nesting birds must be conducted within 3 days prior to vegetation removal or other construction-related disturbances. USFWS protocol surveys for listed avian birds (California gnatcatcher and least Bell's vireo) shall be conducted if disturbances occur in coastal sage scrub or riparian habitats. If nesting birds are observed within the vicinity, then a minimum 100-foot buffer from the nest would be established. The buffer would be delineated by orange construction fencing and signage and would remain in place until the nest is abandoned or the young have fledged. The nest monitor would be present when any buffer fencing is established. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. At minimum, the biologist would check for new active nests, and determine the status of ongoing active nests, weekly during the specified nesting season. The biologist would ensure that all fencing and signage was properly maintained, and would provide weekly e-mail updates on the status of all monitored nests to the City, Habitat Authority, CDFG, and USFWS. If the biologist determines that California gnatcatcher nesting is being disrupted, the construction activities will cease and wait until the young have fledged or the nest is determined to have failed.

BIO-4f Hawks and owls nest earlier than most other native birds. If initial construction activities, drilling, re-drilling, ground disturbance, or vegetation clearing, or annual fuel modification involving vegetation removal/trimming occurs from December 1 through August 31, the nest monitor would conduct a pre-

construction survey within 3 days prior to vegetation removal or other construction-related disturbances focused on actively nesting hawks or owls. If any actively nesting hawks or owls are found, a 300-foot buffer would be established around the nest tree to help ensure that nesting is not disrupted. If any active songbird nests are found, a 100-foot buffer would be established as described in BIO-4e. The buffer would be delineated by orange construction fencing and signage and would remain in place until the nest is either abandoned or the young have fledged. The nest monitor would be present when any buffer fencing is established. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. At a minimum, the biologist would check for new active nests, and determine the status of ongoing active nests, weekly during the specified nesting season. The biologist would ensure that all fencing and signage was properly maintained, and would provide weekly e-mail updates on the status of all monitored nests to the City, Habitat Authority, CDFG, and USFWS.

BIO-4g To avoid the direct loss of special-status bats that that could result from removal of trees that may provide maternity roost habitat (e.g., in cavities or under loose bark), the following steps shall be taken:

- Tree removal or relocation shall be scheduled between October 1 and February 28, outside of the maternity roosting season.

- If trees must be removed during the maternity season (March 1 to September 30), a qualified bat specialist (i.e., a person holding a California Department of Fish and Game collection permit and a memorandum of understanding allowing the handling and collection of bats) shall conduct a pre-construction survey to identify those trees proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. Each tree identified as potentially supporting an active maternity roost shall be closely inspected by the bat specialist a maximum of 7 days prior to tree disturbance to more precisely determine the presence or absence of roosting bats.

- Immediately after completion of the pre-construction surveys, and prior to any tree removals, the bat specialist will prepare a report providing the results of these surveys and identifying actions to be taken to avoid or minimize potential impacts to

roosting bats due to authorized tree removal or other potential bat roosting habitats.

- The pre-construction report shall be provided to the City and the Habitat Authority prior to any tree removal.

- If bats are not detected, but the bat specialist determines that roosting bats may be present, it is preferable to push the tree down using heavy machinery rather than felling it with a chainsaw.

- Maternity season lasts from March 1 to September 30. Trees determined to be maternity roosts shall be left in place until the end of the maternity season.

- A 250-foot buffer, in which no construction activities are permitted, shall be established around any tree, rock outcrop, or other occupied roost habitat until bats have left the maternity site or the end of the maternity season (whichever is later).

- The bat specialist shall document all monitoring activities, and shall prepare a summary report upon completion of tree disturbance activities. Reports would include the following:

- the number and type of affected trees determined to support or potentially support roosting bats prior to disturbance;

- any actions undertaken to safely exclude roosting bats prior to disturbance and the results of those actions;

- trees temporarily avoided to protect roosting bats; and

- roosting bats found (alive or dead) after trees were removed or relocated.

- This report shall be provided to the City and Habitat Authority within 30 days following completion of tree removals.

BIO-4h To reduce impacts to wildlife movement corridors and to provide protective cover for wildlife using the Service Tunnel, and consistent with the Resource Management Plan recommendations, the Applicant shall be required to install appropriate native screening vegetation around the western terminus of the Service Tunnel (LSA 2007). The Applicant shall consult with the Habitat Authority to identify the appropriate limits of screening vegetation. The plantings installed as screening shall comply with the Habitat Authority's Restoration Guidelines. All contractors involved in the native screening

effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority.

BIO-4i Consistent with the Resource Management Plan recommendations, Project lighting shall not be directly visible from the western terminus of the Service Tunnel.

BIO-4j Consistent with the Resource Management Plan recommendations, the Project proponent shall be required to consult with the Habitat Authority to develop and implement signage explaining the importance of limiting human disturbances in the vicinity of the Service Tunnel between sunset and sunrise.

BIO-4k A qualified biological monitor approved by the City, USFWS, CDFG, and the Habitat Authority shall be onsite during all vegetation removal and initial ground disturbance activities to ensure the compliance with all permit conditions protecting biological resources. The biological monitor shall be present to salvage wildlife species that may be otherwise killed or injured by heavy equipment and vegetation clearing. All salvaged wildlife shall be relocated to suitable adjacent habitat within the Preserve. The biological monitor shall have the authority to temporarily halt activities if permit requirements and conditions are not being met. The biological monitor shall conduct annual site inspections of the facilities, roads, and operations activities to ensure that all applicable mitigation measures are being enacted. The biological monitor shall prepare an annual summary report describing site visit observations and shall provide this report to the City, Habitat Authority and regulatory agencies (including CDFG, US ACE, and USFWS) for review.

BIO-4l The Applicant shall fund and implement a biological resources training program for all construction workers, oilfield workers, and their contractors. Training shall occur annually and as needed for new workers. Training program shall be reviewed and approved by the HA and shall include a description of important biological resources within the Preserve and all applicable conditions, permit requirements, and protection measures implemented to protect those resources.

BIO-4m All grading limits shall be delineated by orange construction fencing and permanent signage every 50 feet along the fence stating "No Entry — Sensitive Habitat." The City and the Habitat Authority shall approve the fencing prior to

commencement of grading activities (including clearing and grubbing).

BIO-4n Recreational access to the Arroyo San Miguel Trail shall be closed during construction or drilling activities at the Drill Pad Site. To continue providing recreation access to the Arroyo San Miguel Trails (on the east side of Colima Road), the Applicant shall develop additional recreational access, in coordination with the Habitat Authority, to the Arroyo San Miguel Trail by any of the following or equivalent: (1) enhancing the parking area on the east side of Colima Road; (2) developing the parking area along La Flore Drive, approximately 1 mile east of Colima Road; or (3) developing pedestrian access along Colima Road from the Preserve parking area (on the west side of Colima Road) utilizing the new signalized intersection.

CUMULATIVE BIO-1 The applicant shall ensure, and shall demonstrate to the City of Whittier and Habitat Authority, that the existing Matrix Oil drilling operation in lower Sycamore Canyon, in the Whittier Hills, complies with Chapter 12.08.390 of the County of Los Angeles Code (Exterior Noise Standards). Compliance includes achieving an exterior noise standard of 45 dBA (L50) applicable at the property boundary (i.e., the Preserve's property boundary) of all noise-sensitive areas and residential areas, any time of the day. All Preserve areas shall be regarded as "noise-sensitive areas" for purposes of the County of Los Angeles Code and this mitigation measure.

CUMULATIVE BIO-2 No test-drilling, construction, or redrilling of wells shall be conducted simultaneously with, and within the same watershed as, construction work on the Tehachapi Renewable Transmission Project. The Applicant shall provide the City and Habitat Authority with written evidence of having coordinated construction schedules with Southern California Edison prior to commencing any construction activities.

CUMULATIVE BIO-3 To provide land managers at the Preserve (and those in the general area of the Chino-Puente Hills) data to better understand and manage wildlife movement conflicts and issues, the Applicant shall provide the Habitat Authority funds to conduct a multi-year, scientific study to evaluate the wildlife movement patterns of bobcats and other wildlife species utilizing the Preserve. The extent and cost of this study shall be designed, reviewed, and approved by the City, the Applicant, and the Habitat Authority prior to issuance of grading permits.

SR-1a The Applicant shall implement site security methods, including but not limited to: (1) enclosing all wells and equipment (including the metering station) with 8-foot block walls with barbed wire on the inside at 7 feet; (2) Secure gates located at all entrances with automatic opening/closing and secure access; (3) Limitation of climbable landscaping near the facility; (4) Installation of video surveillance systems and burglar/intrusion alarm systems; (5) Contact information and site access limitations shall be posted in specific locations easily visible to the public, shall be provided to neighboring residents within a set radius, and shall be placed in Preserve information kiosks and on the Habitat Authority and City websites; (6) Visitor sign-in/sign-out and security policies for employees regarding access control, pre-employment screening, post-employment issues, vehicles, access keys, codes, and card security.

SR-1b The Applicant shall conduct a third-party audit of the gas and crude oil plants and pipelines, once constructed, including the well pads, to ensure compliance with Fire Code, applicable API and NFPA codes, EPA RMP, OSHA PSM, and SPCC and emergency response plans requirements. The review shall include a seismic assessment of equipment to withstand earthquakes prepared by a seismic engineer in compliance with Local Emergency Planning Committee Region 1 CalARP guidance. All audit items shall be implemented in a timely fashion, and the audit shall be updated periodically, as directed by the City and the Los Angeles County Fire Department.

SR-1c The Applicant shall ensure that all crude-oil truck haulers are trained in HAZMAT spill response and that each truck carries a spill response kit.

SR-2a The Applicant shall install automatic valves that will automatically shut down under a low pressure scenario at the Processing Facility Area for all pipelines leaving the processing plant, and a backflow prevention device or automatic shut-down valve at the tie-in location at Lambert Road, to prevent the release of gas from the main transmission pipeline in the event of a rupture in the Colima Road pipeline.

SR-2b The Applicant shall ensure that warning tape is installed above the pipeline within the pipeline trench to warn third parties that a pipeline is located below the warning tape and that the pipeline is capable of utilizing a smartpig.

SR-3 The Applicant shall conduct a site assessment of the Project Site before commencing Project construction and shall sample

soils and excavated materials associated with construction to ensure that the soils are not contaminated. Contaminated soils shall be completely excavated and the contaminated areas cleaned to LARWQCB specifications before moving forward with construction of the proposed Project components.

GR1-a Proposed drilling, production, processing, storage, and transportation infrastructure shall be designed and constructed to withstand anticipated ground acceleration in the Project Area, based on the California Building Code. The calculated design base ground motion for project components shall consider the soil type, potential for liquefaction, and the most current and applicable seismic attenuation methods that are available.

GR1-b All surface facilities and equipment shall have suitable foundations and anchoring design, surface restraints, and moment-limiting supports to withstand seismically induced groundshaking.

GR1-c All conceptual geotechnical recommendations provided by Heathcote Geotechnical (2011) shall be followed during grading and construction at the Project Site. In addition, a Registered Civil Engineer and Certified Engineering Geologist shall perform an updated geotechnical evaluation of the Project Site, as the proposed building pad and slope configuration has changed since completion of the geotechnical report completed in 2010 (Heathcote Geotechnical 2011). This report shall be completed prior to completion of the final project design and shall be submitted to the City of Whittier for review and approval and any new recommendations not included in the Heathcote Geotechnical (2011) report shall be adhered to. The project design must conform to the recommendations within the updated geotechnical evaluation.

GR-1d All proposed slope construction, roadways, and work pads shall be properly engineered, with fill placed in accordance with requirements of the 2011 County of Los Angeles Building Code (Title 26), which is based on the 2010 California Building Code and the 2009 International Building Code.

GR-1e All proposed pipelines shall be placed in properly constructed trenches and backfilled with bedding and engineered fill that increases the freedom of movement of the pipelines, or alternatively anchored to prevent pipeline movement, as determined by a California Registered Civil Engineer, in accordance with California Building Code, 2010, Los Angeles

County requirements, and the American Public Works Association Greenbook.

GR-1f All facilities and equipment, including spill containment berms and Project-related pipelines, shall be designed for the seismic loading in accordance with applicable codes, including the California Building Code, 2010.

GR-1g The Applicant shall cease any non-essential drilling and production activities and inspect all project-related facilities, equipment, and pipelines following any seismic event that generates a ground acceleration of 15 percent of gravity. The Applicant/Operator shall prepare a written report of all inspections and findings to the City for review and approval prior to the recommencement of any operations. The City will respond to Matrix within 5 working days of the report submittal.

GR-2 Thickened slabs, extending slab edges, and additional reinforcement shall be utilized to reduce negative impacts resulting from expansive soil movement if any construction occurs within moderately expansive soils. In addition, the use of a capillary break under slabs shall be utilized to reduce the potential for moisture transport and pumping that leads to moisture infiltration as a result of heat and moisture gradients. An alternative would be the use of low to non expansive soils for slab support, which would eliminate the potential risk. This can be accommodated by importing select materials. Select grading techniques during grading could utilize the granular soils in site for subsequent use. Measures shall be as described or as otherwise approved by the City Engineer.

GR-5a Temporary shoring shall be designed to protect the temporary excavations, structures to remain in place, and adjacent properties. This shoring shall be designed by a State of California Registered Civil Engineer to take into account all lateral load parameters. Shoring can include steel cage, timber supports, sheet piling, soil nailing, shotcrete walls, or as otherwise approved by the City Engineer.

GR-5b Slot cut excavation schemes shall be implemented during grading and foundation excavations to the extent possible, to reduce the potential for failure along temporary cuts, by limiting the area exposed by temporary cuts.

GR-5c All excavations for structures and buildings shall comply with all applicable regulations of the California Occupational

Safety and Hazard Administration guidelines as they pertain to excavations.

GR-6a Site specific chemical testing of soil and bedrock shall be performed to assess corrosion and other adverse chemical aspects. A report with the lab tests shall be submitted to the City of Whittier with any appropriate mitigation measures included. The project design must conform to the recommendations within the geotechnical evaluation, or as per the City Engineer, and should occur prior to completion of the final project design.

GR-6b All buried metal pipelines shall be coated and placed under impressed cathodic protection. To monitor for internal corrosion, corrosion coupons or equivalent measures can be utilized.

GR-6c External pipe inspections shall be conducted for the exposed pipeline sections to ensure atmospheric coatings are in good conditions. All external inspections shall be documented and reviewed by the operations management and repairs documented, when necessary.

GR-6d In accordance with California Division of Oil, Gas, and Geothermal Resources pipeline regulations for environmentally sensitive pipelines, a pipeline management plan shall be implemented (Public Resources Code Sections 3013 and 3782).Mechanical testing, including ultrasonic and hydrostatic testing, shall be completed in coordination with the California Department of Conservation Division of Oil, Gas, and Geothermal Resources staff.

GR-6e All concrete in contact with the high sulfate or corrosive soils can be Type V concrete in accordance with the 2010 California Building Code.

GR-7a Subsidence monitoring shall be completed annually in the vicinity of the wells. Surveying for both vertical and horizontal ground movement shall be completed along the perimeter and throughout the interior of the oil field, utilizing Global Positioning System technology in combination with a network of ground stations. The results shall be forwarded to the Division of Oil, Gas and Geothermal Resources and the City of Whittier for review.

GR-7b In the event that the Global Position System monitoring indicates that subsidence is occurring in and/or around the Project Area, wastewater or water reinjection operations shall be

increased to alleviate such subsidence. The Applicant shall coordinate with the California Division of Oil, Gas and Geothermal Resources in determining appropriate increased levels of wastewater reinjection operations. The Applicant will also coordinate with the City of Whittier to verify that subsidence has been mitigated sufficiently.

N-1a Limit all construction activity at the Project Site (including deliveries and arriving and departing workers, and construction activities during the testing phase) to the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays and prohibit activities on Sundays and federal holidays. In addition, for construction work within the County of Los Angeles unincorporated areas, the Applicant shall ensure that noise levels do not exceed County municipal code levels with a noise study and monitoring and measures, including high grade mufflers, engine tuning, and management of backup alarms. All contracts with construction personnel shall specify the allowable work hours and the study and monitoring requirements.

N-1b Maintain all construction machinery according to the manufacturers' specifications and ensure that mufflers and silencers are maintained properly. Back-up OSHA noise indicators shall be ambient sensitive and self-adjusting to minimize backup indicator noise or flaggers shall be used in the place of backup alarms (as allowed by OSHA).

N-1c Relocate the construction parking and staging area farther from the school and residences on Catalina Avenue to an area north of the Ranger Residence or equivalent.

N-2a The Applicant shall develop and implement a Noise Reduction Plan for all drilling (testing, development, and re-drills and workovers) to ensure that the Leq noise levels from activities, measured as a 1-hour Leq, is less than a 3-dBA increase at the closest sensitive residential receptor and less than a 5-dBA increase at the closest sensitive recreational receptor. The Plan shall be prepared by an acoustic consultant approved by the City and the Plan shall be subject to City review and concurrence. The measures in the Plan shall include but not be limited to the following: (1) enclose the drill rig area in soundproof barriers 30 feet high on the south and west sides; (2) utilize a central generator type drilling rig, with the generators the only diesel engines onsite and enclosed in a soundproofed generator house with appropriate grade muffler systems, or install sound enclosures around all diesel engines with appropriate grade muffler systems; (3)install noise barriers around the drill rig

floor, mud mixers, cleaners, conveyers, and shakers; (4) enclose drawworks brake area with soundproofing shroud; (5) install pads on V-door and other appropriate areas, timbers and pads on drill deck, pads between drill and casing pipe while in storage, and pad and timbers at the boards on the mast to reduce metal-on-metal noise (for both drilling and workover operations); (6) enclose the drilling mast boards area (on drilling and workover rigs) with barriers 2 inches thick and 2 pounds per square foot in density at least 5 feet above and below any noise sources; and (7) install ambient sensitive backup indicators on all equipment requiring backup indicators.

N-2b The Applicant shall institute a quiet-mode for all drilling activities between 7 p.m. and 7 a.m. Quiet-mode operation would apply to both drilling and operations and would involve: (1) using signalers for all backup operations instead of backup alarms and turning off backup alarms; (2) using radios instead of voice communication; (3) minimizing crane use and pipe handling operations, pipe offloading from trucks and board loading during daytime to the maximum extent feasible and nighttime loading only for safety reasons; (4) prohibiting material and supply deliveries to the Project Site between the hours of 7 p.m. and 7 a.m., with exceptions only for safety; and (5) limiting process alarms and communications over the broadcast system to the maximum extent feasible during all operations and use only for safety reasons.

N-2c Provide a comprehensive noise abatement study, including noise and vibration monitoring at nearby sensitive receptors and continuous monitoring near drilling activities, under contract and supervision of the City, to monitor noise and vibration from the drilling and operations in the community. The City shall have the authority to shut-down operations and require additional mitigation if the noise criteria are exceeded.

N-4 The Applicant shall develop and implement a Noise Reduction Plan for all operations to ensure that Leq noise levels from operational activities, measured as 1-hour Leq, produce less than a 3 dBA increase over the minimum baseline hourly average level at the closest residential receptor to the facility. The measures in the Plan shall include, but not be limited to: (1) installing sound enclosures or buildings around all compressors; (2) installing noise barriers around all pumps and air coolers; (3) installing ambient-sensitive backup indicators on all equipment requiring backup indicators; (4) installing sound enclosures or buildings around all the oil area pumps (e.g., shipping, IGFC, water injection, water booster, reject pumps); (5) installing sound

enclosures or buildings around refrigeration units; (6) installing a secondary, 16-foot tall sound wall on the south, west and north sides of the gas plant; (7) ensuring that all office equipment (i.e., air conditioners, heating, ventilation) produces low noise levels or is surrounded by noise barriers; and (8) limiting traffic on the North Access Road to within 7 a.m. to 7 p.m., except for emergencies.

T-1a During all phases at Intersection 6 - Catalina Avenue and Mar Vista Street, provide striping enhancements for southbound lanes to convert the existing single lanes to a left and right lane. Parking shall be restricted immediately north and south of the intersections, according to City Engineer recommendations.

T-1b A worker carpooling program shall be instituted offsite and away from congested areas to reduce Project traffic through congested areas during all Project phases, in coordination with the City traffic engineer.

T-1c During all phases, limit truck and employee access via Catalina Avenue and Mar Vista Street to no more than 40 daily round-trips and a peak hour of 12 one-way trips. No vehicles with more than two axles or weighing more than 3 tons (generally trucks) or vehicles towing large trailers shall be allowed on Catalina Avenue during Phase 2 (except for the initial stages of the North Access Road construction) or Phase 3.

T-1d Implement safety and access improvements, including: (1) During Phase 1, provide a wider turning radius at the northeast corner of Catalina Avenue to improve right turn movements, according to City Engineer recommendations; (2) Prohibit parking on the east side of Catalina Avenue north of Mar Vista Street from 7 a.m. to 6 p.m. Monday through Friday and from 8 a.m.to 5 p.m. on Saturdays to provide additional capacity for trucks during Phase 1, according to City Engineer recommendations; (3) Provide flagmen for truck access on Mar Vista Street during Phase 1; (4) Applicant shall maintain a record of vehicular traffic moving in and out of the Catalina Avenue Gate; (5) Implement a pavement monitoring program to ensure Mar Vista Street and Catalina Avenue are maintained and damage from truck traffic is appropriately repaired, under direction of city engineers; and (6) Clearly posted speed limit signs on Catalina Avenue. (7) Cover all haul vehicles and sweep or remove any debris that could fall off the truck and impact other drivers before the truck enters public streets.

T-1e During Phase 2 soil export, if it is not deposited at the Savage Canyon Landfill, restrict truck traffic to non-am peak hours at the intersection of Hadley Street and Whittier Blvd. Also, prescribe truck routes for soil-transport and crude-haul trucks to ensure avoidance of impacted intersections. (will no longer apply with Project refinements)

T-1f Implement a Penn Street Traffic Program, in coordination with the City, evaluating: (1) Traffic levels and periods of heavy traffic along Penn Street: (2) Longer-term traffic monitoring to capture events and variation in traffic flow due to student populations and event traffic; (3) Construction truck traffic impacts on roadway capacity due to parking limitations and event activities; (4) Coordination with Whittier College to reduce impacts of events and parking issues along Penn Street; (5) Alternative parking locations and routes for Whittier College events; (6) Implementing safety improvements, including enhanced pedestrian crosswalks and signage; (7) Identifying sources of landfill traffic and ensuring the proposed Project truck traffic during operations (not construction) does not increase average truck traffic levels on Penn Street; (8) Limited hours for proposed Project truck traffic on Penn Street to avoid congested or impacted periods (e.g., limit truck traffic to periods when the landfill is open, i.e. between 8:00 a.m and 3:00 p.m.); (9) Coordinate periods of heavy traffic flow on Penn Street due to events and prevent use of Penn Street for proposed Project-related construction truck traffic during these events. (10) Prohibiting parking of Project-related traffic along any residential street for non-emergency purposes. (11) Implementing policies for trucks along Penn Street, including speed limits for trucks, yielding requirements to automobiles, and other issues as applicable.

T-2 A Traffic Management Plan shall be submitted to the City of Whittier and County of Los Angeles Traffic Engineers for approval, as required, prior to issuance of encroachment permits. The Plan could include the following measures: provide methods to safeguard traffic flow; identify detours (if necessary); identify the placement of traffic control devices (e.g. signs, traffic cones) and flaggers (if needed); and provide other appropriate traffic control measures. Additional measures shall include: (1) One travel lane shall be left open in each direction (delineated by temporary traffic cones/barricades) along roadways during construction (i.e. roads will not be closed). Any temporary street closures shall occur in coordination with city staff. (2) Construction on major roadways through major signalized intersections will not be conducted during peak periods (6 to 9

a.m. and 3 to 6 p.m.), except where requested by the city to alleviate traffic impacts. (3) All trenches in areas without safety fencing shall be metal plated during non-construction hours. All trenches that interfere with access to residential and business driveways shall be metal plated to provide access. (4) Edges of steel plates shall be made safe for cyclists. (5) All county and municipal fire, police, and paramedic departments shall be notified of the schedule and duration of construction activities. (6) As required, alternative routes shall be identified for emergency vehicles to avoid construction areas. (7) Coordination shall be undertaken with appropriate transit authorities to ensure uninterrupted service along bus or train routes, which shall be crossed or paralleled by the pipeline construction. (8) Alternative pedestrian and bicycle routes shall be identified to avoid construction areas if existing routes are obstructed by pipeline construction activities. (9) Transit stops shall be relocated as necessary to provide access during construction. (10) Staging areas for construction equipment and service truck traffic shall be located off the roadway. (11) Provision shall be made for off-street parking for worker vehicles in areas where parking is limited. (12) Advance notifications shall be made to affected residents and businesses through public information, such as a web site or mailings, and shall include construction scheduling and identify the pipeline as a natural gas pipeline. (13) Schedule construction adjacent to critical land uses so that at least one driveway is left unblocked at all hours or during business hours and ensuring resident and business access during trenching/construction. (14) Ensure that damaged roads are restored to at least their pre-construction condition and to the satisfaction of the responsible agency.

WR-1a A registered civil engineer experienced in drainage shall prepare a hydrologic study, using the corresponding hydraulic calculations for interception, conveyance, and discharge of runoff. Based on these studies, the engineer shall prepare a drainage plan in accordance with City and County requirements.

WR-1b A registered civil engineer experienced in drainage shall design and implement onsite detention facilities to reduce runoff to existing levels. Onsite detention ponds would attenuate the runoff intensity, such that an excessive peak flow would not occur during high intensity storms and there would be no increase in runoff intensity over existing conditions. The project engineer shall conduct an onsite hydrologic study to determine the approximate increase in storm runoff to accurately scale any onsite detention facilities.

Detention System Design

Onsite detention facilities have the potential to create habitats for mosquito breeding. Any onsite detention facilities shall be designed as a 'dry system' in accordance with the California Department of Public Health. A dry system requires that the facility be designed to discharge all captured water within 4 days. The design slope shall be adequate and properly compacted to prevent standing water and a low flow channel shall be incorporated to direct low flows to the system outlet. The basin shall also provide access for maintenance and inspection.

All catch basins and drainage facilities, including grass swales and bio-retention facilities shall also be designed to prevent standing water.

An operation and maintenance plan shall be incorporated to remove vegetation, sediment, and debris accumulation biannually with an inspection at the beginning of the wet season. Waste from maintenance shall be disposed of according to local and state regulations.

Onsite detention facilities shall be inspected quarterly for burrowing vector damage. Vector control measures shall be incorporated and maintained to prevent damage to the detention facility.

Onsite detention facilities shall be surrounded by 6-foot fencing and provided access with a gate and access road per Los Angeles County standards.

Discharge systems from onsite detention facilities shall be capable of discharging water from the basin while preventing a discharge of oil from the surface of the basin using a weir or subsurface discharge type design to prevent oil discharges from the basin in the event the basin reaches capacity and there is a crude oil spill.

WR-1c Impervious surfaces shall be minimized to prevent pollutant runoff. Gravel roads and parking areas shall be constructed to allow infiltration of stormwater and limit downstream runoff.

WR-1d Structural Best Management Practices shall be used to mitigate the increased pollutant runoff. Runoff from impervious areas shall be directed to grass swales, bio-swales, or detention ponds to aid in filtering out suspended solids and potential contaminants. Grass bio-swales shall not be planted with invasive

species. The Best Management Practices shall be designed by a California registered, Qualified Storm Water Pollution Prevention Plan Developer.

WR-1e Pollution control products, such as catch basins with basket inserts, shall be used to catch trash and debris along with filtering elements such as silt fences, straw wattles and absorbent sponges within catch basins. Filter technology may be used to catch sediment, debris, oil, and pollutants.

WR-1f Permanent water quality testing, drainage device, and erosion control maintenance shall be implemented. Sampling and analysis shall be completed in accordance with National Pollutant Discharge Elimination System requirements.

WR-1g A California registered, Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee and monitor construction Best Management Practices and stormwater management programs, in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.

WR-2a During construction operations, the Applicant shall implement stormwater management protection measures and wet weather measures. These measures would include temporary and permanent Best Management Practices to reduce the potential for erosion and sediment transport. Conventional measures typically recommended by the State Water Resource Board and the California Department of Transportation would reduce potentially significant erosion and runoff impact to less than significant levels:

Implement permanent erosion and sediment control measures:

- Minimize grading, clearing, and grubbing to preserve existing vegetation;

- Use mulches and hydroseed free of invasive plants to protect exposed soils;

- Use geotextiles and mats to stabilize soils;

- Use drainage swales and dissipation devices; and

- Use erosion control measures outlined in the California Stormwater Quality Association Best Management Practice Handbook.

Implement temporary Best Management Practice mitigation measures:

- Use silt fences, sandbags, and straw wattles;

- Use temporary sediment basins and check dams; and

- Use temporary Best Management Practices outlined in the California Stormwater Quality Association Best Management Practice Handbook.

Implement tracking control Best Management Practices to reduce tracking sediment offsite.

- Use stabilized construction entrance and exit with steel shakers;

- Use tire wash areas; and

- Use tracking control Best Management Practices outlined in the California Stormwater Quality Association Best Management Practice Handbook.

WR-2b The Applicant shall implement a Storm Water Pollution Prevention Plan using Best Management Practices and monitor and maintain stormwater pollution control facilities identified in the Storm Water Pollution Prevention Plan, in a manner consistent with the provisions of the Federal Water Pollution Control Act (National Pollutant Discharge Elimination System Program).Stormwater management protection measures and wet weather measures shall be designed by a California registered, Qualified Storm Water Pollution Prevention Plan Developer. In addition, a California registered, Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee and monitor construction Best Management Practices and stormwater management, in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.

WR-3a The proposed well cellar shall be lined with an impermeable membrane to prevent oil-based substances from seeping into groundwater supplies. All drilling muds storage shall be contained within Baker-type enclosed tanks.

WR-3b An 18-inch berm shall be placed around the entire drilling rig to capture any spilled fluids.

WR-3c Personnel at the site shall be trained in equipment use and containment and cleanup of an oil spill. Dry cleanup

methods, such as absorbents, shall be used on paved and impermeable surfaces. Spills in dirt areas shall be immediately contained with an earthen dike and the contaminated soil shall be dug up and discarded in accordance with local and state regulations.

WR-3d Oil spills shall be contained and cleaned according to measures outlined in the California Stormwater Quality Association Best Management Practice Handbook.

WR-3e An approved response manual and Oil Spill Contingency Plan shall be implemented to outline response actions in the event of a spill, including a spill response trailer, equipment, and personnel training. The plan shall be completed prior to the Drilling and Testing phase. Spill cleanup shall be completed under the oversight of the lead regulatory agency, with respect to oil spills, as identified in the Oil Spill Contingency Plan.

WR-4a The City of Whittier and other appropriate agencies shall inspect facility conditions at the Project Site on a yearly basis. Inspections shall also occur after earthquake induced land movement or upon periods of large rainfall in order to verify no leak or rupture risks have developed. Inspections shall be completed by personnel with oilfield operations inspection experience (petroleum engineer or equivalent). Inspection and violation records shall be available to the public for review within 5 working days of inspections.

WR-4b The Applicant shall properly maintain the associated crude oil pipelines, storage tanks and processing facilities within and outside the Preserve, including smart-pigging according to State of California Office of the State Fire Marshal requirements and the standards outlined by the Department of Oil, Gas and Geothermal Resources, and the Regional Water Quality Control Board. Pipeline, tank and processing inspections, including walking the pipelines within the Preserve, shall occur at least daily.

WR-4c The Applicant shall install a leak detection system for crude pipelines in the Preserve and the Colima Road pipeline. The system shall include pressure and flow meters, flow balancing, supervisor control and data acquisition system, and a computer alarm system in the event of a suspected leak. Temperature, pressure, and flow shall be monitored at each pipeline entry and exit. If any variable deviates by more than 10 percent of the normal operating range, the system shall trigger both audible and visual alarms. Flow balancing shall be

conducted every 5 minutes, 1 hour, 24 hours, and 48 hours with the accuracy defined once the system is established and tested.

WR-6a Where feasible, the City of Whittier shall supply reclaimed water during construction and well drilling operations, to reduce water supply impacts.

WR-6b Where feasible, the Applicant shall implement water conservation measures during construction and well drilling operations, to reduce water supply impacts.

CR-1 Develop a monitoring plan, subject to City and Habitat Authority approval, for treatment of areas of direct impact to elements identified as contributing components of the Whittier Main Oil Field including, but not limited to, the following:

- Monitoring concurrent with construction grubbing at the locations of all oil well pads, allowing time for detailed field recordation of each pad that could not be obtained during survey level recording efforts due to heavy vegetation. Recordation should include photographs in digital or 35mm format, scaled plan-view drawings of the well pads, and written documentation that describes construction methods, details, and associated material composition.

- Monitoring concurrent with alteration of existing historic-period roadways to allow for detailed mapping of existing roadways as well as recordation of construction along a representative segment(s) of the roadway to document the methods used over time as the oil fields evolved; first relying on dirt roads, followed by oil-paved roads, and finally asphalt-paved roads.

- Collection, analysis, reporting, and curation of any associated artifacts that might be unearthed during monitoring activities described above.

- Completion of a report of findings and update of appropriate Department of Parks and Recreation 523 forms to document the information obtained as a result of the mitigation/monitoring program.

CR-2 If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has been notified and can make the necessary findings as to origin and disposition of the remains pursuant to Public Resources Code 5097.98. Construction must halt in the area of the discovery of

human remains, the area must be protected, and consultation and treatment shall occur as prescribed by law.

CR-3 If any paleontological resources are encountered during ground-disturbing activities in the Project area, activities in the immediate area of the find shall be halted and the discovery assessed (LSA 2007). A qualified paleontologist must evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology. A paleontological resource impact mitigation program for treatment of the resources would be developed and implemented.

WAS-1 A Registered Civil Engineer shall evaluate the capacity of the existing sewer line system, beginning at the proposed tie-in at Catalina Avenue and continuing downstream to the County Sanitation Districts of Los Angeles County sewer system, prior to any connections. A 7-day capacity performance test shall be performed, based on County Sanitation Districts of Los Angeles County average wastewater generation factors, to determine baseline and peak flows, and to ensure the sewer has adequate capacity in the downstream areas. The capacity analysis shall be submitted to the District for review and approval. In the event that existing sanitary sewer facilities are insufficient to accommodate increased flows from the proposed Project Site, the Applicant shall provide temporary mobile sanitary facilities (i.e., toilet, sink, and urinal) for onsite personnel, as necessary.

FP-1a The oil field operator shall provide fire water supplies from either the Murphy Station 10-inch line or Suburban Water Supply along Colima Road (both of which are nearby and have sufficient supplies), or some other source, that provides sufficient water supply rates and duration to comply with codes and the LACoFD. Any new pipeline installations shall avoid any sensitive habitats (coastal sage scrub or riparian) and will be placed in non-native grassland or disturbed communities. Any non-native grassland in which new pipeline installations are placed shall be returned to its original state after pipeline installation.

FP-1b The oil field operator shall implement a community alert notification system to automatically notify area residences and businesses in the event of an emergency at the oil field that would require residents to take shelter or take other protective actions.

FP-1c The oil field operator shall ensure that design and construction comply with applicable codes and standards for

equipment spacing, particularly those related to flare location and distances to public areas (near the Preserve hiking trails), installation of fire detection and prevention systems, flame detection, flammable gas detection, fire foam, and associated alarms and alert systems. The design and construction compliance status shall be verified by third-party audits overseen by the City.

FP-1d The oil field operator shall develop emergency response plans addressing the facility's fire-fighting capabilities pursuant to the most recent NFPA requirements, Los Angeles County Fire Code, LACoFD, California Code of Regulation, and API requirements, in coordination with LACoFD and the City of Whittier. These plans should include, but not be limited to, fire monitor placement, fire water capabilities, fire detection capabilities, fire foam requirements, facility condition relating to fire-fighting ease and prevention, and measures to reduce impacts to sensitive resources. The plan should also address coordination with local emergency responders and area schools and daycare facilities.

FP-2a The oil field operator shall ensure that fuel modification areas create at least 30 feet of clearance from all oilfield equipment and 10 feet from all roadways to reduce the potential for ignition sources starting wildfires. Firewater monitors located within the facility should be placed so that sprays could reach beyond the facility walls by at least 30 feet, or as directed by LACoFD, and could be used to extinguish a wildfire started at the facility fence line. Fire hydrants shall be placed along all roadways, spaced according to LACoFD Fire Prevention Regulations Chapter 8 or as specified by LACoFD. The Applicant shall ensure that appropriate wildfire response equipment is located at the site or at the Ranger Residence if the Ranger Residence is located near the site. Construction activities shall include using spark arrestors on construction equipment, monitoring vehicle traffic to ensure activities do not impact dry brush and lead to fire, and the placing firefighting equipment at the construction site according to LACoFD direction.

FP-2b Emergency response plans shall address the issues related to wildfire risks and response, including development of fuel management/modification fire hazard management plan according to LACoFD requirements, coordination with the area residences, the Preserve Rangers and the LACoFD, as well as first response tactics and equipment.

REC-1 The Applicant shall construct and maintain interpretative signage within the Preserve's trails in coordination with the Habitat Preserve. Interpretative signage shall provide an educational component about the Preserve, drilling activities, mitigation, descriptions of local wildlife, habitats, and the environmental values of the Puente Hills area;, historic uses and others as determined by the City in consultation with the Habitat Preserve.

(b) Facts in Support of Findings

The Project Site is designated as open space of "high sensitivity" under the City of Whittier General Plan. Although many of the General Plan's open space policies identify the need to preserve and carefully manage such areas, the Plan also calls for a "balance between oil drilling activities and the protection of plant and animal communities in the hillsides."

Inclusion of the mitigation measures discussed in the different issue area sections of the EIR as part of a Conditional Use Permit (CUP), which is allowed under the City's Zoning Ordinance for oil and gas projects in the Open Space zone district, would mitigate impacts to less than significant levels. Therefore, the proposed Project is found to be consistent with the goals and policies of the City General Plan.

Inclusion of mitigation measures presented in this EIR as well as the proposed Project's expected contributions to ongoing maintenance and improvement of the Preserve are expected to cause the Project to be consistent with the Resource Management Plan (RMP) habitat conservation plans.

Additionally, the Project is found to be consistent with applicable County of Los Angeles goals and policies.

No residual impacts are expected after the recommended mitigation measures are implemented.

Further, implementing the Project would ensure continued funding for the Preserve for additional preservation activities that could otherwise be impeded after the Puente Hills Landfill closes in 2013, eliminating that source of funding.

With the mitigation described above, the impact is reduced to a less than significant level.

L. FIRE PROTECTION AND EMERGENCY SERVICES

1. Firewater Supplies, Equipment Layout, Detection Systems and Emergency Response Potential Deficiencies

Future oil field development activities at the site could be deficient in firewater supplies, equipment layout, detection systems, or emergency response. Through the incorporation of mitigation, any potential impact will be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact from deficiencies in firewater supplies, equipment layout, detection systems, or emergency response. Specifically, the following mitigation will ensure a less than significant impact.

FP-1a The oil field operator shall provide fire water supplies from either the Murphy Station 10-inch line or Suburban Water Supply along Colima Road (both of which are nearby and have sufficient supplies), or some other source, that provides sufficient water supply rates and duration to comply with codes and the LACoFD. Any new pipeline installations shall avoid any sensitive habitats (coastal sage scrub or riparian) and will be placed in non-native grassland or disturbed communities. Any non-native grassland in which new pipeline installations are placed shall be returned to its original state after pipeline installation.

FP-1b The oil field operator shall implement a community alert notification system to automatically notify area residences and businesses in the event of an emergency at the oil field that would require residents to take shelter or take other protective actions.

FP-1c The oil field operator shall ensure that design and construction comply with applicable codes and standards for equipment spacing, particularly those related to flare location and distances to public areas (near the Preserve hiking trails), installation of fire detection and prevention systems, flame detection, flammable gas detection, fire foam, and associated alarms and alert systems. The design and construction compliance status shall be verified by third-party audits overseen by the City.

FP-1d The oil field operator shall develop emergency response plans addressing the facility's fire-fighting capabilities pursuant to the most recent NFPA requirements, Los Angeles County Fire Code, LACoFD, California Code of Regulation, and API requirements, in coordination with LACoFD and the City of Whittier. These plans should include, but not be limited to, fire monitor placement, fire water capabilities, fire detection capabilities, fire foam requirements, facility condition relating to fire-fighting ease and prevention, and measures to reduce impacts to sensitive resources. The plan should also address coordination with local emergency responders and area schools and daycare facilities.

(b) Facts in Support of Findings

Firewater, water used to fight fires, would be obtained from the City of Whittier connection at Catalina Avenue and distributed to the three sites via the backbone pipeline system. Current requirements by NFPA and the LACoFD indicate that firewater supplies should be from 3,000 to 5,000 gpm. Maximum flow capacities at the Catalina Avenue City of Whittier connection are estimated to be 840 gpm at 80 pounds per square inch gauge. This would not be sufficient to meet NFPA or LACoFD requirements and this would be a significant impact.

Based on preliminary design drawings, the site appears to comply with most equipment spacing requirements. However, detailed design drawings are not yet available for the Project. Some equipment spacing could still create impacts, such as the location of the flare relative to process units or atmospheric storage tanks and distances from public areas, such as the hiking trails near the Truck Loading Facility. Inadequate equipment spacing would be a significant impact.

Early fire detection systems are identified on some preliminary design documents. During the Drilling and Testing Phase, temporary equipment would include hydrogen sulfide monitors on the drilling rig and breathing air packs at the rig and in the safety trailer, as well as a temporary fire hydrant at each well site that would connect to other pressurized hydrants with adequate pressure.

Each site's fire protection would include an automated alarm system and fire hydrant system as required by the LACoFD. However, preliminary design documents do not include installation of fire detection and prevention systems, such as foam systems on crude oil storage tanks, flame detection, and flammable gas detection systems. This would be a significant impact.

If an incident required fire protection and emergency services, the closest fire stations to the proposed Project Site would be LACoFD stations #59 and #28, each approximately 2.0 miles from the site with a 5 to 6 minute response time. The LACoFD has extensive resources and planning to direct at an oil field fire and historical incidents associated with existing oil facilities in the area have been minimal. This response time and capabilities therefore comply with the established significance criteria.

Catalina Avenue and the North Access Road would provide access to the site; these roads would comply with the LACoFD requirements for turning radius and grade (as defined in the regulatory section of Los Angeles County Fire Prevention Regulations).

New development at the proposed Project Site would increase fire risk and fire-fighting requirements. Although detailed plans associated with the proposed Project have not been developed, these plans would include Emergency Response Plans, Spill Prevention Plans, and Oil Spill Response Plans. Additionally, Evacuation Plans would be developed to ensure safety of the field employees and plans would be designed to communicate with surrounding residences and businesses regarding neighborhood evacuations in the event of flammable gas releases, crude oil tank fires, or other relevant events. These plans would be reviewed by the

Fire Department and measures would be implemented as part of the permitting phase to ensure that appropriate response capabilities are in place. If these plans are not developed, this would be a significant impact.

Mitigation measures would include measures to ensure proper firewater supply, community outreach, and alert systems, plans reflect current codes, and the development of emergency response plans.

The LACoFD, and other codes and standards, require firewater supplies of 3,000 to 5,000 gpm. A water pipeline installed from the facilities to the Ocean View Reservoir and the Murphy Booster Station 10-inch water supply line along Ocean View Avenue would provide this supply level, according to discussions with the City. The Ocean View Avenue 10-inch water line is approximately 1,000 feet west of Catalina Avenue within the Preserve.

In addition, the Suburban Water Systems main line along Colima Road could also supply water, according to discussions with Suburban Water Systems. This water connection could be made when the crude oil and natural gas pipelines are laid along the Loop Road to Colima Road. These firewater supplies would be sufficient and the sources are relatively close. With this mitigation, this impact would be less than significant.

Ensuring that equipment spacing complies with codes and standards before construction would ensure that impacts associated with equipment spacing would be less than significant. Early fire detection systems are critical for ensuring that any release response is effective and quick. Notification of area residences and businesses would also facilitate effective emergency response. Notification systems would be initiated by the LACoFD or the sheriff or police departments.

Development of appropriate response plans, in coordination with the LACoFD, would also ensure effective response activities.

With the mitigation described above, the impact is reduced to a less than significant level.

2. Risk of Wildfires

Future oil field development activities at the site could increase the risk of wildfires. Introducing industrial development into an area that is classified as a very high fire hazard zone without the proper equipment or planning would be a significant impact. With mitigation, this potentially significant impact will be reduced to a less than significant level.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant impact from any potential wildfire risk. Specifically, the following mitigation will ensure a less than significant impact.

FP-2a The oil field operator shall ensure that fuel modification areas create at least 30 feet of clearance from all oilfield

equipment and 10 feet from all roadways to reduce the potential for ignition sources starting wildfires. Firewater monitors located within the facility should be placed so that sprays could reach beyond the facility walls by at least 30 feet, or as directed by LACoFD, and could be used to extinguish a wildfire started at the facility fence line. Fire hydrants shall be placed along all roadways, spaced according to LACoFD Fire Prevention Regulations Chapter 8 or as specified by LACoFD. The Applicant shall ensure that appropriate wildfire response equipment is located at the site or at the Ranger Residence if the Ranger Residence is located near the site. Construction activities shall include using spark arrestors on construction equipment, monitoring vehicle traffic to ensure activities do not impact dry brush and lead to fire, and the placing firefighting equipment at the construction site according to LACoFD direction.

FP-2b Emergency response plans shall address the issues related to wildfire risks and response, including development of fuel management/modification fire hazard management plan according to LACoFD requirements, coordination with the area residences, the Preserve Rangers and the LACoFD, as well as first response tactics and equipment.

(b) Facts in Support of Findings

Industrial development could produce sparks due to electrical equipment, engines or vehicles, which could start a wildfire and produce impacts to nearby homes and biological resources in the area. This would be considered a significant impact.

These impacts could be mitigated by ensuring that brush and trees are not close to sources of ignition and that emergency response plans and equipment address issues related to wildfire risks.

Mitigation Measure FP-2a requires the oil field operator ensure that fuel modification areas create at least 30 feet of clearance from all oilfield equipment and 10 feet from all roadways to reduce the potential for ignition sources starting wildfires. Firewater monitors located within the facility should be placed so that sprays could reach beyond the facility walls by at least 30 feet, or as directed by LACoFD, and could be used to extinguish a wildfire started at the facility fence line. Fire hydrants shall be placed along all roadways, spaced according to LACoFD Fire Prevention Regulations Chapter 8 or as specified by LACoFD. The Applicant shall ensure that appropriate wildfire response equipment is located at the site or at the Ranger Residence if the Ranger Residence is located near the site. Construction activities shall include using spark arrestors on construction equipment, monitoring vehicle traffic to ensure activities do not impact dry brush and lead to fire, and the placing firefighting equipment at the construction site according to LACoFD direction.

Mitigation Measure FP-2b requires emergency response plans address the issues related to wildfire risks and response, including development of fuel management/modification fire hazard management plan according to LACoFD requirements, coordination with the area residences, the Preserve Rangers and the LACoFD, as well as first response tactics and equipment.

Sufficient clearance around oil field equipment to avoid sparks or ignition sources starting a wildfire in the area would also reduce the impacts of industrial development in this very high fire hazard severity zone.

With the mitigation described above, the impact is reduced to a less than significant level.

M. RECREATION

1. Concurrent Operation and Drilling Recreation Impacts

Concurrent operational and drilling activities at the Project Site during periods of the Project could affect recreational activities. With mitigation, however, any potential impact will be reduced to a level of insignificance.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant recreation impact from concurrent operations and drilling activities. Specifically, the following mitigation will ensure a less than significant impact.

> **REC-1** The Applicant shall construct and maintain interpretative signage within the Preserve's trails in coordination with the Habitat Preserve. Interpretative signage shall provide an educational component about the Preserve, drilling activities, mitigation, descriptions of local wildlife, habitats, and the environmental values of the Puente Hills area;, historic uses and others as determined by the City in consultation with the Habitat Preserve.
>
> **N-1a** Limit all construction activity at the Project Site (including deliveries and arriving and departing workers, and construction activities during the testing phase) to the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays and prohibit activities on Sundays and federal holidays. In addition, for construction work within the County of Los Angeles unincorporated areas, the Applicant shall ensure that noise levels do not exceed County municipal code levels with a noise study and monitoring and measures, including high grade mufflers, engine tuning, and management of backup alarms. All contracts with construction personnel shall specify the allowable work hours and the study and monitoring requirements.

N-1b Maintain all construction machinery according to the manufacturers' specifications and ensure that mufflers and silencers are maintained properly. Back-up OSHA noise indicators shall be ambient sensitive and self-adjusting to minimize backup indicator noise or flaggers shall be used in the place of backup alarms (as allowed by OSHA).

N-2a The Applicant shall develop and implement a Noise Reduction Plan for all drilling (testing, development, and re-drills and workovers) to ensure that the Leq noise levels from activities, measured as a 1-hour Leq, is less than a 3-dBA increase at the closest sensitive residential receptor and less than a 5-dBA increase at the closest sensitive recreational receptor. The Plan shall be prepared by an acoustic consultant approved by the City and the Plan shall be subject to City review and concurrence. The measures in the Plan shall include but not be limited to the following: (1) enclose the drill rig area in soundproof barriers 30 feet high on the south and west sides; (2) utilize a central generator type drilling rig, with the generators the only diesel engines onsite and enclosed in a soundproofed generator house with appropriate grade muffler systems, or install sound enclosures around all diesel engines with appropriate grade muffler systems; (3)install noise barriers around the drill rig floor, mud mixers, cleaners, conveyers, and shakers; (4) enclose drawworks brake area with soundproofing shroud; (5) install pads on V-door and other appropriate areas, timbers and pads on drill deck, pads between drill and casing pipe while in storage, and pad and timbers at the boards on the mast to reduce metal-on-metal noise (for both drilling and workover operations); (6) enclose the drilling mast boards area (on drilling and workover rigs) with barriers 2 inches thick and 2 pounds per square foot in density at least 5 feet above and below any noise sources; and (7) install ambient sensitive backup indicators on all equipment requiring backup indicators.

N-2b The Applicant shall institute a quiet-mode for all drilling activities between 7 p.m. and 7 a.m. Quiet-mode operation would apply to both drilling and operations and would involve: (1) using signalers for all backup operations instead of backup alarms and turning off backup alarms; (2) using radios instead of voice communication; (3) minimizing crane use and pipe handling operations, pipe offloading from trucks and board loading during daytime to the maximum extent feasible and nighttime loading only for safety reasons; (4) prohibiting material and supply deliveries to the Project Site between the hours of 7 p.m. and 7 a.m., with exceptions only for safety; and (5) limiting process alarms and communications over the broadcast system to the

maximum extent feasible during all operations and use only for safety reasons.

N-2c Provide a comprehensive noise abatement study, including noise and vibration monitoring at nearby sensitive receptors and continuous monitoring near drilling activities, under contract and supervision of the City, to monitor noise and vibration from the drilling and operations in the community. The City shall have the authority to shut-down operations and require additional mitigation if the noise criteria are exceeded.

N-4 The Applicant shall develop and implement a Noise Reduction Plan for all operations to ensure that Leq noise levels from operational activities, measured as 1-hour Leq, produce less than a 3 dBA increase over the minimum baseline hourly average level at the closest residential receptor to the facility. The measures in the Plan shall include, but not be limited to: (1) installing sound enclosures or buildings around all compressors; (2) installing noise barriers around all pumps and air coolers; (3) installing ambient-sensitive backup indicators on all equipment requiring backup indicators; (4) installing sound enclosures or buildings around all the oil area pumps (e.g., shipping, IGFC, water injection, water booster, reject pumps); (5) installing sound enclosures or buildings around refrigeration units; (6) installing a secondary, 16-foot tall sound wall on the south, west and north sides of the gas plant; (7) ensuring that all office equipment (i.e., air conditioners, heating, ventilation) produces low noise levels or is surrounded by noise barriers; and (8) limiting traffic on the North Access Road to within 7 a.m. to 7 p.m., except for emergencies.

BIO-4n Recreational access to the Arroyo San Miguel Trail shall be closed during construction or drilling activities at the Drill Pad Site. To continue providing recreation access to the Arroyo San Miguel Trails (on the east side of Colima Road), the Applicant shall develop additional recreational access, in coordination with the Habitat Authority, to the Arroyo San Miguel Trail by any of the following or equivalent: (1) enhancing the parking area on the east side of Colima Road; (2) developing the parking area along La Flore Drive, approximately 1 mile east of Colima Road; or (3) developing pedestrian access along Colima Road from the Preserve parking area (on the west side of Colima Road) utilizing the new signalized intersection.

(b) Facts in Support of Findings

Construction, drilling, and operations would generate additional noise in the vicinity of the Project Site within the Preserve. Construction noise would be less than significant since it would be short term and only during daytime hours. For recreational users, however, elevated noises from construction machinery could be annoying and disrupt their normal recreational activities, particularly if the construction activities are close to any of the three trails within the Arroyo Pescadero Trailhead. However, none of the recreational areas in the vicinity of the proposed Project Site would typically be affected by higher than 70 A-weighted decibels (dBA) daytime noise levels for construction, which are specified by Los Angeles County and City of Whittier guidelines as acceptable noise levels in recreational areas, such as parks. This impact, therefore, would be less than significant.

Crude oil and natural gas sales pipelines would be built under the existing Preserve Loop Road from the Project Site to Colima Road. The Loop Road is located on a portion of the existing Arroyo Pescadero Trailhead. The Loop Road may also serve as the Fire Department's secondary access route to the facility from Colima Road and may need to be widened to 20 feet.

Both the Loop Trail Road modifications and the pipeline installation would take place during the Design and Construction Phase of the Project and would last approximately 2-3 months. Trails may be temporarily closed to recreational use during these activities for up to 2-3 months.

In addition, recreational access to the Arroyo San Miguel Trail would be closed during construction or drilling activities at the Drill Pad Site. As a result, the Arroyo San Miguel Trail could be temporarily closed to recreational use for approximately 8 years; for 90 days during Drilling and Testing (Phase I), 2 to 3 years during Design and Construction (Phase II), and 5 years during Operations and Maintenance (Phase III).

However, recreational access to the Arroyo San Miguel Trail on the east side of Colima Road could be maintained throughout all three phases by implementing one of three measures: (1) enhancing the parking area on the east side of Colima Road; (2) developing the parking area along La Flore Drive, approximately 1 mile east of Colima Road; or (3) developing pedestrian access along Colima Road from the Preserve parking area (on the west side of Colima Road) utilizing the new signalized intersection.

Drilling would occur for 3 months during the testing phase, for 5 years during the initial operations period, and for up to 3 months a year thereafter.

Noise from drilling at the Project Site could be significant without mitigation and could create a nuisance for recreational users in close proximity to the Project Site. However, noise from drilling is considered to be temporary in nature and would only occur when a well was being drilled. In addition, noise levels can be mitigated to less than significant levels, and therefore, recreational impacts from noise would also be less than significant with mitigation by implementing mitigation measures N-1a through N-1b, N-2a through N-2c, and N-4.

Noise from the Project Site operations would be associated with new oil pumps, compressors, and coolers, which when mitigated, would be less than significant. Operational noise generated from truck traffic to and from the Truck Loading Facility would not be significant due to the sporadic nature and low frequency of truck trips.

Implementing mitigation measures N-1a and N-1b, N-2a through N-2c, and N-4 would reduce noise impacts to recreational users to less than significant. In addition, the Mitigation Measure REC-1 would provide recreational users with information about activities at the Project Site.

Mitigation Measure REC-1 requires the Applicant to construct and maintain interpretative signage within the Preserve's trails in coordination with the Habitat Preserve. Interpretative signage shall provide an educational component about the Preserve, drilling activities, mitigation, descriptions of local wildlife, habitats, and the environmental values of the Puente Hills area;, historic uses and others as determined by the City in consultation with the Habitat Preserve.

With the mitigation described above, the impact is reduced to a less than significant level.

2. Operations and Drilling Would Increase Recreation Impacts By Creating Odors

New drilling and operations would increase odors that could reach recreational users. New equipment and drilling could create odor events. With mitigation, this impact would be less than significant.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to ensure a less than significant recreation impact from odors. Specifically, the following mitigation will ensure a less than significant impact.

> **AQ-3a** The Operator shall have a gas buster and SCAQMD-approved portable flare at the oil field and available for immediate use to circulate out and combust any gas encountered during drilling. The flare shall be capable of recording the volume of gas that is flared. The operator shall report any flared gas from drilling to the Los Angeles County Fire Chief and the SCAQMD.
>
> **AQ-3b** The Operator shall install a detection system that will monitor vapor space on all crude oil tanks. The detection system shall be capable of monitoring pressure in the vapor space of the tanks and notifying the operator via an alarm when the pressure in the tanks gets within 10 percent of the tank relief pressure. If the tank pressure exceeds the relief pressure, the Operator shall report the incident to the SCAQMD as a breakdown pursuant to

Rule 430, and submit a report of the breakdown to the Los Angeles County Fire Chief and the SCAQMD, which shall detail the corrective actions the Operator shall take to avoid exceeding the tank relief pressure.

AQ-3c The Operator shall develop an Odor Minimization Plan. The Odor Minimization Plan shall address potential sources of odors from all oil field equipment, including wells and drilling operation, and measures to reduce or eliminate these odors (e.g., containment, design modifications, carbon canisters). The Plan shall address issues such as facility information, buffer zones, signs with contact information, logs of odor complaints, the protocol for handling odor complaints and odor event investigations and methods instituted to prevent a re-occurrence.

AQ-3d The Operator shall develop an Air Monitoring Plan. The Plan shall provide for the monitoring of total hydrocarbon vapors and hydrogen sulfide at each well drill and re-drilling site and total hydrocarbon vapors at the gas plant. At all times during drilling and redrilling operations, the Operator shall maintain monitoring equipment that shall monitor and digitally record the levels of hydrogen sulfide and total hydrocarbon vapors. Monitors shall be installed at the edge of the drill pad and around the outer edge of the gas plant. Such monitors shall provide automatic alarms that are audible or visible to the Operator of the drilling equipment for the drill rig monitors, and gas plant for the gas plant monitors, and shall be triggered by the detection of hydrogen sulfide or total hydrocarbon vapors. Alarm points shall be set at a maximum of 5 and 10 ppm H2S and 500 and 1,000 ppm hydrocarbons, with the higher level requiring shut-down of drilling or gas plant operations and notification to appropriate agencies, including the Los Angeles County Fire Department and SCAQMD. A meteorological station to monitor wind speed and direction under the guidance and specification of the SCAQMD shall be installed at the Processing, or applicable location.

AQ-3e The Operator shall use an odor suppressant spray system or vapor capture hood and carbon filter system on the mud shaker tables, and shall install carbon capture canisters on all tanks (permanent and portable) that are not equipped with vapor recovery, containing potentially odiferous materials (for example; the mud baker-type tanks) for all drilling operations so that no odor can be detected at the closest receptor (e.g., residences, hiking trails, Ranger Residence).

(b) Facts in Support of Findings

Several different components in the new equipment could leak and cause odors. New operations would use tanks, which could potentially lead to odor events. Drilling muds from drilling operations would create emissions. These types of releases could reach recreational areas surrounding the proposed Project Site.

Implementing mitigation measures AQ-3a through AQ-3e would reduce the frequency of odor events and impacts would be reduced to less than significant with mitigation.

With the mitigation described above, the impact is reduced to a less than significant level.

V. Environmental Effects that Remain Significant and Unavoidable After Mitigation.

In the environmental areas of air quality, aesthetics, hydrology and water quality, land use and policy consistency, and recreation there are instances where environmental impacts would remain significant and unavoidable even after mitigation. These areas are discussed below.

A. AIR QUALITY

1. Construction Emissions

Construction activities would generate emissions that exceed South Coast Air Quality Management District thresholds. Even with the implementation of mitigation, this impact would remain significant and unavoidable.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to attempt to lessen the significant construction emissions impact. Nevertheless, even with the implementation of the mitigation addressed below, impacts will remain significant and unavoidable.

> **AQ-1a** The Applicant shall submit and implement a Fugitive Dust Control Plan that includes SCAQMD mitigations for fugitive dust mitigation, according to Rule 403, and SCAQMD CEQA Guidelines. The Plan shall also address fugitive dust measure impacts to native habitats. Fugitive dust mitigation measures in the plan should include the following:
>
> - Apply water every 3 hours to disturbed areas within a construction site (61% reduction).
>
> - Require minimum soil moisture of 12% for earthmoving, by using a moveable sprinkler system or water truck. Moisture

content can be verified by lab sample or moisture probe (69% reduction).

- Limit on-site vehicle speeds on unpaved roads to 15 mph with radar enforcement (57% reduction) and posting of speed limits.

- Replace ground cover, approved by the Habitat Authority, in disturbed areas as quickly as possible (5% reduction).

- All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches (91% reduction).

- Install gravel bed trackout apron (3 inches deep, 25 feet long, 12 feet wide per lane, and edged by rock berm or row of stakes) to reduce mud and dirt trackout from unpaved truck exit routes (46 to 80% reduction). Water industrial unpaved road three times per day (61% reduction).

- Water industrial unpaved road three times per day (61% reduction).

- Water storage piles by hand or apply cover when wind events are declared, according to SCAQMD Rule 403 when instantaneous wind speeds exceed 25 miles per hour (90% reduction).

- Appoint a construction relations officer to act as a community liaison concerning onsite construction issues, such as dust generation.

AQ-1b Treat all dirt roads with water three times per day prior to and during the Drilling and Resting Phase pad clearing to substantially reduce dirt road fugitive dust emissions.

AQ-1c Treat all roads (pave or apply non-toxic soil binders as approved by the Habitat Authority with at least 80% effectiveness) before beginning the development phase pad grading and facility construction to substantially reduce dirt road fugitive dust emissions during those phases of construction.

AQ-1d The Applicant shall implement a NOx reduction program including the following, or equivalent, measures:

- All off-road construction equipment shall be tuned and maintained according to manufacturers' specifications.

- Any temporary electric power shall be obtained from the electrical grid, rather than portable diesel or gasoline generators.

- All off-road diesel construction equipment with greater than 100-horsepower engines shall meet Tier 4 NOx requirements. If the lead agency determines that a Tier 4 fleet or portion thereof cannot be obtained, the lead agency shall require the use of construction equipment that meets Tier 3 emissions requirements or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction.

- During the pad and access road grading phase, all off-road dump trucks shall meet EPA 2010 model year NOx emission requirements. If the lead agency determines that a 2010 model year truck fleet or portion thereof cannot be obtained the lead agency shall require the use of trucks that meet EPA 2007 model year NOx emissions requirements. If the Project's fleet requirements cannot be met with 2010 or 2007 EPA model year truck emissions or portion thereof the lead agency shall require a certified NOx emissions level of less than 2.0g/bhp-hour for trucks used at the Project Site during the pad and access road grading phase.

- Limit onsite truck idling to less than 5 minutes.

- A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.

There are no other feasible mitigation measures that would reduce the Project's construction emissions from potentially exceeding the SCAQMD's emissions thresholds. Accordingly, specific economic, legal, social, technological or other considerations make infeasible other mitigation measures.

(b) Facts in Support of Findings

Several Project activities would generate construction emissions, including the initial site clearing, site grading, facility construction, and pipeline construction. Some aspects of some activities could occur simultaneously, such as grading and pipeline construction. Pad clearing would occur prior to any other activities.

The emissions from construction activities would exceed those specified by the SCAQMD regional thresholds for NO_x emissions, but not the localized thresholds. NO_x emission levels would exceed regional threshold levels during site grading due to grading equipment and a relatively large number of offsite vehicles necessary for soils transport. Emissions of NO_x can be reduced by utilizing newer, cleaner diesel engines that meet EPA Tier emissions requirements.

Emissions of PM would not exceed the SCAQMD regional thresholds, but they would exceed local emissions thresholds. The emissions of PM_{10} and $PM_{2.5}$ are associated both with fugitive dust due to travel on dirt roads and disturbed areas and vehicle and construction equipment combustion.

PM emissions associated with fugitive dust can be reduced by implementing measures such as watering, maintaining a level of soil moisture and reducing vehicle speeds, and treating roadways, thereby reducing dust generation. These measures are common practice at construction sites and are described in SCAQMD CEQA Guidance documents and in the mitigation measures below, along with the estimated reduction in PM emissions for each measure. Although SCAQMD Rule 403 requires a fugitive dust control plan, the specifics of the plan are left to the Applicant and the SCAQMD. Therefore, details of the plan are provided to ensure that emissions are reduced to below the thresholds.

Mitigation Measure AQ-1a requires the Applicant to submit and implement a Fugitive Dust Control Plan that includes SCAQMD mitigations for fugitive dust mitigation, according to Rule 403, and SCAQMD CEQA Guidelines. The Plan shall also address fugitive dust measure impacts to native habitats.

Mitigation Measure AQ-1b requires the treatment of all dirt roads with water three times per day prior to and during the Drilling and Resting Phase pad clearing to substantially reduce dirt road fugitive dust emissions.

Mitigation Measure AQ-1c requires the treatment of all roads (pave or apply non-toxic soil binders as approved by the Habitat Authority with at least 80% effectiveness) before beginning the development phase pad grading and facility construction to substantially reduce dirt road fugitive dust emissions during those phases of construction.

Mitigation Measure AQ-1d requires the Applicant to implement a NOx reduction program.

Regarding residual impacts, implementing a fugitive dust control plan, reducing distances of dirt road travel, and roadway treatments would ensure that particulate emissions would be less than both the regional and local SCAQMD significance thresholds. Soil binders are relatively non-toxic (for polymers) and they reduce particulate emissions from untreated roadways by more than 80 percent. Note that most of Catalina Ave located within the Preserve is currently paved, although it would need to be re-paved during the construction phase. This reduces emissions of fugitive dust due to travel on roadways.

With regard to NO_x emissions with the Project refinements addressed in Appendix O to the FEIR, truck haul trips will be substantially reduced over what was analyzed in the EIR thereby reducing unmitigated NO_x emissions by 87 lbs./day. Since pipeline construction would occur at the same time, the combined emissions would be less than the SCAQMD thresholds, but only if all of the mitigation elements in AQ-1d are feasible and available (Tier 4 construction equipment, model year 2010 haul trucks, and soil to the landfill).

In addition, during the grading, North Access Road construction, facility construction and pipeline construction, testing emissions would be occurring from the testing flare and the

associated truck trips to transport crude oil and water from the test wells to area refineries. These emissions would contribute to the emissions levels associated with construction and, in combination with the grading and pipeline construction emissions, would exceed the emissions NOx threshold levels for regional emissions.

Since the availability of Tier 4 construction equipment and new diesel trucks that meet the EPA 2010 emissions requirements or the need for fill dirt at the Landfill are unknown, emissions would continue to exceed the regional SCAQMD thresholds for NO_x emissions if these measures cannot be implemented. Therefore, this would remain a significant and unavoidable impact.

This impact remains potentially significant following application of all feasible mitigation.

2. Operational Emissions – Greenhouse Gas Emissions Impact

Operational activities would generate greenhouse gas emissions. Even with the implementation of mitigation, this impact would remain significant and unavoidable.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to attempt to lessen the significant operational greenhouse gas emissions impact. Nevertheless, even with the implementation of AQ-4, impacts will remain significant and unavoidable.

> **AQ-4** The Applicant shall implement a program to quantify and reduce greenhouse gas emissions associated with operations, such as using green electrical power to run equipment, using high efficiency pumps and electrical devices, requiring diesel engines to use biodiesel, or offsite measures that could offset greenhouse gas emissions. Operations GHG emissions levels shall be quantified and reported to the City and to the SCAQMD annually, and, if GHG emissions exceed the SCAQMD thresholds, a GHG emission reduction program shall be implemented to reduce emissions to less than the threshold value of 10,000 metric tonnes CO2e annually. Reductions or offsets of GHG emissions shall be quantified according to applicable protocols, and submitted to the City and AQMD. The reduction program shall focus on onsite and local basin-area methods for GHG reductions.

There are no other feasible mitigation measures that would reduce the Project's operational emissions from potentially exceeding the SCAQMD's emissions thresholds. Accordingly, specific economic, legal, social, technological or other considerations make infeasible other mitigation measures.

(b) Facts in Support of Findings

GHG emissions were estimated utilizing the equipment size and fuel use data that were used to estimate criteria emissions along with emission factors as defined by the CARB and the EPA (see Appendix B for the detailed calculations). GHG associated with operations include emissions from combustion sources (e.g., flare, heater, diesel drilling engines), offsite vehicles, electrical generation, and fugitive emissions that contain CO2 and methane. The largest source of GHG emissions are the heater and the flare, followed by electrical generation.

Emissions associated with stationary equipment, including electrical generation, would exceed the SCAQMD threshold of 10,000 tonnes per year. This would be a significant impact.

Mitigation measures could include a wide variety of measures, from onsite increased efficiency to offsite programs implemented in the community, which could reduce GHG emissions. Onsite measures could include: reduced facility water consumption, waste generation, and material use; recycling to the maximum extent feasible; and using bio-diesel or bio-diesel blends for diesel equipment. Offsite, community-wide measures could include sponsoring retrofitting of diesel buses with hybrid engines and methane-capture technology projects, including methane capture from dairy and agricultural operations. All of these activities would reduce emission of GHG.

Mitigation measure AQ-4 requires annual quantification and reporting of GHG emissions. Several measures could be implemented if GHG emissions exceed the SCAQMD thresholds, potentially including the following for onsite emissions:

• Reducing energy use, including natural gas and electricity, from existing and proposed direct sources, which would reduce GHG emissions from fuel combustion and electrical generation. Reducing water use, raw material use, and waste generation and increasing recycling would also reduce GHG emissions by reducing the energy used to transport and pump water, produce goods, and truck trips.

• Biodiesel (fatty acid methyl ester) is produced from plant crops, such as soybeans. Since it is made from plant sources, the carbon in the biodiesel has been recently removed from the atmosphere and therefore does not contribute to GHG emissions. Diesel vehicles can use biodiesel fuel (UC 2007). The American Society of Testing and Materials has approved a standard for biodiesel at blend levels up to 20 percent by volume, but some engine manufacturers recommend caution with blends greater than 10 percent. Replacement of 10 to 20 percent of diesel fuel with biodiesel would reduce GHG emissions by a proportionate amount. Biodiesel could be used in Project equipment or other engines in the area, such as school buses, to offset direct emissions from the Project.

Programs in the community that could reduce GHG emissions include the following:

• Planting trees removes CO2 from the atmosphere as the tree grows. Trees remove CO2 from the atmosphere through photosynthesis and store, or sequester, the carbon in the tree trunk, branches, and leaves. Tree carbon calculators indicate that a sycamore, 20 inches in diameter (at 4.5 feet height) and 50 feet tall, stores approximately 2.2 metric tonnes of CO2e and grows at a rate that sequesters approximately 0.1 metric tonnes of CO2 per year. Protocols

for forest carbon sequestration would be utilized to ensure reductions are legitimate, such as those developed by the Climate Action Reserve.

• Retrofitting diesel buses with more efficient, hybrid-diesel engines would decrease GHG emissions from buses by increasing fuel economy and efficiency and, by association, decreasing fuel combustion. Diesel-hybrid buses employ technology that includes regenerative braking, electric motors, and battery storage to increase fuel efficiency. Experience in New York City indicates fuel economy efficiencies averaging 26 to 52 percent improvement compared to regular diesel buses. This savings in GHG emissions could be applied to offset the increase in GHG emissions from the proposed Project.

• Installation of solar panels at parking lots, for example, or on City buildings or structures, would reduce the need to generate electricity by area utilities and would therefore reduce emissions of GHG. The installation of approximately 300 solar panels could reduce annual emissions of GHG by approximately 100 tons.

• Obtaining offset credit through the Climate Action Reserve or through the voluntary SCAQMD Regulation XXVII, would decrease GHG emissions impacts. This offset program establishes standards for the development, quantification, and verification of GHG emissions reduction projects; issues carbon offset credits known as Climate Reserve Tonnes generated from such projects; and tracks the transaction of credits. The CARB participates in the program. The Climate Action Reserve has issued more than 10 million Climate Reserve Tonnes.

A combination of these mitigation measures could reduce the GHG emissions to below the SCAQMD threshold of 10,000 tons per year. However, the ability to implement some of these measures is uncertain; therefore, the impacts would still be potentially significant and unmitigable.

B. AESTHETICS

1. Drilling Rig Impact on Public Viewsheds

The drilling rig could degrade public viewsheds. Even with the implementation of mitigation, this impact would remain significant and unavoidable.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to attempt to lessen the significant public viewshed impact caused by the drilling rig. Nevertheless, even with the implementation of mitigation, impacts will remain significant and unavoidable.

> **AE-1a** Landscaping with native vegetation shall be planted at the periphery of the Project Site for the specific purpose of beautifying and screening the operations from adjoining residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to

ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address berms, screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and the Habitat Authority. The Habitat Authority and a certified landscape architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition.

AE-1b Within 30 days of installation, all structures visible from public locations at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a color or textured surface in consultation with the City, so that they are less obtrusive to the surrounding area.

AE-1c The Applicant shall redesign the project footprint, in coordination with the Habitat Authority and the Fire Department, to prevent the removal of the eucalyptus trees on the east side of the project site to preserve the visual shielding that these trees provide.

There are no other feasible mitigation measures that would reduce the Project's public viewshed impact caused by the drilling rig. Accordingly, specific economic, legal, social, technological or other considerations make infeasible other mitigation measures.

(b) Facts in Support of Findings

The proposed drilling rig location would be proximate to recreation areas that contain hiking trails, a scenic overlook, as well as residential areas. Many of the locations offer public visibility of the Puente Hills ranging from views of near-field creeks and wooded areas as well as farther-field views of the hills. The proposed Project may affect public views from hiking trails associated with the recreation areas. Due to the proximity of recreational facilities to the proposed oil field operations, installation of the drilling rig could create significant visual resource impacts that would be perceived as incompatible with adjacent uses.

While the drilling rig would not obstruct scenic views from trails, recreation areas, or residences, placement of the drilling rig could significantly degrade the existing visual conditions within selected viewsheds seen from public trails, recreation areas, and, to a lesser extent, residences. The drilling rig would protract above ridgelines when viewed from the Deer Loop Trail area, thereby exacerbating the impacts associated with a degradation of view quality. Items placed that extend above ridgelines are more noticeable than items placed below ridgelines. However, the drilling rig would generally not be seen protruding above ridgelines from residential areas due in part to terrain and in part due to shielding from area vegetation. The proposed Project drilling rig could create potentially significant visual impacts to public viewsheds.

The drilling rig would be present during the first 3 months of the Project for test drilling, then removed for approximately 2 years, then installed for 5 years or more of Project operations after construction, then removed and brought back only for maximum 3-month periods per year. Therefore, there would be substantial periods in the future when impacts associated with the drilling rig would not be realized.

Mitigation Measure AE-1a requires landscaping with native vegetation be planted at the periphery of the Project Site for the specific purpose of beautifying and screening the operations from adjoining residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address berms, screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and the Habitat Authority. The Habitat Authority and a certified landscape architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition.

Mitigation Measure AE-1b requires that within 30 days of installation, all structures visible from public locations at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a color or textured surface in consultation with the City, so that they are less obtrusive to the surrounding area.

Mitigation Measure AE-1c requires the Applicant to redesign the project footprint, in coordination with the Habitat Authority and the Fire Department, to prevent the removal of the eucalyptus trees on the east side of the project site to preserve the visual shielding that these trees provide.

Regarding residual impacts, measures to either beautify or effectively screen the proposed Project drilling rig from view would reduce impacts. However, the drilling rig mast and views of the drilling rig from the preserve trails and the Preserve viewing area would continue to be visible and degrade the existing visual conditions. The drilling rig would be minimally visible from most residential areas since it would not extend above the ridge lines and existing vegetation would shield it in the neighborhoods where it might be visible, such as the slightly elevated terrain areas just south of Mar Vista Road, which potentially have views up Canada Canyon or along Catalina Road.

The eucalyptus trees currently located on the east side of the proposed Project site would provide substantial visual shielding of the project equipment and drilling rig. With the installation of a berm on the east side of the site, the Project equipment would be shielded. However, the drilling rig would still be visible from the Deer Loop Trail. By redesigning the Project, the eucalyptus trees could remain. This measure would reduce the impacts from the Deer Loop Trail location to less than significant as the drilling rig would only be visible through the trees. Impacts from other viewing locations, such as the viewing area, would remain significant and unavoidable.

Figure 4.6-19 in the EIR shows the view from the Preserve viewing area with mitigation, including painting the drilling rig and placing a berm and planting vegetation to the

immediate east of the facilities. The berm is assumed to be 15 feet high and about 350 feet in length extending from the Deer Loop Trail up the ridge to the north. The berm would require about 10,000 yds3 of material, which could be available as there would be excess cut associated with the project. Although impacts would be reduced, they would still be significant and unavoidable due to the drilling rig mast.

Some rigs exist that can drill to 10,000 foot depth and have a mast height of less than 85 feet. The Ensign Rig #535, for example, is a rig owned by Ensign United States Drilling Company, has a mast height of 70 feet and can drill to 10,000 foot depth with similar equipment arrangements and capacities. The use of this drilling rig would most likely reduce the visual impacts to less than significant from all viewing locations. However, the availability of this type of rig is not known.

Therefore, the impacts to public viewsheds would be reduced but still significant and unavoidable.

A. HYDROLOGY AND WATER QUALITY

1. Surface Water and Groundwater Quality Degradation

A rupture or leak during oil drilling operations, from pipelines, or other infrastructure could substantially degrade surface water and groundwater quality. Even with the implementation of mitigation, this impact would remain significant and unavoidable.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to attempt to lessen the significant surface water and groundwater quality degradation impact. Nevertheless, even with the implementation of mitigation, impacts will remain significant and unavoidable.

WR-4a The City of Whittier and other appropriate agencies shall inspect facility conditions at the Project Site on a yearly basis. Inspections shall also occur after earthquake induced land movement or upon periods of large rainfall in order to verify no leak or rupture risks have developed. Inspections shall be completed by personnel with oilfield operations inspection experience (petroleum engineer or equivalent). Inspection and violation records shall be available to the public for review within 5 working days of inspections.

WR-4b The Applicant shall properly maintain the associated crude oil pipelines, storage tanks and processing facilities within and outside the Preserve, including smart-pigging according to State of California Office of the State Fire Marshal requirements

and the standards outlined by the Department of Oil, Gas and Geothermal Resources, and the Regional Water Quality Control Board. Pipeline, tank and processing inspections, including walking the pipelines within the Preserve, shall occur at least daily.

WR-4c The Applicant shall install a leak detection system for crude pipelines in the Preserve and the Colima Road pipeline. The system shall include pressure and flow meters, flow balancing, supervisor control and data acquisition system, and a computer alarm system in the event of a suspected leak. Temperature, pressure, and flow shall be monitored at each pipeline entry and exit. If any variable deviates by more than 10 percent of the normal operating range, the system shall trigger both audible and visual alarms. Flow balancing shall be conducted every 5 minutes, 1 hour, 24 hours, and 48 hours with the accuracy defined once the system is established and tested.

There are no other feasible mitigation measures that would reduce the Project's surface water and groundwater quality degradation impact. Accordingly, specific economic, legal, social, technological or other considerations make infeasible other mitigation measures.

(b) Facts in Support of Findings

Up to 60 wells would be drilled at the Project Site, from three separate well cellars. The wells would be used for oil and gas production and water injection. The produced oil and gas would be separated into gas, oil, and water streams. The oil would be processed to remove any remaining water and then the dry oil would be temporarily stored in tanks and shipped via pipeline or trucks to local Los Angeles area refineries. The produced water would be sent to injection wells, where the water would be injected back into the producing formation. The produced gas would be sent to the existing gas plant, where water and gas liquids would be removed.

Proposed drilling and oil processing operations could result in oil spills due to geologic hazards, mechanical failure, structural failure, corrosion, or human error during any of the steps outlined above. Among other geologic hazards, the Whittier Fault underlies portions of the Whittier Oil Field. An active segment of the fault trends approximately 1,500 feet north of the Project Site and 1,500 feet northeast of the proposed pipeline alignment, at the closest point. The most likely spills from the facility would involve crude oil and/or produced water. Such spills could potentially result in water quality impacts to creeks and shallow groundwater. Small leaks or spills, which are contained and remediated quickly, may have minor or negligible impacts to water resources. In contrast, large spills, such as those that could be produced from a tank rupture at the processing facility, well blow-out, or pipeline rupture, could spread to surface waters and/or groundwater and may substantially degrade water quality, with potential long-term impacts to beneficial water uses and biological resources.

La Canada Verde Creek is located immediately adjacent to the Project Site and several other creeks are present along the proposed pipeline route. Although some of the more toxic components of oil, e.g., volatile organic compounds, would be lost rapidly due to aeration, i.e., volatilization, spills and associated contaminated stormwater runoff reaching any of these waterways could have significant, and widespread impacts to water quality and consequently, sensitive biological resources. Similarly, spills could result in significant, long-term contamination of groundwater in alluvial soils located in these creeks, as these soils are generally unconsolidated and permeable and perched groundwater occurs at relatively shallow depths. Therefore, the impacts could be considered potentially significant.

Under worst-case conditions, maximum estimated spill volumes would be from a catastrophic failure of one of the largest crude oil tanks that have a capacity for approximately 11,000 barrels. The tank area would be surrounded by a concrete retaining wall, sufficient in height to retain 110 percent of the volume of the largest tank. Likewise, all other vessels throughout the facilities would be walled or bermed for spill containment. Although secondary containment would be present surrounding the storage tanks, the worst case scenario would involve a full release of the tank's contents as a result of severe seismically induced ground shaking and associated ground failure. The frequency of a release of crude oil from proposed storage/pumping areas, beyond proposed containment, would be once every 1,029,469 years.

A worst-case scenario for pipeline rupture would be a rupture at the tie-in along Leffingwell Avenue, which could result in complete draining of the pipeline, or approximately 3,700 barrels, back to the Preserve boundary. A release of crude oil from piping/equipment outside of containment areas within the Preserve, due to rupture or leak, is once every 12 years, but this probability does not necessarily represent large spills.

The potential for rupture of the wellhead area during drilling is once every 33 years. Blow-out prevention systems are proposed to be used during the drilling operations to prevent uncontrolled release of reservoir fluids and shut off the flow to prevent spills and releases of materials that could cause fires and explosions. The safety systems are composed of a stack, actuation systems, a choke manifold, kill systems, and other equipment. Such systems would be placed on each wellhead during drilling and removed after the well is established. In addition, impacts would be reduced with implementation of the following measures:

Mitigation Measure WR-4a requires the City of Whittier and other appropriate agencies to inspect facility conditions at the Project Site on a yearly basis. Inspections shall also occur after earthquake induced land movement or upon periods of large rainfall in order to verify no leak or rupture risks have developed. Inspections shall be completed by personnel with oil-field operations inspection experience (petroleum engineer or equivalent). Inspection and violation records shall be available to the public for review within 5 working days of inspections.

Mitigation Measure WR-4b requires the Applicant to properly maintain the associated crude oil pipelines, storage tanks and processing facilities within and outside the Preserve, including smart-pigging according to State of California Office of the State Fire Marshal requirements and the standards outlined by the Department of Oil, Gas and Geothermal

Resources, and the Regional Water Quality Control Board. Pipeline, tank and processing inspections, including walking the pipelines within the Preserve, shall occur at least daily.

Mitigation Measure WR-4c requires the Applicant to install a leak detection system for crude pipelines in the Preserve and the Colima Road pipeline. The system shall include pressure and flow meters, flow balancing, supervisor control and data acquisition system, and a computer alarm system in the event of a suspected leak. Temperature, pressure, and flow shall be monitored at each pipeline entry and exit. If any variable deviates by more than 10 percent of the normal operating range, the system shall trigger both audible and visual alarms. Flow balancing shall be conducted every 5 minutes, 1 hour, 24 hours, and 48 hours with the accuracy defined once the system is established and tested.

This impact remains potentially significant following application of all feasible mitigation.

B. LAND USE AND POLICY CONSISTENCY

1. Views of Project Facility Equipment

Views of drilling rigs, construction, and potential future operations could be incompatible with adjacent land uses. Even with the implementation of mitigation, this impact would remain significant and unavoidable.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to attempt to lessen the significant view impact caused by project facility equipment. Nevertheless, even with the implementation of mitigation, impacts will remain significant and unavoidable.

> **AE-1a** Landscaping with native vegetation shall be planted at the periphery of the Project Site for the specific purpose of beautifying and screening the operations from adjoining residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address berms, screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and the Habitat Authority. The Habitat Authority and a certified landscape architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition.
>
> **AE-1b** Within 30 days of installation, all structures visible from public locations at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a

color or textured surface in consultation with the City, so that they are less obtrusive to the surrounding area.

There are no other feasible mitigation measures that would reduce the Project's view impact caused by project facility equipment. Accordingly, specific economic, legal, social, technological or other considerations make infeasible other mitigation measures.

(b) Facts in Support of Findings

Introducing oil field production equipment and grading or other site preparations may create potentially significant visual impacts on surrounding land uses.

Implementing mitigation measures AE-1a and AE-1b would screen the visibility of equipment or conceal it from view and would reduce these visual impacts.

Drilling rigs would introduce an industrial component to some views currently free of industrial aspects. Due to the size and height of the drilling rigs and their extension above tree lines and mountain horizon lines, the rig would strongly contrast with the surrounding environment.

Introducing this industrialized component to the viewsheds could impact the quality of life for some residents and visitors to the area. Specifically, the quality of recreational experiences at the Arroyo Pescadero Trailhead, a popular trail that is highly utilized by recreational users in the area, could also be impacted by the proposed Project equipment. Mid-field views from the neighboring residential streets present a level of industrialization and architectural projection that contrast with the surrounding environment. Therefore, the impacts to adjacent land uses would be significant and unavoidable.

This impact remains potentially significant following application of all feasible mitigation.

C. RECREATION

1. Public Viewsheds Impact From Operation and Drilling

New drilling and operations would adversely affect public viewsheds. Even with the implementation of mitigation, this impact would remain significant and unavoidable.

(a) Findings

Changes or alterations have been required in, or incorporated into the Project to attempt to lessen the significant public viewshed impact caused by operations and drilling. Nevertheless, even with the implementation of mitigation, impacts will remain significant and unavoidable.

AE-1a Landscaping with native vegetation shall be planted at the periphery of the Project Site for the specific purpose of beautifying and screening the operations from adjoining

residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address berms, screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and the Habitat Authority. The Habitat Authority and a certified landscape architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition.

AE-1b Within 30 days of installation, all structures visible from public locations at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a color or textured surface in consultation with the City, so that they are less obtrusive to the surrounding area.

There are no other feasible mitigation measures that would reduce the Project's public viewshed impact caused by operations and drilling. Accordingly, specific economic, legal, social, technological or other considerations make infeasible other mitigation measures.

(b) Facts in Support of Findings

The proposed Project Site would be in close proximity to portions of the Deer Loop Trail and some of the Arroyo Pescadero Loop Trail in the Arroyo Pescadero Trailhead. Drilling would occur for 3 months during the testing phase, for 5 years during the initial operations period, and for up to 3 months a year thereafter.

Several of the views from recreational locations on the Arroyo Pescadero Trailhead offer public visibility of the proposed Project Site that would be significantly altered as a result of the potential oil field development. Impacted views include those immediately adjacent to the trails as well as views of proposed facilities situated at considerably greater distances along viewshed-defining ridgelines where they commonly protrude into the skyline.

Further, adverse recreational impacts could result from site grading the natural terrain, removing natural vegetation, and introducing concentrations of oil field industrial development that would be perceived as incompatible with adjacent uses. A Drilling rig would introduce an industrial component to numerous views that do not currently contain industrial aspects in their viewsheds. Due to the size and height of the drilling rig (125 feet) and their extension above tree lines and horizon lines, they would strongly contrast with the surrounding environment.

Implementation of mitigation measures AE-1a and AE-1b is recommended. However, impacts from new drilling and operations to recreation would be considered significant.

This impact remains potentially significant following application of all feasible mitigation.

VI. Project Alternatives.

The City of Whittier considered a reasonable range of alternatives to the proposed Project, including the No Project Alternative, the Savage Canyon Landfill Alternative, the Lambert Railroad Right-of-Way Alternative, and the Loop Trail Road Alternative.

The City also considered other alternatives, but ultimately these alternatives were not pursued for further analysis in the EIR based on the screening analysis contained in Section 5 of the EIR. This screening analysis included whether: (1) the alternative was technically feasible; (2) whether the alternative would lessen the potentially significant impacts of the proposed Project; and (3) whether the alternative would attain most of the basic objectives of the Project. The alternatives not considered for further analysis included the North Site Alternative, the Upper Canada Canyon Alternative, the Consolidated Upper Colima Road Site Alternative, and the Historical Chevron Processing Facility Alternative. Based on the screening analysis, the EIR did not consider these other alternatives in detail.

The No Project Alternative, the Savage Canyon Landfill Alternative, the Lambert Railroad Right-of-Way Alternative, and the Loop Trail Road Alternative were analyzed in the EIR and are discussed below with the basis for rejecting each of these alternatives as infeasible.

A. NO PROJECT ALTERNATIVE

1. Summary of Alternative

CEQA requires the discussion of the No Project Alternative "to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project."

The No Project Alternative would neither install processing equipment nor conduct well drilling operations. The Applicant's proposed Project is construction and operation of drilling and production facilities for exploration and production of oil and gas resources from the Whittier Main Oil and Gas Field. With the No Project Alternative, the field would not be developed and the resources of the field would not be utilized. No new equipment would be installed within the Preserve.

2. Reasons for Rejecting Alternative: Infeasibility

With the No Project Alternative, no development of the oil and gas resources would occur. There would be no drilling and no construction of the access road or processing facility. None of the impacts associated with the proposed Project would occur. No new impacts would occur under the No Project Alternative. However, the No Project Alternative would not meet many of the project objectives, including City Objectives to generate a substantial, long-term income stream for the City, and to facilitate the long-term preservation and enhancement of the Preserve's ecological resources and native habitat through this income stream. Further, the No Project Alternative would fail to meet all of Matrix's Objectives. For these reasons, the City Council rejects this alternative as infeasible.

The City Council hereby finds that each of the reasons set forth above would be an independent ground for rejecting the No Project Alternative as infeasible, and by itself, independent of any other reason, would justify rejection of the No Project Alternative as infeasible.

B. THE SAVAGE CANYON LANDFILL ALTERNATIVE

1. Summary of Alternative

Under this alternative, oil drilling and processing would be located within the existing Savage Canyon Landfill, which is owned by the City of Whittier. Drilling from the Savage Canyon Landfill would be able to reach into some of the reservoirs included in the minerals rights owned by the City. All processing equipment would be installed at the Landfill and drilling would take place at the Landfill immediately adjacent to the processing area. Facility locations within the Landfill would be limited, primarily due to the location of existing, buried waste and topography. Pads under the oil and gas facilities could not be located over previously buried waste, and the pads would preferably be in areas that would not protrude substantially into areas designated for future waste to minimize the effect on the Landfill life. Most of these areas are steep canyons, such as those south and east of the Landfill. Existing waste could be relocated from areas favorable to an oil and gas plant in a process known as "clean closure." Clean closure status can be obtained by the landfill operator with certification from the Regional Water Quality Control Board. In either case, locating the facilities at the Landfill would encroach on areas intended for future waste burial and would therefore decrease the planned life of the Landfill.

2. Reasons for Rejecting Alternative: Infeasibility

The Landfill Site Alternative has advantages over the proposed Project because it would be farther from residential locations and would be located entirely outside of the Preserve. This reduces the impact in biology, safety and risk of upset, as well as noise, air quality and odors. However, none of these are significant impacts associated with the proposed Project.

As there would not be any development within the Preserve, there would be benefits in terms of policies related to biology, impacts to nursery and nesting areas within the core habitat area, and reducing the total loss of habitats. In addition, impacts to wildlife movement for this Alternative would be less than those described for the Proposed Project, which is located within the Preserve where wildlife are less accustomed to human disturbances. In addition, there would not be any traffic utilizing Catalina Avenue and Mar Vista Street and traffic impacts would be reduced over the proposed Project as Penn Street currently operates at an acceptable level of service.

The disadvantages of this alternative over the proposed Project are that there would be a substantial reduction in the amount of oil that could be recovered from the reservoirs, estimated at recovering 52 to 59 percent of the amount that the proposed Project could recover. There would also be potential impacts to the life of the Landfill as the development could infringe upon areas of the Landfill that are planned for future waste disposal. In addition, there could still be biological impacts to occupied California gnatcatcher habitat and to the wildlife corridor

as the location is closer to "High Quality" habitat, thereby potentially impacting wildlife movements through the corridor. Finally, permitting of oil and gas facilities within a Landfill operation is considered speculative and the outcome of an application for such a Project is unknown.

This alternative would generate six significant unavoidable impacts, the same as the proposed Project. It would not have the recreational impact associated with proximity to recreational users than the proposed Project has, but would have an additional significant and unavoidable impact associated with land use issues related to permitting and Landfill life.

Finally, this Alternative would fail to meet a number of project objectives, including providing long-term resources to help manage environmental issues associated with the Project within the Preserve, and the objective of facilitating the long-term preservation and enhancement of the Preserve's ecological resources and native habitat. This is so, because funding for this preservation may not be as robust as the exploration would not occur within the Preserve and less production may occur with this Alternative. Further, Matrix's objective to maximize oil and gas production from the field thereby maximizing royalty payments to the City would also not be met. Thus, due to the failure to meet these project objectives, and because of the potential land use impact associated within permitting, this alternative is deemed infeasible.

The City Council hereby finds that each of the reasons set forth above would be an independent ground for rejecting the Savage Canyon Landfill Alternative as infeasible, and by itself, independent of any other reason, would justify rejection of the Savage Canyon Landfill Alternative as infeasible.

C. THE LOOP TRAIL ROAD ALTERNATIVE

1. Summary of Alternative

Under this alternative, access to the proposed Project site would be provided along the Loop Trail Road that is accessed through a gate along Colima Road located immediately south of the Preserve parking area along Colima Road. The Loop Trail Road is currently only used by recreational hikers and Preserve rangers to access the Loop Trail and Arroyo Pescadero area within the Preserve. Most of the Loop Trail Road is currently used as a recreational trail, called the Deer Loop Trail, which is accessed from the Preserve parking lot along Colima Road. The proposed Project proposes to install the sales gas pipeline and crude oil pipeline underneath this roadway in order to access pipelines that could take the products to market along Colima Road.

The Loop Trail Road access route takes a somewhat circuitous route from Colima Road to the proposed Project site, with the entrance gate located off of Colima and immediately adjacent to residences located along Lodosa Drive. The Loop Trail Road then turns north and continues up Arroyo Pescadero Canyon before heading west and crossing the creek. It then heads in a southwesterly direction before passing through a chain-gate and entering the area of the Preserve that is off-limits to recreational users. It then arrives at the proposed Project site.

The road is currently partially paved and dirt and is somewhat overgrown. It would need to be widened and improved to provide Project access. The entry and exit onto and off of

Colima Road would need to be re-aligned to intersect with the new traffic signal that was installed in connection with the Whittier Area Community Church. This re-alignment would allow for a smoother and controlled flow of project traffic onto and off of Colima Road.

Under this alternative, the Loop Trail Road would be used for the construction and operational phases of the project. Catalina Avenue would continue to be used for the Drilling and Testing phase.

2. Reasons for Rejecting Alternative; Infeasibility

This alternative has the advantage over the proposed Project North Access Road in that it allows for Project traffic to directly access an arterial roadway instead of utilizing more residential collector roadways such as Penn Street. Penn Street is a two lane roadway that has residences with driveways that directly access the street, and is host to periodic events associated with the William Penn Park and Whittier College. These events impact the neighborhood by periodically increasing traffic and limiting parking. Colima Road, on the other hand, is a four lane arterial, more major roadway. Traffic levels on Penn Street average close to 2,700 vehicles per day while traffic on Colima Road averages close to 36,000 vehicles per day. The Loop Trail Road alternative, like the North Access Road, would prevent traffic impacts along Mar Vista Street and Catalina Avenue during the construction and operations phases.

In addition, the Loop Trail Road would reduce impacts to individual wildlife and the wildlife travel corridor located in the Preserve's Core Habitat associated with the North Access Road. Although this alternative does direct more traffic towards the important wildlife corridor within the Service Tunnel, the end of the Loop Trail Road and Colima Road intersection is more than 2,000 feet away from the Service Tunnel and therefore not expected to substantially interfere with the Tunnel's use as a travel corridor.

However, the Loop Trail Road is currently used as a recreational trail (the Deer Loop Trail). Noise levels would increase for both recreational and residential receptors located close to the Loop Trail Road. Noise levels for recreational users would increase by more than the 5 dBA threshold and would be considered a significant and unavoidable impact.

The roadway and accompanying traffic would also be visible from nearby residences and recreational areas and trails in close proximity to the Loop Trail Road. This would degrade the visual quality for both residences and recreational users and would be considered a significant impact. Installing berm walls and vegetation, as per mitigation measure AE-1a, could reduce the impacts of the use of the Loop Trail Road by Project vehicles but would also block existing views of the Preserve from residences. Even with mitigation, therefore, this would still be a significant and unavoidable impact.

These impacts could be somewhat mitigated by the development of new trails, but the recreational experience of the Arroyo Pescadero Canyon and trails would be significantly impacted by the passage of traffic through the area.

Finally, based on the recreational impacts noted above, this Alternative would fail to meet many of the project objectives. For instance, it would add to impacts to recreational and

educational opportunities in the Preserve, and would increase noise impacts to surrounding areas. For these reasons, the City Council rejects this alternative as infeasible.

The City Council hereby finds that each of the reasons set forth above would be an independent ground for rejecting the Loop Trail Road Alternative as infeasible by itself, and independent of any other reason would justify rejection of the Loop Trail Road Alternative as infeasible.

D. THE LAMBERT RAILROAD PIPELINE RIGHT-OF-WAY ALIGNMENT ALTERNATIVE

1. Summary of Alternative

Under this Alternative, Matrix would construct the crude oil pipeline connection down Colima Road to Lambert Road and then onto the railroad right-of-way along Lambert Road to a tie-in to the Crimson California Pipeline System at the intersection of Lambert Road and Leffingwell Road. This alternative alignment would have advantages over the proposed Project since it would avoid impacts related to construction within a roadway (La Mirada Boulevard). However, this alignment is approximately 0.35 miles longer than the alignment in the proposed Project and may present some leasing and permitting difficulties with the right-of-way along the railroad.

2. Reasons for Rejecting Alternative: Infeasibility

This Alternative would be advantageous since there would be construction of less pipeline within area streets, thereby reducing impacts and traffic. Since the alternative pipeline would be slightly longer, however, it may increase total air emissions due to the additional construction requirements. This may be an additional impact over that of the proposed Project. Further, there are potential leasing and permitting difficulties with this Alternative that may make this Alternative legally infeasible.

The City Council hereby finds that each of the reasons set forth above would be an independent ground for rejecting this Alternative as infeasible, and by itself, independent of any other reason, would justify rejection of this Alternative as infeasible.

E. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project Alternative is the only alternative that would avoid the significant unavoidable project-related and cumulative impacts identified for the proposed Project; however, the No Project Alternative would not meet any of the proposed project objectives.

The EIR identified the proposed Project site with the inclusion of the Lambert Railroad Right-Of-Way Pipeline Route Alternative as the environmentally preferred alternative. However, before doing so, the EIR discussed the other various alternatives.

The Savage Canyon Landfill Alternative could reduce some impacts of the proposed Project as the alternative would locate all facilities outside of the Preserve. Additionally, it could reduce impacts on recreational areas as the alternative Landfill site is not located

immediately to adjacent areas. Nevertheless, with this Alternative, there would be a potential reduction to the landfill life and there would be difficulties associated with permitting the alternative within an operating landfill. There would also be a reduction in oil production from this Alternative thereby not meeting the project objectives to providing funding and a revenue source for preservation of the Preserve.

Additionally, the Loop Trail Road Alternative would introduce new impacts in the form of significant and unavoidable impacts related to noise and aesthetic impacts on recreational users. In contrast, the Project as proposed in the EIR would not cause these same impacts.

Finally, the Lambert Railroad Right-Of-Way Pipeline Alternative route presents advantages over the proposed Project pipeline route as it is less disruptive to traffic.

Therefore, the proposed Project with the Lambert Railroad Right-Of-Way Pipeline Alternative is considered to be the Environmentally Preferred Alternative, because it meets the all of the project objectives and has less impacts than all the alternatives considered.

F. THE PROJECT AS PROPOSED

1. Summary of Project

The Project is described in detail in the EIR.

2. Reasons for Selecting Project as Proposed

The Planning Commission has carefully reviewed the attributes and environmental impacts of all the alternatives analyzed in the FEIR and has compared them with those of the proposed Project. The Planning Commission finds that each of the alternatives is infeasible for various environmental, economic, technical, social, or other reasons set forth above. The Planning Commission further finds that the Project as proposed is the best combination of features to serve the interest of the public and achieve the project goals.

More specifically, the Project as proposed would develop the site and bring in additional revenue for the City and the most funding for the preservation of the Preserve by yielding the most production. For all of these reasons, the City Council selects the Project as proposed.

EXHIBIT B

Statement of Overriding Considerations

The following Statement of Overriding Considerations is made in connection with the proposed approval of the Whittier Main Old Field Development Project (the "Project").

CEQA requires the decision-making agency to balance the economic, legal, social, technological or other benefits of a project against its unavoidable environmental risks when determining whether to approve a project. If the benefits of the project outweigh the unavoidable adverse effects, those effects may be considered acceptable. CEQA requires the agency to provide written findings supporting the specific reasons for considering a project acceptable when significant impacts are unavoidable. Such reasons must be based on substantial evidence in the EIR or elsewhere in the administrative record. The reasons for proceeding with this Project despite the adverse environmental impacts that may result are provided in this Statement of Overriding Considerations.

The Planning Commission finds that the economic, social and other benefits of the Project outweigh the significant and unavoidable air quality, aesthetics, hydrology and water quality, land use and policy consistency, and recreation related effects identified in the Final EIR and the record of proceedings. In making this finding, the Planning Commission has balanced the benefits of the Project against its unavoidable impacts and has indicated its willingness to accept those adverse impacts. The Planning Commission finds that each one of the following benefits of the Project, independent of the other benefits, would warrant approval of the Project notwithstanding the unavoidable environmental impacts of the Project as identified in the Final EIR.

A. The development of the Whittier Main Oil Field Development Project will provide restoration activity benefits in the Preserve as part of the Project.

B. The proposed Project will provide a stable source of funding for the Habitat Authority for as long as the wells produce oil and gas, thereby ensuring a long-term funding source for restoration within the Preserve.

C. The development of the Project will provide the City with royalty benefits that can be used to benefit City residents through public services and infrastructure improvements.

D. The development of the Project will stimulate the local economy by providing opportunities for qualified local businesses to sell goods and services to workers.

E. The development of the Project will provide jobs to the area through construction and operation of the Project.

The Planning Commission finds that the foregoing benefits outweigh the identified significant adverse environmental impacts. The Planning Commission further finds that each of the individual Project benefits discussed above outweighs the unavoidable adverse environmental effects identified in the Final EIR and therefore finds those impacts to be acceptable. The Planning Commission further finds that each of the benefits listed above,

standing alone, is sufficient justification for the Planning Commission to override these unavoidable environmental impacts.

EXHIBIT C

Mitigation Monitoring and Reporting Program

Impact	Mitigation Measure	Compliance Verification		
		Method	**Timing**	**Responsible Party**
AQ.1: Construction activities would generate emissions that exceed South Coast Air Quality Management District thresholds (Significant and Unavoidable).	AQ-1a The Applicant shall submit and implement a Fugitive Dust Control Plan that includes SCAQMD mitigations for fugitive dust mitigation, according to Rule 403, and SCAQMD CEQA Guidelines. The Plan shall also address fugitive dust measure impacts to native habitats. Fugitive dust mitigation measures in the plan should include the following: - Apply water every 3 hours to disturbed areas within a construction site (61% reduction). - Require minimum soil moisture of 12% for earthmoving, by using a moveable sprinkler system or water truck. Moisture content can be verified by lab sample or moisture probe (69% reduction). Limit on-site vehicle speeds on unpaved roads to 15 mph with radar enforcement (57% reduction) and posting of speed limits. - Replace ground cover, approved by the Habitat Authority, in disturbed areas as quickly as possible (5% reduction). All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches (91% reduction) - Install gravel bed trackout apron (3 inches deep, 25 feet long, 12 feet wide per lane, and edged by rock berm or row of stakes) to reduce mud and dirt trackout from unpaved truck exit routes (46 to 80% reduction). - Water industrial unpaved road three times per day (61% reduction). - Water storage piles by hand or apply cover when wind events are declared, according to SCAQMD Rule 403 when instantaneous wind speeds exceed 25 miles per hour (90% reduction). - Appoint a construction relations officer to act as a community liaison concerning onsite construction issues, such as dust generation.	Review of plan and inspection during construction and operations	Before construction and operations	City of Whittier and SCAQMD
	AQ-1b Treat all dirt roads with water three times per day prior to and during the Drilling and Testing Phase pad clearing to substantially reduce dirt road fugitive dust emissions.	Inspection of test drilling clearing and drilling	Before and during test drilling	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
		activities		
	AQ-1c Treat all roads (pave or apply non-toxic soil binders as approved by the Habitat Authority with at least 80% effectiveness) before beginning the development phase pad grading and facility construction to substantially reduce dirt road fugitive dust emissions during those phases of construction.	Inspection before facility construction and pad grading	Before pad grading/facility construction	City of Whittier
	AQ-1d The Applicant shall implement a NOx reduction program including the following, or equivalent, measures: - All off-road construction equipment shall be tuned and maintained according to manufacturers' specifications. - Any temporary electric power shall be obtained from the electrical grid, rather than portable diesel or gasoline generators. - Soil hauling shall be coordinated with the Savage Canyon Landfill to receive the soil to limit haul truck travel distance, and utilize trucks that comply with the EPA 2010 model year emissions requirements. - All off-road diesel construction equipment with greater than 100-horsepower engines shall meet Tier 4 NOx requirements. If the lead agency determines that a Tier 4 fleet or portion thereof cannot be obtained, the lead agency shall require the use of construction equipment that meets Tier 3 emissions requirements or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction. - During the pad and access road grading phase, all off-road dump trucks shall meet EPA 2010 model year NOx emission requirements. If the lead agency determines that a 2010 model year truck fleet or portion thereof cannot be obtained the lead agency shall require the use of trucks that meet EPA 2007 model year NOx emissions requirements. If the Project's fleet requirements cannot be met with 2010 or 2007 EPA model year truck emissions or portion thereof the lead agency shall require a certified NOx emissions level of less than 2.0g/bhp-hour for trucks used at the Project Site during the pad and access road grading phase. - Limit onsite truck idling to less than 5 minutes. - A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.	Inspection of engine certifications	Before construction	City of Whittier
AQ.2: Operational activities would	AQ-2a The Operator shall comply with all SCAQMD regulations, including but not limited to Regulation IV (Prohibitions), Regulation XIII (New Source	Inspection of offsets	Before operations	SCAQMD

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
generate emissions that exceed South Coast Air Quality Management District thresholds (Less Than Significant With Mitigation).	Review), Regulation XI (Source Specific Standards), and Regulation XIV (New Source Review for Toxic Air Contaminants). The operator shall implement best available control technology and obtain emission offsets as required by SCAQMD Regulation XIII and/or Regulation XX for new and modified permitted emission sources. Emission offsets are required for all emission increases associated with stationary sources, thus, minimizing the impacts associated with emissions from stationary sources.	compliance		
	AQ-2b The Applicant shall implement a program to reduce NOx, VOC, and PM emissions, including: - All drilling engines shall meet EPA Tier 3 emissions levels, or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction, or utilize electric engines. - Treat all used Preserve dirt roads that will be used (gravel or apply soil binders with at least 80% effectiveness) or pave all Preserve dirt roads that will be used during test drilling. - Limit onsite truck idling to less than 5 minutes. - Electrify service equipment and auxiliary power units where feasible. - Use clean street sweepers during operations. Pave roads and road shoulders during operational phase. - Utilize trucks that meet EPA 2010 emission standards and off-road equipment that meets EPA 2015 emissions levels to the extent feasible. - A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized. - Install only internal floating roof tanks, or utilize a more efficient vapor recovery system for handling organic liquids (crude oil) or some other equivalent method to reduce fugitive emissions to less than the SCAQMD CEQA thresholds. - Use low-emissions flare systems to achieve flare NOx emissions of less than 0.06 lb/mmBTU, according to SCAQMD BACT requirements. - Limit flaring and drilling during the peak day to the equivalent of drilling and full-flow flaring combined to less than 3 hours per day (at full gas plant flow or the equivalent throughput) or limiting flaring only to less than 4 hours per day (at full gas plant flow or the equivalent throughputs). - Prohibit use of workover rigs at the same time as drilling rigs to reduce	Inspection of engine certifications	Before drilling	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	peak day emissions- Further reduce NOx emission by either (1) Purchasing emission offsets to reduce remaining NOx emissions to less than significant levels or (2) utilizing Tier 4 engines on the drilling rig sufficient to reduce daily emissions to less than the thresholds, or (3) electrifying all or portions of the drilling rig engines to reduce NOx emissions to less than the thresholds.			
AQ.3: Potential operations and drilling at the Whittier Main Oil Field would create odor events (Less Than Significant With Mitigation).	AQ-3a The Operator shall have a gas buster and SCAQMD-approved portable flare at the oil field and available for immediate use to circulate out and combust any gas encountered during drilling. The flare shall be capable of recording the volume of gas that is flared. The operator shall report any flared gas from drilling to the Los Angeles County Fire Chief and the SCAQMD.	Inspection of drilling site	Before drilling	City of Whittier
	AQ-3b The Operator shall install a detection system that will monitor vapor space on all crude oil tanks. The detection system shall be capable of monitoring pressure in the vapor space of the tanks and notifying the operator via an alarm when the pressure in the tanks gets within 10 percent of the tank relief pressure. If the tank pressure exceeds the relief pressure, the Operator shall report the incident to the SCAQMD as a breakdown pursuant to Rule 430, and submit a report of the breakdown to the Los Angeles County Fire Chief and the SCAQMD, which shall detail the corrective actions the Operator shall take to avoid exceeding the tank relief pressure.	Inspection of crude tanks	Before operations	City of Whittier
	AQ-3c The Operator shall develop an Odor Minimization Plan. The Odor Minimization Plan shall address potential sources of odors from all oil field equipment, including wells and drilling operation, and measures to reduce or eliminate these odors (e.g., containment, design modifications, carbon canisters). The Plan shall address issues such as facility information, buffer zones, signs with contact information, logs of odor complaints, the protocol for handling odor complaints and odor event investigations and methods instituted to prevent a re-occurrence.	Inspection of plan and signage	Before drilling	City of Whittier
	AQ-3d The Operator shall develop an Air Monitoring Plan. The Plan shall provide for the monitoring of total hydrocarbon vapors and hydrogen sulfide at each well drill and re-drilling site and total hydrocarbon vapors at the gas plant. At all times during drilling and redrilling operations, the Operator shall maintain monitoring equipment that shall monitor and digitally record	Inspection of plan and equipment	Before drilling	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	the levels of hydrogen sulfide and total hydrocarbon vapors. Monitors shall be installed at the edge of the drill pad and around the outer edge of the gas plant. Such monitors shall provide automatic alarms that are audible or visible to the Operator of the drilling equipment for the drill rig monitors, and gas plant for the gas plant monitors, and shall be triggered by the detection of hydrogen sulfide or total hydrocarbon vapors. Alarm points shall be set at a maximum of 5 and 10 ppm H_2S and 500 and 1,000 ppm hydrocarbons, with the higher level requiring shut-down of drilling or gas plant operations and notification to appropriate agencies, including the Los Angeles County Fire Department and SCAQMD. A meteorological station to monitor wind speed and direction under the guidance and specification of the SCAQMD shall be installed at the Processing Site, or applicable location.			
	AQ-3e The Operator shall use an odor suppressant spray system or vapor capture hood and carbon filter system on the mud shaker tables, and shall install carbon capture canisters on all tanks (permanent and portable) that are not equipped with vapor recovery, containing potentially odiferous materials (for example; the mud baker-type tanks) for all drilling operations so that no odor can be detected at the closest receptor (e.g., residences, hiking trails, Ranger Residence).	Inspection of drilling operations	During drilling	City of Whittier
AQ.4: Potential operations and drilling at the Whittier Main Oil Field would increase greenhouse gas emissions (Significant and Unavoidable).	AQ-4 The Applicant shall implement a program to quantify and reduce greenhouse gas emissions associated with operations, such as using green electrical power to run equipment, using high efficiency pumps and electrical devices, requiring diesel engines to use biodiesel, or offsite measures that could offset greenhouse gas emissions. Operations GHG emissions levels shall be quantified and reported to the City and to the SCAQMD for operations on an annual basis, and, if GHG emissions exceed the SCAQMD thresholds, then a GHG emission reduction program shall be implemented to reduce emissions to less than the threshold value of 10,000 metric tonnes CO2e annually. Reductions or offsets of GHG emissions shall be quantified according to applicable protocols, and submitted to the City and AQMD. The reduction program shall focus on on-site and local/basin area methods for GHG reductions.	Inspection of equipment and programs	During operations	City of Whittier
AQ.5: Potential operations and drilling at the Whittier Main	AQ-5 The Applicant shall install CARB-Verified Level 3 diesel catalysts on all diesel-powered drilling equipment or utilize diesel engines that have an equivalent PM emission rate (Tier 4 engines) or electric drilling rigs. The	Inspection of drilling operations	During drilling	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
Oil Field would emit toxic materials (Less Than Significant With Mitigation).	current list of CARB-Verified Level 3 diesel catalysts is located at http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm. Catalysts or engine certifications shall demonstrate achieving 85% reduction for diesel particulate matter.			

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
BIO.1: Project grading and vegetation clearing for fuel modification, and increased noise, would result in adverse effects, either directly or through habitat modifications on sensitive wildlife species (Less Than Significant With Mitigation).	BIO-1a To mitigate the Project's permanent loss of 4.84 acres of coastal sage scrub, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the loss of habitat value due to the Project's noise impacts affecting 5.49 acres of coastal sage scrub, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 19.99 acres of degraded habitats in the La Cañada Verde and Arroyo Pescadero watersheds to coastal sage scrub communities, or as otherwise agreed to by the appropriate resource agencies and the City. No additional grading or habitat disturbance shall occur along the North Access Road beyond what is currently designated in the Road Improvement Plan included in Appendix A. All aspects of the restoration effort shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply: - All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). - The restoration specialist shall work with the Habitat Authority to select restoration sites in the Habitat Authority's Whittier Management Unit, preferably in the La Cañada Verde and Arroyo Pescadero watersheds. - A conservation easement shall be placed over any site restored under this mitigation measure. This easement will be submitted to the USFWS for review and approval. - Mandatory components of any restoration plan shall include, but not	Comply with the Habitat Authority's Restoration Guidelines	Plans prior to permit issuance and restoration prior to construction ; restoration planting shall occur in the Fall.	Habitat Authority, and City

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority, the City, USFWS, and CDFG prior to implementation. - Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years. - Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority. - If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). - The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). - Additionally, all mitigation must comply with the Restoration Plans			

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).			
	BIO-1b To prevent erosion and invasion by non-native weeds, and to help offset the Project's overall biological impacts including the temporal loss of habitat, the Applicant shall provide a minimum 2:1 areal replacement of all graded slopes outside of permanent impact areas (approximately 8.03 acres; restoration) shall be revegetated exclusively with appropriate, locally indigenous plant species and will incorporate non-flammable species as appropriates. To mitigate the permanent disturbance to 12.34 acres of native habitats (7.07of chaparral and 5.27 acres of annual grassland), the Applicant shall provide minimum 1:1 areal replacement. To mitigate the temporary impacts to native and naturalized habitats due to noise impacts associated with truck hauling on the North Access Road, the Applicant shall provide minimum 1:1 areal replacement of 8.4 acres of native habitat. In total, the Applicant shall restore 36.8 acres of degraded habitats in the La Cañada Verde and Arroyo Pescadero watersheds to native communities, as agreed to by the appropriate resource agencies and the City. All contractors involved in the revegetation effort, including the revegetation specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority. Revegetation efforts shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply: - All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). - Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority the	Comply with the Habitat Authority's Restoration Guidelines	Plans prior to permit issuance and revegetation during planting season after grading	Habitat Authority, and City

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	City, USFWS, and CDFG prior to implementation. - Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years. - Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. - The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority. - If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). - The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). - Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).			
	BIO-1c. Restoration and revegetation efforts shall include salvage of weed-free topsoil (upper 12 inches of soil) from any and all areas of intact (non-weedy) native communities that are graded for Project implementation, as	Comply with the Habitat		Habitat Authority, and

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	determined by the site monitor described in required by mitigation measure BIO-1 b, so that the soil can later be spread over graded slopes to increase native plant species diversity in the restored areas. Mature coast prickly pear, dudleya, and other translocatable species will be transplanted as feasible in the revegetation and fuel modification zones. Such salvage may also be appropriate for revegetation areas.	Authority's Restoration Guidelines	Plans prior to permit issuance and salvage prior to grading	City
	BIO-1d The Applicant or US Army Corps of Engineers shall consult with the US Fish and Wildlife Service to obtain an Incidental Take Statement, if needed, pursuant to Section 7 or Section 10 of the federal Endangered Species Act to cover the Project's potential "take" (which includes the permanent and temporary loss of approximately 5 acres of critical habitat and 5.49 acres of noise-related disturbance) of the coastal California gnatcatcher, a federally listed species.	Agency consultation	Prior to permit issuance	City
BIO.2: The proposed Project would result in the permanent and temporary loss of 1.0 acre of mulefat scrub riparian habitat, a federally protected aquatic resource as defined by Section 404 of the Clean Water Act, and increased noise could temporarily inhibit wildlife use of preserved riparian habitat. (Less Than Significant With Mitigation) .	BIO-2a To mitigate the Project's permanent loss of 0.22 acre of riparian habitat, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the Project's noise impacts affecting 0.75 acres of riparian habitat, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 1.41 acres of degraded areas within the La Cañada Verde and Arroyo Pescadero watersheds, or as otherwise agreed to by the appropriate resource agencies and the City. The 0.12 acre of temporary grading impact would be mitigated through the 1:1 revegetation specified in BIO-1.b. All aspects of this restoration shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following points shall apply: All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). Mandatory components of any restoration plan shall include, but not be limited to, a pre- and post-construction survey to describe the final, full extent of disturbance area to determine habitat loss and replacement, Site	Comply with the Habitat Authority's Restoration Guidelines	Plans prior to permit issuance and restoration prior to grading; restoration planting shall occur in the Fall.	Habitat Authority, and City

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority the City, USFWS, and CDFG prior to implementation. Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. Restoration efforts shall be scheduled to start at the same time as construction activities to reduce the temporal loss of habitat. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years. Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority. If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan shall be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., CDFG, USACE, U.S. Fish and Wildlife Service). The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml).			

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	BIO-2b. The Project proponent shall be required to obtain all applicable federal and state permits and agreements, including (1) a Section 404 Permit from the US Army Corps of Engineers, (2) certification, or a waiver of certification, from the Los Angeles Regional Water Quality Control Board that the activity would not adversely affect water quality, and (3) a Streambed Alteration Agreement from the California Department of Fish and Game.	Agency consultation	Permit prior to issuance of grading permits	City
BIO.3: A rupture or leak from oil wells, pipelines, or other oil field-related infrastructure has the potential to result in a substantial adverse effect on native species and habitats, sensitive species, sensitive species habitat, and sensitive habitats including riparian and coastal sage scrub (Less Than Significant With Mitigation).	BIO-3a. The applicant shall prepare an Emergency Response Action Plan that would address protection of sensitive biological resources and revegetation of any areas disturbed during an oil spill or cleanup activities. The Emergency Response Action Plan shall, at a minimum, include specific measures to avoid impacts to native vegetation and wildlife habitats, plant and animal species, and environmentally sensitive habitat areas during response and cleanup operations. The Emergency Response Action Plan shall include provisions for containment and cleanup within 2 miles downstream of the Project Site. The plan shall contain detailed descriptions of various containment and cleanup alternatives for each segment of the streambed. Selection of a containment alternative would be made during an emergency event, but the approach and plan shall be reviewed by the California Division of Fish and Game, the Los Angeles Regional Water Quality Control Board, and Los Angeles County Flood Control District. Where feasible, low-impact, site-specific techniques such as hand-cutting contaminated vegetation and using low-pressure water flushing shall be specified to remove spilled material from particularly sensitive wildlife habitats, such as riparian woodlands, because procedures such as shoveling, bulldozing, and raking can cause more damage to a sensitive habitat than the oil spill itself. The Emergency Response Action Plan shall evaluate the non-cleanup option for ecologically vulnerable habitats. When habitat disturbance cannot be avoided, the Emergency Response Action Plan shall provide stipulations for development and implementation of site-specific habitat restoration plans and other site-specific and species-specific measures appropriate for mitigating impacts to local populations of special-status wildlife species and to restore native plant and animal communities to pre-spill conditions. Access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas shall be identified. The	Emergency Response Action Plan	Prior to issuance of grading permits	Habitat Authority, and City

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	Emergency Response Action Plan shall include species- and site-specific procedures for collection, transportation and treatment of oiled wildlife, particularly for sensitive species. The Emergency Response Action Plan shall include procedures for timely re-establishment of vegetation that replicates the habitats disturbed (or, in the case of disturbed habitats dominated by non-native species, replaces them with suitable native species). The Emergency Response Action Plan shall be approved by the City and Habitat Authority prior to commencing any construction activities.			
	BIO-3b To reduce exposure risks to wildlife in the Project Site area, all open basins containing any Project-related fluids shall either be emptied at the end of each day or fenced and covered to exclude all wildlife, including birds, bats, and amphibians. Drilling muds, concrete waste, and truck washing water shall be contained within closed Baker-style tanks or collected by a vacuum truck before the end of each day and shall not be stored overnight in open pits.		Prior to issuance of grading permits	City
BIO.4: The proposed Project could substantially interfere with the movement of native resident or wildlife species or with established native resident or migratory wildlife corridors, or interfere with the use of native wildlife nursery sites. (Less Than Significant with Mitigation).	BIO-4a Devices and measures shall be employed to minimize noise effects on wildlife. At a minimum, noise barriers shall surround the drill rig floor, mud mixers, cleaners, conveyers, shakers, pumps, and other oil development and operational facilities; construction activities shall be limited to daylight hours except for emergencies; construction machinery shall be operated per manufacture's specifications; and a Noise Reduction Plan and monitoring plan shall be implemented to ensure that Project activities are operating within the ranges included in mitigation measure N-4.	Noise mitigation plan	Prior to issuance of grading permits	Habitat Authorityand City
	BIO-4b All Project lighting shall be designed and shielded with the intent of preventing spillage of light into adjacent preserved open space areas. Outdoor lighting shall be restricted to lights required by code for lighting building exteriors and for safety and security needs. All Project lighting shall be fully shielded and designed to prevent spillage of light into adjacent preserved open space areas. Lighting shall be constructed so that all light emitted by the fixture, either directly from the lamp or from a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizontal as determined by photometric test or certified by the	Lighting plan	Prior to issuance of grading permits	Habitat Authorityand City

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	manufacturer. Any structural part of the light fixture providing this shielding shall be permanently affixed. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency. After initial installation of Project lighting, a biological monitor acceptable to the City and Habitat Authority shall conduct a field inspection to confirm that the proper lamps have been installed and that light spillage into the Preserve has been minimized to the maximum extent feasible without compromising safety or other critical night-lighting requirements.			
	BIO-4c. To minimize the potential for road mortality of wildlife, all roads within the Preserve boundary used to access onsite oil facilities shall have enough traffic calming devices, appropriately sized and spaced, to limit traffic to a maximum speed of 10 miles per hour. All nighttime traffic shall be minimized during the construction and operational phases as feasible; all hauling activities shall be restricted to daylight hours defined as the hours after sunrise and before sunset. This restriction shall be in addition to any others placed on the Project, including by mitigation measure N-4, which is intended mainly to limit noise impacts upon neighboring residential communities, consistent with the City Municipal Code. No permanent solid walls or k-rail walls shall be placed along the North Access Road. The use of k-rails in this area would require wildlife passages placed every 20 feet to allow wildlife to move freely off the road.	Traffic speed control plan	Prior to issuance of grading permits	Habitat Authorityand City
	BIO-4d. Any project landscaping shall consist entirely of species native to the Project Site and surrounding areas within the Preserve and approved by the County of Los Angeles Fire Department and the Habitat Authority. Any irrigation provided shall be limited to that required to initially establish the native plants; no permanent irrigation shall be permitted.	Landscapin g plan	Prior to issuance of grading permits	Habitat Authorityand City
	BIO-4e. To minimize potential impacts to nesting native bird species, and in compliance with the federal Migratory Bird Treaty Act and Sections 3503, 3503.5, or 3513 of the California Fish and Game Code, initial construction of the pad sites and facilities involving vegetation removal, and annual fuel modifications involving vegetation removal/trimming should be done outside the breeding season (February 15 through August 31). If construction involving vegetation removal must be completed during this period, then surveys for nesting birds must be conducted within 3 days prior to vegetation	City and Habitat Authority shall review and approve biologist	Mitigation measure applies to construction work between February 15 and August	Habitat Authority, and City

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	removal or other construction-related disturbances. USFWF protocol surveys for listed avian birds (California gnatcatcher and least Bell's vireo) shall be conducted if disturbances occur in coastal sage scrub or riparian habitats. If nesting birds are observed within the vicinity, then a minimum 100-foot buffer from the nest would be established. The buffer would be delineated by roping construction boundaries and would remain in place until the nest is abandoned or the young have fledged. The nest monitor would be present when any buffer fencing is established. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. At minimum, the biologist would check for new active nests, and determine the status of ongoing active nests, weekly during the specified nesting season. The biologist would ensure that all fencing and signage was properly maintained, and would provide weekly e-mail updates on the status of all monitored nests to the City, Habitat Authority, CDFG, and USFWS. If the biologist determines that California gnatcatcher nesting is being disrupted, the construction activities will cease and wait until the young have fledged or the nest is determined to have failed.		31	
	BIO-4f. Hawks and owls nest earlier than most other native birds. If initial construction activities, drilling, re-drilling, ground disturbance, or vegetation clearing, or annual fuel modification involving vegetation removal/trimming occurs from December 1 through August 31, the nest monitor would conduct a pre-construction survey within 3 days prior to vegetation removal or other construction-related disturbances focused on actively nesting hawks or owls. If any actively nesting hawks or owls are found, a 300-foot buffer would be established around the nest tree to help ensure that nesting is not disrupted. If any active songbird nests are found, a 100-foot buffer would be established as described in BIO-4e. The buffer would be delineated by roping construction boundaries and would remain in place until the nest is either abandoned or the young have fledged. The nest monitor would be present when any buffer fencing is established. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. At a minimum, the biologist would check for new active nests, and determine the status of ongoing active nests, weekly during the specified nesting season. The biologist would ensure that all	City and Habitat Authority shall review and approve biologist	Mitigation measure applies to construction work between December 1 and August 31.	Habitat Authority, and City

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	fencing and signage was properly maintained, and would provide weekly e-mail updates on the status of all monitored nests to the City, Habitat Authority, CDFG, and USFWS.			
	BIO-4g. To avoid the direct loss of special-status bats that that could result from removal of trees that may provide maternity roost habitat (e.g., in cavities or under loose bark), the following steps would be taken: - Tree removal or relocation shall be scheduled between October 1 and February 28, outside of the maternity roosting season. - If trees must be removed during the maternity season (March 1 to September 30), a qualified bat specialist (i.e., a person holding a California Department of Fish and Game collection permit and a memorandum of understanding allowing the handling and collection of bats) shall conduct a pre-construction survey to identify those trees proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. Each tree identified as potentially supporting an active maternity roost shall be closely inspected by the bat specialist a maximum of 7 days prior to tree disturbance to more precisely determine the presence or absence of roosting bats. - Immediately after completion of the pre-construction surveys, and prior to any tree removals, the bat specialist will prepare a report providing the results of these surveys and identifying actions to be taken to avoid or minimize potential impacts to roosting bats due to authorized tree removal or other potential bat roosting habitats. - The pre-construction report shall be provided to the City and the Habitat Authority prior to any tree removal. - If bats are not detected, but the bat specialist determines that roosting bats may be present, it is preferable to push the tree down using heavy machinery rather than felling it with a chainsaw. - Maternity season lasts from March 1 to September 30. Trees determined to be maternity roosts shall be left in place until the end of the maternity season. - A 250-foot buffer, in which no construction activities are permitted, shall be established around any tree, rock outcrop, or other occupied roost habitat until bats have left the maternity site or the end of the maternity season (whichever is later). - The bat specialist shall document all monitoring activities, and shall prepare a summary report upon completion of tree disturbance activities. Reports	Retain a qualified bat specialist to implement the required survey and documentation	Mitigation measure applies to construction work between March 1 and September 30.	Habitat Authorityand City

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	would include the following: - the number and type of affected trees determined to support or potentially support roosting bats prior to disturbance; - any actions undertaken to safely exclude roosting bats prior to disturbance and the results of those actions; - trees temporarily avoided to protect roosting bats; and - roosting bats found (alive or dead) after trees were removed or relocated. - This report shall be provided to the City and Habitat Authority within 30 days following completion of tree removals.			
	BIO-4h To reduce impacts to wildlife movement corridors and to provide protective cover for wildlife using the Service Tunnel, and consistent with the Resource Management Plan recommendations, the Applicant shall be required to install appropriate native screening vegetation around the western terminus of the Service Tunnel (LSA 2007). The Applicant shall consult with the Habitat Authority to identify the appropriate limits of screening vegetation. The plantings installed as screening shall comply with the Habitat Authority's Restoration Guidelines. All contractors involved in the native screening effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority.	Comply with the Habitat Authority's Restoration Guidelines	Plans prior to issuance of grading permits and planting prior to grading	Habitat Authority, and City
	BIO-4i Consistent with the Resource Management Plan recommendations, Project lighting shall not be directly visible from the western terminus of the Service Tunnel.	Lighting plan	Prior to issuance of grading permits	Habitat Authorityand City
	BIO-4j. Consistent with the Resource Management Plan recommendations, the Project proponent shall be required to consult with the Habitat Authority to develop and implement signage explaining the importance of limiting human disturbances in the vicinity of the Service Tunnel between sunset and sunrise.	Consult with the Habitat Authority	Prior to issuance of grading permits	Habitat Authority and City
	BIO-4k A qualified biological monitor approved by the City, USFWS, CDFG, and the Habitat Authority shall be onsite during all vegetation removal and initial ground disturbance activities to ensure the compliance with all permit conditions protecting biological resources. The biological monitor shall be present to salvage wildlife species that may be otherwise killed or injured by heavy equipment and vegetation clearing. All salvaged wildlife shall be			

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	relocated to suitable adjacent habitat within the Preserve. The biological monitor shall have the authority to temporarily halt activities if permit requirements and conditions are not being met. The biological monitor shall conduct annual site inspections of the facilities, roads, and operations activities to ensure that all applicable mitigation measures are being enacted. The biological monitor shall prepare an annual summary report describing site visit observations and shall provide this report to the City, Habitat Authority and regulatory agencies (including CDFG, US ACE, and USFWS) for review.			
	BIO-4l The Applicant shall fund and implement a biological resources training program for all construction workers, oilfield workers, and their contractors. Training program shall be reviewed and approved by the HA and shall occur annually and as needed for new workers. Training shall include a description of important biological resources within the Preserve and all applicable conditions, permit requirements, and protection measures implemented to protect those resources.			
	BIO-4m All grading limits shall be delineated by orange construction fencing and permanent signage every 50 feet along the fence stating "No Entry — Sensitive Habitat." The City and the Habitat Authority shall approve the fencing prior to commencement of grading activities (including clearing and grubbing).			
	BIO-4n Recreational access to the Arroyo San Miguel Trail shall be closed during construction or drilling activities at the Drill Pad Site. To continue providing recreation access to the Arroyo San Miguel Trails (on the east side of Colima Road), the Applicant shall develop additional recreational access, in coordination with the Habitat Authority, to the Arroyo San Miguel Trail by any of the following or equivalent: (1) enhancing the parking area on the east side of Colima Road; (2) developing the parking area along La Flore Drive, approximately 1 mile east of Colima Road; or (3) develop pedestrian access along Colima Road from the Preserve parking area (on the west side of Colima Road) utilizing the new signalized intersection.			
BIO.5: The proposed Project would conflict with local policies and ordinances protecting biological resources,	Implement mitigation measures BIO.1, BIO.2, BIO.3, and BIO.4.	See mitigation measures associated with	See mitigation measures associated with impacts	See mitigation measures associated with impacts BIO.1, BIO.2,

Impact	Mitigation Measure	Compliance Verification		
		Method	**Timing**	**Responsible Party**
such as a tree preservation policy or ordinance (Less Than Significant With Mitigation).		impacts BIO.1, BIO.2, BIO.3, and BIO.4.	BIO.1, BIO.2, BIO.3, and BIO.4.	BIO.3, and BIO.4.
CUMULATIVE BIO.1: The proposed Project could result in adverse effects on biological resources that are cumulatively considerable when evaluated in conjunction with other past or present projects in the vicinity.	CUMULATIVE BIO-1a The applicant shall ensure, and shall demonstrate to the City of Whittier and Habitat Authority, that the existing Matrix Oil drilling operation in lower Sycamore Canyon, in the Whittier Hills, complies with Chapter 12.08.390 of the County of Los Angeles Code (Exterior Noise Standards). Compliance includes achieving an exterior noise standard of 45 dBA (L50) applicable at the property boundary (i.e., the Preserve's property boundary) of all noise-sensitive areas and residential areas, any time of the day. All Preserve areas shall be regarded as "noise-sensitive areas" for purposes of the County of Los Angeles Code and this mitigation measure.	Applicant to demonstrate to Habitat Authority and City	Prior to issuance of grading permits	Habitat Authority and City
	CUMULATIVE BIO-1b No test-drilling, construction, or redrilling of wells shall be conducted simultaneously with, and within the same watershed as, construction work on the Tehachapi Renewable Transmission Project. The Applicant shall provide the City and Habitat Authority with written evidence of having coordinated construction schedules with Southern California Edison prior to commencing any construction activities.	Applicant to demonstrate to Habitat Authority and City	Ongoing throughout drilling activities	Habitat Authority and City
	CUMULATIVE BIO-1c To provide land managers at the Preserve (and those in the general area of the Chino-Puente Hills) data to better understand and manage wildlife movement conflicts and issues, the Applicant shall provide the Habitat Authority funds to conduct a multi-year, scientific study to evaluate the wildlife movement patterns of bobcats and other wildlife species utilizing the Preserve. The extent and cost of this study shall be designed, reviewed, and approved by the City, the Applicant, and the Habitat Authority prior to issuance of grading permits.*	Program design document	Previous grading permits	Habitat Authority and City

Impact	Mitigation Measure	Compliance Verification		
		Method	**Timing**	**Responsible Party**

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
SR.1: The proposed Project could introduce risk to the public associated with accidental releases from well drilling and processing operations (Less Than Significant with Mitigatioin).	SR-1a The Applicant shall implement site security methods, including but not limited to: (1) enclosing all wells and equipment (including the metering station) with 8-foot block walls with barbed wire on the inside at 7 feet; (2) Secure gates located at all entrances with automatic opening/closing and secure access; (3) Limitation of climbable landscaping near the facility; (4) Installation of video surveillance systems and burglar/intrusion alarm systems; (5) Contact information and site access limitations shall be posted in specific locations easily visible to the public, shall be provided to neighboring residents within a set radius, and shall be placed in Preserve information kiosks and on the Habitat Authority and City websites; (6) Visitor sign-in/sign-out and security policies for employees regarding access control, pre-employment screening, post-employment issues, vehicles, access keys, codes, and card security.	Review of site security measures and plan	Before construction and operations	City of Whittier
	SR-1b The Applicant shall conduct a third-party audit of the gas and crude oil plants and pipelines, once constructed, including the well pads, to ensure compliance with Fire Code, applicable API and NFPA codes, EPA RMP, OSHA PSM, and SPCC and emergency response plans requirements. The review shall include a seismic assessment of equipment to withstand earthquakes prepared by a seismic engineer in compliance with Local Emergency Planning Committee Region 1 CalARP guidance. All audit items shall be implemented in a timely fashion, and the audit shall be updated periodically, as directed by the City and the Los Angeles County Fire Department.	Facility walkdowns and audit reports and recommendations	Within first year of operations	City and LA County Fire Department
	SR-1c The Applicant shall ensure that all crude-oil truck haulers are trained in HAZMAT spill response and that each truck carries a spill response kit.	Review of training logs	Before construction and operations	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
SR.2: The proposed Project could introduce risk to the public associated with the transportation of natural gas along Colima Road. (Less Than Significant With Mitigation).	SR-2a The Applicant shall install automatic valves that will automatically shut down under a low pressure scenario at the Processing Facility Area for all pipelines leaving the processing plant and a backflow prevention device or automatic shut-down valve at the tie-in location at Lambert Road, to prevent the release of gas from the main transmission pipeline in the event of a rupture in the Colima Road pipeline.	Inspection of construction design plans	Before construction and operations	City of Whittier
	SR-2b The Applicant shall ensure that warning tape is installed above the pipeline within the pipeline trench to warn third parties that a pipeline is located below the warning tape and that the pipeline is capable of utilizing a smartpig.	Inspection of construction design plans and during construction before backfilling pipeline trench	Before construction	City of Whittier
SR.3: The proposed Project could mobilize soil contamination that could affect groundwater and environmental and public health (Less Than Significant With Mitigation).	SR-3 The Applicant shall conduct site assessments of the Project Site before commencing Project construction and shall sample soils and excavated materials associated with construction to ensure that the soils are not contaminated. Contaminated soils shall be completely excavated and the contaminated areas cleaned to LARWQCB specifications before moving forward with construction of the proposed Project components.	Review of sampling results	Before construction and operations	City of Whittier and RWQCB

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
GR.1: Seismically induced ground shaking could damage proposed structures and infrastructure, potentially resulting in loss of property, risk to human health and safety, and oil spills (Less Than Significant With Mitigation).	GR1-a Proposed drilling, production, processing, storage, and transportation infrastructure shall be designed and constructed to withstand anticipated horizontal and vertical ground acceleration in the Project Area, based on the California Building Code. The calculated design base ground motion for project components shall consider the soil type, potential for liquefaction, and the most current and applicable seismic attenuation methods that are available.	Review and approval of design drawings and seismic loading calculations	Approve design drawings and seismic loading calculations prior to issuance of building permits	City of Whittier
	GR1-b All surface facilities and equipment shall have suitable foundations and anchoring design, surface restraints, and moment-limiting supports to withstand seismically induced groundshaking.	Review and approval of design drawings	Approve design drawings prior to issuance of building permits	City of Whittier
	GR1-c All conceptual geotechnical recommendations provided by Heathcote Geotechnical (2011) shall be followed during grading and construction at the Project Site. In addition, a Registered Civil Engineer and Certified Engineering Geologist shall perform an updated geotechnical evaluation of the Project Site, as the proposed building pad and slope configuration has changed since completion of the geotechnical report completed in 2010 (Heathcote Geotechnical 2011). The updated evaluation shall include an estimation of both vertical and horizontal anticipated peak ground accelerations, since the Heathcote Geotechnical report only included horizontal peak ground acceleration values.	Observe and test installation of buried pipelines	Monitoring during constructio n	City of Whittier
	GR-1d This report shall be completed prior to completion of the final project design and shall be submitted to the City of Whittier for review and approval and any new recommendations not included in the Heathcote Geotechnical (2011) report shall be adhered to. The project design must conform to the recommendations within the updated geotechnical evaluation.	Review and approval	Prior to completion of final project design	City of Whittier
	GR-1e All proposed slope construction, roadways, and work pads	Observation and	Monitor	City of

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	shall be properly engineered, with fill placed in accordance with requirements of the 2011 County of Los Angeles Building Code (Title 26), which is based on the 2010 California Building Code and the 2009 International Building Code .	inspection. Submit semi-annual reports for review and approval.	during construction and operations	Whittier
	GR-1f All proposed pipelines shall be placed in properly constructed trenches and backfilled with bedding and engineered fill that increases the freedom of movement of the pipelines, or alternatively anchored to prevent pipeline movement, as determined by a California Registered Civil Engineer, in accordance with California Building Code, 2010, Los Angeles County requirements, and the American Public Works Association Greenbook.	Cease any drilling and production activities and inspect all project-related facilities, equipment and pipelines following any seismic event that generates a ground acceleration of fifteen (0.15g) percent of gravity.	Inspection for earthquake damage of drilling and production infrastructure immediately following threshold seismic events	City of Whittier
	GR-1g All facilities and equipment, including spill containment berms and Project-related pipelines, shall be designed for the seismic loading in accordance with applicable codes, including the California Building Code, 2010.	Cease any drilling and production activities and inspect all project-related facilities, equipment and pipelines following any seismic event that generates a ground acceleration of	Inspection for earthquake damage of drilling and production infrastructure immediately following threshold seismic events	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	**Timing**	**Responsible Party**
		fifteen (0.15g) percent of gravity.		
	GR-1h The Applicant shall cease any non-essential drilling and production activities and inspect all project-related facilities, equipment, and pipelines following any seismic event that generates a ground acceleration of 15 percent of gravity. The Applicant/Operator shall prepare a written report of all inspections and findings to the City for review and approval prior to the recommencement of any operations. The City will respond to Matrix within 5 working days of the report submittal.	Cease any drilling and production activities and inspect all project-related facilities, equipment and pipelines following any seismic event that generates a ground acceleration of fifteen (0.15g) percent of gravity.	Inspection for earthquake damage of drilling and production infrastructure immediately following threshold seismic events	City of Whittier
GR.2: Moderately expansive soils are prone to swelling and shrinking as a result of increased or decreased water content, which could potentially damage proposed structures and infrastructure,	GR-2a. Thickened slabs, extending slab edges and additional reinforcement shall be installed to reduce negative impacts from any expansive soil movement if any construction occurs within moderately expansive soils. In addition, the use of capillary break under slabs shall be utilized to reduce the potential for moisture transport and pumping that leads to moisture infiltration as a result of heat and moisture gradients. It is essential that sand thickness under slabs be used for concrete curing only and be kept at 2 inches or less. The American Concrete Institute has found that greater thicknesses tend to provide conveyance of excessive moisture under the slabs. An alternative would be the use of low to non expansive soils for slab support, which would eliminate the potential risk. This can be accommodated by importing select materials. Select grading techniques during grading could utilize the granular soils in site for subsequent use. Measures shall be as described above or as otherwise approved by the City Engineer.	Design drawings and site inspections	Prior to permit issuance and during construction	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
resulting in loss of property (Less Than Significant with Mitigation).				
GR.3: Existing uncertified fill onsite could potentially be subject to hydroconsolidation, excessive settlement, expansive soil shrink and swell and differential settlement/expansion, and thus could potentially damage proposed structures and infrastructure, resulting in loss of property (Less Than Significant With Mitigation).	Mitigation Measure GR-1c shall be completed in association with artificial fill impacts.	See MM GR-1c	See MM GR-1c	See MM GR-1c
GR.4 Landslide	Mitigation Measure GR-1c shall be completed in association with slope stability impacts.	See MM GR-1c	See MM GR-1c	See MM GR-1c

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
prone slopes are present in the Project Area. Such slopes could potentially damage proposed structures and infrastructure, resulting in loss of property and oil spills (Less Than Significant with Mitigation).				
GR.5: Temporary excavations could impact and adversely affect adjacent properties or de-stabilize the existing hillside (Less Than Significant with Mitigation).	GR-5a. Temporary shoring shall be designed to protect the temporary excavations, structures to remain in place, and adjacent properties. This shoring shall be designed by a State of California Registered Civil Engineer to take into account all lateral load parameters. Shoring above groundwater levels can range from steel cage to timber supports to sheet piling, soil nailing or shotcrete walls or as otherwise approved by the City Engineer.	Submit temporary shoring plans and calculations.	Prior to permit issuance	City of Whittier
	GR-5b. Implement slot cut excavation schemes during grading and foundation excavations to the extent possible to reduce the potential for failure along temporary cuts by limiting the area exposed by temporary cuts.	Submit temporary shoring plans and calculations.	Prior to permit issuance	City of Whittier
	GR-5c. All excavations for structures and buildings shall comply with all applicable regulations of the California Occupational Safety and Hazard Administration guidelines as they pertain to excavations.	Submit temporary shoring plans and calculations.	Prior to permit issuance	City of Whittier
GR.6: Corrosion	GR-6a. Site specific chemical testing shall be performed to assess corrosion and other adverse chemical aspects. A report with the lab	Submit chemical testing	Prior to permit	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
could potentially damage the structural components and pipelines which would result in a pipe burst and subsequent oil spill (Less Than Significant With Mitigation).	tests shall be submitted to the City of Whittier with any appropriate mitigation measures included. The project design must conform to the recommendations within the geotechnical evaluation, or as per the City Engineer, and should occur prior to completion of the final project design.	and corrosion protection mitigation measures for project components.	issuance and annual reports	
	GR-6b. All buried metal pipelines shall be coated and placed under impressed cathodic protection. To monitor for internal corrosion, corrosion coupons or equivalent measures can be utilized.	Submit chemical testing and corrosion protection mitigation measures for project components.	Prior to permit issuance and annual reports	City of Whittier
	GR-6c. External pipe inspections shall be conducted for the exposed pipeline sections to ensure atmospheric coatings are in good conditions. All external inspections shall be documented and reviewed by the operations management and repairs documented, when necessary.	Submit chemical testing and corrosion protection mitigation measures for project components.	Prior to permit issuance and annual reports	City of Whittier
	GR-6d. In accordance with California Division of Oil, Gas, and Geothermal Resources pipeline regulations for environmentally sensitive pipelines, a pipeline management plan shall be implemented (Public Resources Code Sections 3013 and 3782). Mechanical testing, including ultrasonic and hydrostatic testing, shall be completed in coordination with the California Department of Conservation Division of Oil, Gas, and Geothermal Resources staff.	Submit chemical testing and corrosion protection mitigation measures for project components.	Prior to permit issuance and annual reports	City of Whittier, DOGGR
	GR-6e. All concrete in contact with the high sulfate or corrosive soils can be Type V concrete in accordance with the 2010 California Building Code.	Submit chemical testing and corrosion protection mitigation	Prior to permit issuance and annual reports	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
		measures for project components.		
GR.7: Oil withdrawal could result in ground subsidence (Less Than Significant With Mitigation).	GR-7a. Subsidence monitoring shall be completed annually in the vicinity of the wells. Surveying for both vertical and horizontal ground movement shall be completed along the perimeter and throughout the interior of the oil field, utilizing Global Positioning System technology in combination with a network of ground stations. The results shall be forwarded to the Division of Oil, Gas and Geothermal Resources and the City of Whittier for review.	Monitor subsidence with GPS technology.	Annually	City of Whittier
	GR-7b. In the event that the Global Position System monitoring indicates that subsidence is occurring in and/or around the Project Area, wastewater or water reinjection operations shall be increased to alleviate such subsidence. The Applicant shall coordinate with the California Division of Oil, Gas and Geothermal Resources in determining appropriate increased levels of wastewater reinjection operations. The Applicant will also coordinate with the City of Whittier to verify that subsidence has been mitigated sufficiently.	Increase wastewater reinjection operations.	Following monitoring results indicating subsidence	California Division of Oil, Gas and Geothermal Resources and City of Whittier
GR.8: Wastewater injection could activate earthquakes along nearby faults (Less Than Significant With Mitigation).	None.	n/a	n/a	n/a

Impact	Mitigation Measure	Compliance Verification

		Method	Timing	Responsible Party
N.1: Construction machinery would increase noise levels (Less Than Significant With Mitigation).	N-1a. Limit all construction activity at the Project Site (including deliveries and arriving and departing workers, and construction activities during the testing phase) to the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays and prohibit activities on Sundays and federal holidays. In addition, for construction work within the County of Los Angeles unincorporated areas, the Applicant shall ensure that noise levels do not exceed County municipal code levels with a noise study and monitoring and measures, including high grade mufflers, engine tuning, and management of backup alarms. All contracts with construction personnel shall specify the allowable work hours and the study and monitoring requirements.	Site inspection	During construction	City of Whittier
	N-1b Maintain all construction machinery according to the manufacturers' specifications and ensure that mufflers and silencers are maintained properly. Back-up OSHA noise indicators shall be ambient sensitive and self-adjusting to minimize backup indicator noise or flaggers shall be used in the place of backup alarms (as allowed by OSHA).	Site inspection	During construction	City of Whittier
	N-1c. Relocate the construction parking and staging area farther from the school and residences on Catalina Avenue to an area north of the Ranger Residence or equivalent.	Construction drawings and site inspection	Before construction	City of Whittier
N.2: Drilling activities during the Drilling and Testing Phase would increase noise levels in the area (Less Than Significant With Mitigation).	N-2a The Applicant shall develop and implement a Noise Reduction Plan for all drilling (testing, development, and re-drills and workovers) to ensure that the Leq noise levels from activities, measured as a 1-hour Leq, is less than a 3-dBA increase at the closest sensitive residential receptor and less than a 5-dBA increase at the closest sensitive recreational receptor. The Plan shall be prepared by an acoustic consultant approved by the City and the Plan shall be subject to City review and concurrence. The measures in the Plan shall include but not be limited to the following: (1) enclose the drill rig area in soundproof barriers 30 feet high on the south and west sides; (2) utilize a central generator type drilling rig, with the generators the only diesel engines onsite and enclosed in a soundproofed generator house with appropriate grade muffler systems, or install sound enclosures around all diesel engines with appropriate grade muffler systems; (3)install noise barriers around the drill rig floor, mud mixers, cleaners, conveyers, and shakers; (4)	Plan inspection and monitoring	Prior to and during drilling	City of Whittier, Habitat Authority

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	enclose drawworks brake area with soundproofing shroud; (5) install pads on V-door and other appropriate areas, timbers and pads on drill deck, pads between drill and casing pipe while in storage, and pad and timbers at the boards on the mast to reduce metal-on-metal noise (for both drilling and workover operations); (6) enclose the drilling mast boards area (on drilling and workover rigs) with barriers 2 inches thick and 2 pounds per square foot in density at least 5 feet above and below any noise sources; and (7) install ambient sensitive backup indicators on all equipment requiring backup indicators.			
	N-2b The Applicant shall institute a quiet-mode for all drilling activities between 7 p.m. and 7 a.m. Quiet-mode operation would apply to both drilling and operations and would involve: (1) using signalers for all backup operations instead of backup alarms and turning off backup alarms; (2) using radios instead of voice communication; (3) minimizing crane use and pipe handling operations, pipe offloading from trucks and board loading during daytime to the maximum extent feasible and nighttime loading only for safety reasons; (4) prohibiting material and supply deliveries to the Project Site between the hours of 7 p.m. and 7 a.m., with exceptions only for safety; and (5) limiting process alarms and communications over the broadcast system to the maximum extent feasible during all operations and use only for safety reasons.	Plan inspection and monitoring	Prior to and during drilling and operations	City of Whittier
	N-2c Provide a comprehensive noise abatement study, including noise and vibration monitoring at nearby sensitive receptors and continuous monitoring near drilling activities, under contract and supervision of the City, to monitor noise and vibration from the drilling and operations in the community. The City shall have the authority to shut-down operations and require additional mitigation if the noise criteria are exceeded.	Monitoring	During drilling and operations	City of Whittier
N.3: Project activities would increase vibration levels in the area (Less than	None.	n/a	n/a	n/a

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
Significant).				
N.4: Operational activities would increase noise levels in the area (Less Than Significant With Mitigation).	N-4 The Applicant shall develop and implement a Noise Reduction Plan for all operations to ensure that Leq noise levels from operational activities, measured as 1-hour Leq, produce less than a 3 dBA increase over the minimum baseline hourly average level at the closest residential receptor to the facility. The measures in the Plan shall include, but not be limited to: (1) installing sound enclosures or buildings around all compressors; (2) installing noise barriers around all pumps and air coolers; (3) installing ambient-sensitive backup indicators on all equipment requiring backup indicators; (4) installing sound enclosures or buildings around all the oil area pumps (e.g., shipping, IGFC, water injection, water booster, reject pumps); (5) installing sound enclosures or buildings around refrigeration units; (6) installing a secondary, 16-foot tall sound wall on the south, west and north sides of the gas plant; (7) ensuring that all office equipment (i.e., air conditioners, heating, ventilation) produces low noise levels or is surrounded by noise barriers; and (8) limiting traffic on the North Access Road to within 7 a.m. to 7 p.m., except for emergencies.	Plan inspection and monitoring	Prior to and during operations	City of Whittier
N.5: Concurrent operational activities e and drilling activities during periods of the Project would increase noise levels in the area. (Less than Significant with Mitigation).	Implement mitigation measures N-1a and N-1b, N-2a through N-2c, and N-4.	n/a	n/a	n/a

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
AE.1: The drilling rig could degrade public viewsheds (Significant and Unavoidable).	AE-1a. Landscaping with native vegetation shall be planted at the periphery of the Project Site for the specific purpose of beautifying and screening the operations from adjoining residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and the Habitat Authority. The Habitat Authority and a certified landscape architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition.	Plan inspection and installed vegetation inspection	Before and during operations	City of Whittier and Habitat Authority
	AE-1b. Within 30 days of installation, all visible structures at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a color or textured surface in consultation with the City, so that they are compatible with the surrounding area.	Design drawings review	Before and during construction	City of Whittier
	AE-1d. The Applicant shall redesign the project footprint, in coordination with the Habitat Authority and the Fire Department, to prevent the removal of the eucalyptus trees on the east side of the project site to preserve the visual shielding that these trees provide.	Design drawings review, including a vegetation plan	Before construction	City of Whittier
AE.2: Oil processing equipment could degrade public viewsheds (Less than Significant with Mitigation).	Implement mitigation measures AE-1a and AE-1b.	See AE-1a and AE-1b	See AE-1a and AE-1b	See AE-1a and AE-1b

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
AE.3: The use of the north access road could degrade public viewsheds (Less than Significant).	None.	n/a	n/a	n/a
AE.4: The proposed Project could increase nighttime lighting and glare (Less Than Significant With Mitigation).	AE-4. All point lighting sources that may be introduced onsite in support of nighttime operations shall be screened and directed to prevent offsite spillover lighting effects. Spillover lighting shall be limited to 0.1 fc within 30 feet of facility boundaries. Outdoor lighting should be restricted to only those lights that are required by code for lighting building exteriors and safety and security needs. Consistent with public safety needs street lighting, pedestrian walkway lighting, and parking lot lighting shall use light fixtures that shield and direct light with a backlight shield or other equivalent type of shielding, to minimize light spill-over effects into adjacent areas. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency.	Review design documents specifying lighting	Before and during construction	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
T.1: Potential test drilling, Construction, and Operations and Drilling at the Whittier Mail Oil Field would increase	T-1a. During Phase I at Intersection 6 - Catalina Avenue and Mar Vista Street, provide striping enhancements for northbound and southbound lanes to convert the existing single lanes to a left and shared through and right lane. Parking shall be restricted immediately north of the intersection, according to City Engineer recommendations.	Inspection of striping and parking limitations	Before test drilling	City of Whittier
	T-1b A worker carpooling program shall be instituted offsite and away from congested areas to reduce Project traffic through congested areas during all Project phases, in coordination with the City traffic	Inspection of carpooling areas and records of	Before construction	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
traffic in the area (Less Than Significant With Mitigation)	engineer.	trips		
	T-1c During all phases, limit truck and employee access via Catalina Avenue and Mar Vista Street to no more than 40 daily round-trips and a peak hour of 12 one-way trips. No vehicles with more than two axles or weighing more than 3 tons (generally truck), or vehicles towing large trailers shall be allowed on Catalina Avenue during Phase 2 (except for the initial stages of the North Access Road construction) or Phase 3.	Applicant required to maintain records of traffic into and out of Catalina Avenue gate, and subsequent records inspection	Before drilling or construction	City of Whittier
	T-1d Implement safety and access improvements, including: (1) During Phase 1, provide a wider turning radius at the northeast corner of Catalina Avenue to improve right turn movements, according to City Engineer recommendations; (2) Prohibit parking on the east side of Catalina Avenue north of Mar Vista Street from 7 a.m. to 6 p.m. Monday through Friday and from 8 a.m. to 5 p.m. on Saturdays to provide additional capacity for trucks during Phase 1, according to City Engineer recommendations; (3) Provide flagmen for truck access on Mar Vista Street during Phase 1; (4) Applicant shall maintain a record of vehicular traffic moving in and out of the Catalina Avenue Gate; (5) Implement a pavement monitoring program to ensure Mar Vista Street and Catalina Avenue are maintained and damage from truck traffic is appropriately repaired, under direction of city engineers; (6) Clearly posted speed limit signs on Catalina Avenue; and (7) Cover all haul vehicles and sweep or remove any debris that could fall off the truck and impact other drivers before the truck enters public streets.	Inspection of contracts and design plans	Before tes drilling	City of Whittier
	T-1e During Phase 2 soil export, if it is not deposited at the Savage Canyon Landfill, restrict truck traffic to non-am peak hours at the intersection of Hadley Street and Whittier Blvd. Also, prescribe truck routes for soil-transport and crude-haul trucks to ensure avoidance of	Inspection of contracts and design plans	Before construction	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	impacted intersections.			
	T-1f Implement a Penn Street Traffic Program, in coordination with the City, evaluating: (1) Traffic levels and periods of heavy traffic along Penn Street: (2) Longer-term traffic monitoring to capture events and variation in traffic flow due to student populations and event traffic; (3) Construction truck traffic impacts on roadway capacity due to parking limitations and event activities; (4) Coordination with Whittier College to reduce impacts of events and parking issues along Penn Street; (5) Alternative parking locations and routes for Whittier College events; (6) Implementing safety improvements, including enhanced pedestrian crosswalks and signage; (7) Identifying sources of landfill traffic and ensuring the proposed Project truck traffic during operations (not construction) does not increase average truck traffic levels on Penn Street; (8) Limited hours for proposed Project truck traffic on Penn Street to avoid congested or impacted periods (e.g., limit truck traffic to periods when the landfill is open, i.e., between 8:00 a.m. and 3:00 p.m.); (9) Coordinate periods of heavy traffic flow on Penn Street due to events and prevent use of Penn Street for proposed Project-related construction truck traffic during these events. (10) Prohibiting parking of Project-related traffic along any residential street for non-emergency purposes. (11) Implementing policies for trucks along Penn Street, including speed limits for trucks, yielding requirements to automobiles, and other issues as applicable.	Studies of Penn Street capacity related to events	Before construction	City of Whittier Whittier College
T.2: Construction of the pipeline along area streets could cause significant impacts (Less	T-2. A Traffic Management Plan shall be submitted to the City of Whittier and County of Los Angeles Traffic Engineers for approval, as required, prior to issuance of encroachment permits. The Plan could include the following measures: provide methods to safeguard traffic flow; identify detours (if necessary); identify the placement of traffic control devices (e.g. signs, traffic cones) and flaggers (if needed); and provide other appropriate traffic control measures. Additional	Inspection and approval of plan	Before construction	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
Than Significant With Mitigation).	measures shall include: (1) One travel lane shall be left open in each direction (delineated by temporary traffic cones/barricades) along roadways during construction (i.e. roads will not be closed). Any temporary street closures shall occur in coordination with city staffs. (2) Construction on major roadways through major signalized intersections will not be conducted during peak periods (6 to 9 a.m. and 3 to 6 p.m.), except where requested by the city to alleviate traffic impacts. (3) All trenches in areas without safety fencing shall be metal plated during non-construction hours. All trenches that interfere with access to residential and business driveways shall be metal plated to provide access. (4) Edges of steel plates shall be made safe for cyclists. (5) All county and municipal fire, police, and paramedic departments shall be notified of the schedule and duration of construction activities. (6) As required, alternative routes shall be identified for emergency vehicles to avoid construction areas. (7) Coordination shall be undertaken with appropriate transit authorities to ensure uninterrupted service along bus or train routes, which shall be crossed or paralleled by the pipeline construction. (8) Alternative pedestrian and bicycle routes shall be identified to avoid construction areas if existing routes are obstructed by pipeline construction activities. (9) Transit stops shall be relocated as necessary to provide access during construction. (10) Staging areas for construction equipment and service truck traffic shall be located off the roadway. (11) Provision shall be made for off-street parking for worker vehicles in areas where parking is limited. (12) Advance notifications shall be made to affected residents, businesses, etc. through public information, such as a web site. (13) Schedule construction adjacent to critical land uses so that at least one driveway is left unblocked at all hours or during business hours and ensuring resident and business access during			

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	trenching/construction. (14) Ensure that damaged roads are restored to at least their pre-construction condition and to the satisfaction of the responsible agency.			

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
WR.1: Site grading and drainage improvements would alter existing drainage patterns and increase impervious surfaces, which could increase surface runoff, cause flooding, and adversely impact water quality (Less Than Significant With Mitigation).	WR-1a A registered civil engineer experienced in drainage shall prepare a hydrologic study, using the corresponding hydraulic calculations for interception, conveyance, and discharge of runoff. Based on these studies, the engineer shall prepare a drainage plan in accordance with City and County requirements.	The City of Whittier shall review and approve studies.	Prior to issuance of permit	City of Whittier
	WR-1b A registered civil engineer experienced in drainage shall design and implement onsite detention facilities to reduce runoff to existing levels. Onsite detention ponds would attenuate the runoff intensity, such that an excessive peak flow would not occur during high intensity storms and there would be no increase in runoff intensity over existing conditions. The project engineer shall conduct an onsite hydrologic study to determine the approximate increase in storm runoff to accurately scale any onsite detention facilities. Detention System Design Onsite detention facilities have the potential to create habitats for mosquito breeding. Any onsite detention facilities shall be designed as a 'dry system' in accordance with the California Department of Public Health. A dry system requires that the facility be designed to discharge all captured water within 4 days. The design slope shall be adequate and properly compacted to prevent standing water and a low flow channel shall be incorporated to direct low flows to the system outlet. The basin shall also provide access for maintenance and inspection.	The City of Whittier shall review and approve studies.	Prior to issuance of permit	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	All catch basins and drainage facilities, including grass swales and bio-retention facilities shall also be designed to prevent standing water. An operation and maintenance plan shall be incorporated to remove vegetation, sediment, and debris accumulation biannually with an inspection at the beginning of the wet season. Waste from maintenance shall be disposed of according to local and state regulations. Onsite detention facilities shall be inspected quarterly for burrowing vector damage. Vector control measures shall be incorporated and maintained to prevent damage to the detention facility. Onsite detention facilities shall be surrounded by 6-foot fencing and provided access with a gate and access road per Los Angeles County standards. Discharge systems from onsite detention facilities shall be capable of discharging water from the basin while preventing a discharge of oil from the surface of the basin using a weir or subsurface discharge type design to prevent oil discharges from the basin in the event the basin reaches capacity and there is a crude oil spill.			
	WR-1c. Impervious surfaces shall be minimized to prevent pollutant runoff. Gravel roads and parking areas shall be constructed to allow infiltration of storm water and limit downstream runoff.	The Regional Water Quality Control Board shall review and approve the Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for	Prior to issuance of permit	Regional Water Quality Control Board and City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
		permits.		
	WR-1d. Structural best management practices shall be used to mitigate the increased pollutant runoff. Runoff from impervious areas shall be directed to grass swales, bio-swales, or detention ponds to aid in filtering out suspended solids and potential contaminants. Grass bio-swales shall not be planted with invasive species. The Best Management Practices shall be designed by a California registered, Qualified Storm Water Pollution Prevention Plan Developer.	The Regional Water Quality Control Board shall review and approve the Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for permits.	Prior to issuance of permit	Regional Water Quality Control Board and City of Whittier
	WR-1e. Pollution control products, such as catch basins with basket inserts, shall be used to catch trash and debris along with filtering elements such as silt fences, straw wattles and absorbent sponges within catch basins. Filter technology may be used to catch sediment, debris, oil, and pollutants.	The Regional Water Quality Control Board shall review and approve the Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for permits.	Prior to issuance of permit	Regional Water Quality Control Board and City of Whittier
	WR-1f. Permanent water quality testing, drainage device, and erosion control maintenance shall be implemented. Sampling and analysis	The Regional Water Quality	Prior to issuance of	Regional Water

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	shall be completed in accordance with National Pollutant Discharge Elimination System requirements.	Control Board shall review and approve the Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for permits.	permit	Quality Control Board and City of Whittier
	WR-1g. A California registered, Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee and monitor in-construction best management practices and storm water management programs in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.	The Regional Water Quality Control Board shall review and approve the Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for permits.	Prior to issuance of permit	Regional Water Quality Control Board and City of Whittier
WR.2: Site grading and drainage improvements would alter	WR-2a. During construction operations, the Applicant shall implement storm water management protection measures and wet weather measures. These measures would include temporary and permanent best management practices to reduce the potential for erosion and sediment transport. Conventional measures typically	The Regional Water Quality Control Board shall review and approve the	Prior to issuance of permit	Regional Water Quality Control Board and

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
existing drainage patterns at the Project Site, which could increase erosion and impact water quality on or offsite (Less Than Significant With Mitigation).	recommended by the State Water Resource Board and the California Department of Transportation would reduce potentially significant erosion and runoff impact to less than significant levels. Implement permanent erosion and sediment control measures: - Minimize grading, clearing, and grubbing to preserve existing vegetation; - Use mulches and hydroseed free of invasive plants to protect exposed soils; - Use geotextiles and mats to stabilize soils; - Use drainage swales and dissipation devices; and - Use erosion control measures outlined in the California Stormwater Quality Association Best Management Practice Handbook. Implement temporary best management practice mitigation measures: - Use silt fences, sandbags, and straw wattles; - Use temporary sediment basins and check dams; and - Use temporary best management practices outlined in the California Stormwater Quality Association Best Management Practice Handbook. Implement tracking control best management practices to reduce tracking sediment offsite. - Use stabilized construction entrance and exit with steel shakers; - Use tire wash areas; and - Use tracking control best management practices outlined in the California Stormwater Quality Association Best Management Practice Handbook.	Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for permits.		City of Whittier
	WR-2b. The Applicant shall implement a Storm Water Pollution Prevention Plan using best management practices and monitor and maintain storm water pollution control facilities identified in the Storm Water Pollution Prevention Plan, in a manner consistent with the provisions of the Federal Water Pollution Control Act (National	The Regional Water Quality Control Board shall review and approve the	Prior to issuance of permit	Regional Water Quality Control Board and

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	Pollutant Discharge Elimination System Program). Stormwater management protection measures and wet weather measures shall be designed by a California registered, Qualified Storm Water Pollution Prevention Plan Developer. In addition, a California registered, Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee and monitor construction Best Management Practices and stormwater management, in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.	Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for permits.		City of Whittier
WR.3: New grading and construction, potential soil remediation, and/or drilling operations could degrade surface water quality (Less than Significant with Mitigation).	WR-3a The proposed well cellar shall be lined with an impermeable membrane to prevent oil-based substances from seeping into groundwater supplies. All drilling muds storage shall be contained within Baker-type enclosed tanks, which shall be sized to accommodate high intensity rainfall events without overtopping.			
	WR-3b An 18-inch berm shall be placed around the entire drilling rig to capture any spilled fluids.			
	WR-3c Personnel at the site shall be trained in equipment use and containment and cleanup of an oil spill. Dry cleanup methods, such as absorbents, shall be used on paved and impermeable surfaces. Spills in dirt areas shall be immediately contained with an earthen dike and the contaminated soil shall be dug up and discarded in accordance with local and state regulations.			
	WR-3d Oil spills shall be contained and cleaned according to measures outlined in the California Stormwater Quality Association Best Management Practice Handbook.			
	WR-3e An approved response manual and Oil Spill Contingency Plan shall be implemented to outline response actions in the event of a spill, including a spill response trailer, equipment, and personnel			

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
	training. The plan shall be completed prior to the Drilling and Testing phase. Spill cleanup shall be completed under the oversight of the lead regulatory agency, with respect to oil spills, as identified in the Oil Spill Contingency Plan.			
WR.4: A rupture or leak during oil drilling operation, from pipelines or other infrastructure, could substantially degrade surface and groundwater quality (Significant and Unavoidable).	WR-4a. The City of Whittier and other appropriate agencies shall inspect facility conditions at the Project Site on a yearly basis. Inspections shall also occur after earthquake induced land movement or upon periods of large rainfall in order to verify no leak or rupture risks have developed. Inspections shall be completed by personnel with oil-field operations inspection experience (petroleum engineer or equivalent). Inspection and violation records shall be available to the public for review within 5 working days of inspections.	The Regional Water Quality Control Board shall review and approve the Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for permits.	Prior to issuance of permit	Regional Water Quality Control Board and City of Whittier
	WR-4b. The Applicant shall properly maintain the associated crude oil pipelines, storage tanks and processing facilities within and outside the Preserve, including smart-pigging according to State of California Office of the State Fire Marshal requirements and the standards outlined by the Department of Oil, Gas and Geothermal Resources, and the Regional Water Quality Control Board. Pipeline, tank and processing inspections,including walking the pipelines within the Preserve, shall occur at least daily.	The Regional Water Quality Control Board shall review and approve the Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for	Prior to issuance of permit	Regional Water Quality Control Board and City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
		permits.		
	WR-4c. The Applicant shall install a leak detection system for crude pipelines in the Preserve and the Colima Road pipeline. The system shall include pressure and flow meters, flow balancing, supervisor control and data acquisition system, and a computer alarm system in the event of a suspected leak. Temperature, pressure, and flow shall be monitored at each pipeline entry and exit. If any variable deviates by more than 10 percent of the normal operating range, the system shall trigger both audible and visual alarms. Flow balancing shall be conducted every 5 minutes, 1 hour, 24 hours, and 48 hours with the accuracy defined once the system is established and tested.	The Regional Water Quality Control Board shall review and approve the Storm Water Pollution Prevention Plans, which shall be submitted as part of the application to the City of Whittier for permits.	Prior to issuance of permit	Regional Water Quality Control Board and City of Whittier
WR.5: Reinjection of produced water could potentially impair water quality of aquifers within the Whittier Area of the Central Groundwater Basin (Less than Significant).	None.	n/a	n/a	n/a
WR.6: Drilling and production	WR-6a Where feasible, the City of Whittier shall supply reclaimed water during construction and well drilling operations, to reduce water	Construction design plans	Prior to construction	City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
operations would not substantially deplete groundwater supplies such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (Less Than Significant).	supply impacts.*			
	WR-6b Where feasible, the Applicant shall implement water conservation measures during construction and well drilling operations, to reduce water supply impacts. *	Inspection of construction design plans	Prior to construction	City of Whittier
WR.7: The Project Site would not likely be susceptible to flooding during an extreme precipitation event (Less Than Significant).	None.	n/a	n/a	n/a

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
CR.1: Impacts to historical	CR-1. Develop a monitoring plan, subject to City and Habitat approval, for treatment of areas of direct impact to elements	Development of a monitoring	Review and approval	Applicant and City of

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
resources, such as well pads, roadways, and the landscape due to ground disturbance (Less Than Significant With Mitigation).	identified as contributing components of the Whittier Main Oil Field including, but not limited to, the following: - Monitoring concurrent with construction grubbing at the locations of all oil well pads, allowing time for detailed field recordation of each pad that could not be obtained during survey level recording efforts due to heavy vegetation. Recordation should include photographs in digital or 35mm format, scaled plan-view drawings of the well pads, and written documentation that describes construction methods, details, and associated material composition. - Monitoring concurrent with alteration of existing historic-period roadways to allow for detailed mapping of existing roadways as well as recordation of construction along a representative segment(s) of the roadway to document the methods used over time as the oil fields evolved; first relying on dirt roads, followed by oil-paved roads, and finally asphalt-paved roads. - Collection, analysis, reporting, and curation of any associated artifacts that might be unearthed during monitoring activities described above. - Completion of a report of findings and update of appropriate Department of Parks and Recreation 523 forms to document the information obtained as a result of the mitigation/monitoring program.	plan by a qualified archaeologist	prior to land use clearance	Whittier
CR.2: Unanticipated disturbance to human remains due to construction (Less Than Significant With Mitigation).	CR-2. If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has been notified and can make the necessary findings as to origin and disposition of the remains pursuant to Public Resources Code 5097.98. Construction must halt in the area of the discovery of human remains, the area must be protected, and consultation and treatment shall occur as prescribed by law.	Contact the Native American Heritage and a Most Likely Descendant must be designated	Upon discovery of human remains	Applicant and Construction Contractor
CR.3: Unanticipated	CR-3. If any paleontological resources are encountered during ground-disturbing activities in the Project area, activities in the	Paleontological resource impact	Upon discovery	Applicant and Construction

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
disturbance to paleontological resources (Less Than Significant With Mitigation).	immediate area of the find shall be halted and the discovery assessed (LSA 2007). A qualified paleontologist must evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology. A paleontological resource impact mitigation program for treatment of the resources would be developed and implemented.	mitigation program		Contractor

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
WAS.1: The proposed Project would generate sanitary wastewater that could exceed the existing capacity of downstream sewer and wastewater treatment facilities. (Less Than Significant with Mitigation).	WAS-1. A Registered Civil Engineer shall evaluate the capacity of the existing sewer line system, beginning at the proposed tie-in at Catalina Avenue and continuing downstream to the County Sanitation Districts of Los Angeles County sewer system, prior to any connections. A 7-day capacity performance test shall be performed, based on County Sanitation Districts of Los Angeles County average wastewater generation factors, to determine baseline and peak flows, and to ensure the sewer has adequate capacity in the downstream areas. The capacity analysis shall be submitted to the District for review and approval. In the event that existing sanitary sewer facilities are insufficient to accommodate increased flows from the proposed Project Site, the Applicant shall provide temporary mobile sanitary facilities (i.e., toilet, sink, and urinal) for on-site personnel, as necessary.	Area study of the proposed sewer line and a 7 day performance capacity test should be performed at select downstream locations to verify the adequacy of the existing sewer.	Prior to issuance of permit	City of Whittier
WAS.2: The proposed Project would generate wastewater that could impact	Mitigation measures WR-3a through WR-3e, in Section 4.8, Hydrology and Water Resources, shall be implemented.	See MM WR-3a through WR-3e.	See MM WR-3a through WR-3e.	See MM WR-3a through WR-3e.

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
water quality of nearby drainages and creeks (Less than Significant with Mitigation).				

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
LU.1: Noise generated independently from test drilling, construction, and potential future operations could be incompatible with adjacent land uses (Less Than Significant With Mitigation).	Implement mitigation measures N-1a through N-1b and N-2a through N-2c.	See N-1a, N-1b, and N-2a, N-2b, and N-2c.	See N-1a, N-1b, and N-2a, N-2b, and N-2c.	See N-1a, N-1b, and N-2a, N-2b, and N-2c.
LU.2: Concurrent operational activities at the	Implement mitigation measures N-1a and N-1b, N-2a through N-2c, and N-4.	See N-1a, N-1b and N-2a, N-2b, N-2c, and N-4.	See N-1a, N-1b and N-2a, N-2b, N-2c, and	See N-1a, N-1b and N-2a, N-2b, N-2c, and N-4.

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
Project Site would increase noise levels that could be incompatible with adjacent land uses (Less than Significant with Mitigation).			N-4.	
LU.3: Views of drilling rigs, construction, and potential future operations could be incompatible with adjacent land uses (Significant and Unavoidable).	Implement mitigation measures AE-1a and AE-1b.	See AE-1a and AE-1b.	See AE-1a and AE-1b.	See AE-1a and AE-1b.
LU.4: Future oil field development could increase nighttime lighting and glare inconsistent with surrounding land uses (Less Than Significant With	Implement mitigation measures AE-1b and AE-5.	See AE-1b and AE-5.	See AE-1b and AE-5.	See AE-1b and AE-5.

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
Mitigation).				
LU.5: Emissions and odors from drilling and operations could be incompatible with adjacent land uses (Less Than Significant With Mitigation).	Implement mitigation measures AQ-1a through AQ-1d, AQ-2a and AQ-2b, AQ-3a through AQ-3e, AQ-4, and AQ-5.	See AQ-1a through AQ-1d, AQ-2a and AQ-2b, AQ-3a through AQ-3e, AQ-4, and AQ-5.	See AQ-1a through AQ-1d, AQ-2a and AQ-2b, AQ-3a through AQ-3e, AQ-4, and AQ-5.	See AQ-1a through AQ-1d, AQ-2a and AQ-2b, AQ-3a through AQ-3e, AQ-4, and AQ-5.
LU.6: The proposed Project conflicts with adopted land use plans, policies, ordinances, habitat conservation plans, or planning efforts to protect the recreational resources of the area (Less Than Significant With Mitigation).	Implement all mitigation measures in Section 4.1, Air Quality; Section 4.2, Biology; Section 4.5, Noise; Section 4.6, Aesthetics and Visual Resources; and Section 4.14, Recreation.	See all mitigation measures in Sections 4.1, Air Quality; 4.2, Biology; 4.5, Noise; 4.6, Aesthetics and Visual Resources; and 4.14, Recreation.	See all mitigation measures in Sections 4.1, Air Quality; 4.2, Biology; 4.5, Noise; 4.6, Aesthetics and Visual Resources; and 4.14, Recreation.	See all mitigation measures in Sections 4.1, Air Quality; 4.2, Biology; 4.5, Noise; 4.6, Aesthetics and Visual Resources; 4.14, Recreation; and Habitat Authority where appropriate.

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
FP.1: Future oil field development activities at the site could be deficient in firewater supplies, equipment layout, detection systems, or emergency response (Less Than Significant With Mitigation).	FP-1a The oil field operator shall provide fire water supplies from either the Murphy Station 10-inch line or Suburban Water Supply along Colima Road (both of which are nearby and have sufficient supplies), or some other source, that provides sufficient water supply rates and duration to comply with codes and the LACoFD. Any new pipeline installations shall avoid any sensitive habitats (coastal sage scrub or riparian) and will be placed in non-native grassland or disturbed communities. Any non-native grassland in which new pipeline installations are placed shall be returned to its original state after pipeline installation.	Design of firewater supply systems	Before drilling or construction	LACoFD and City of Whittier
	FP-1b The oil field operator shall implement a community alert notification system to automatically notify area residences and businesses in the event of an emergency at the oil field that would require residents to take shelter or take other protective actions.	Installation and operation of community alert notification system	Before operations	City of Whittier
	FP-1c The oil field operator shall ensure that design and construction comply with applicable codes and standards for equipment spacing, particularly those related to flare location and distances to public areas (near the Preserve hiking trails), installation of fire detection and prevention systems, flame detection, flammable gas detection, fire foam, and associated alarms and alert systems. The design and construction compliance status shall be verified by third-party audits overseen by the City.	Design documents showing fire detection systems and equipment spacing	Before operations	LACoFD and City of Whittier
	FP-1d The oil field operator shall develop emergency response plans addressing the facility's fire-fighting capabilities pursuant to the most recent NFPA requirements, Los Angeles County Fire Code, LACoFD, California Code of Regulation, and API requirements, in coordination with LACoFD and the City of Whittier. These plans should include, but not be limited to, fire monitor placement, fire water capabilities, fire detection capabilities, fire foam requirements, facility condition relating to fire-fighting ease and prevention, and measures to reduce impacts to sensitive resources. The plan should also address coordination with local emergency responders and area schools and daycare facilities.	Submission of emergency response plan	Before drilling and operations	LACoFD and City of Whittier
FP.2: Future oil	FP-2a The oil field operator shall ensure that fuel modification	Fire prevention	Before	LACoFD and

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
field development activities at the site could increase the risk of wildfires (Less Than Significant With Mitigation).	areas create at least 30 feet of clearance from all oilfield equipment and 10 feet from all roadways to reduce the potential for ignition sources starting wildfires. Firewater monitors located within the facility should be placed so that sprays could reach beyond the facility walls by at least 30 feet, or as directed by LACoFD, and could be used to extinguish a wildfire started at the facility fence line. Fire hydrants shall be placed along all roadways, spaced according to LACoFD Fire Prevention Regulations Chapter 8 or as specified by LACoFD. The Applicant shall ensure that appropriate wildfire response equipment is located at the site or at the Rangers Residence if the Ranger Residence is located near the site. Construction activities shall include using spark arrestors on construction equipment, monitoring vehicle traffic to ensure activities do not impact dry brush and lead to fire, and the placing firefighting equipment at the construction site according to LACoFD direction.	plans showing fuel modification areas	drilling and operations	City of Whittier
	FP-2b Emergency response plans shall address the issues related to wildfire risks and response, including development of fuel management/modification fire hazard management plan according to LACoFD requirements, coordination with the area residences, the Preserve Rangers and the LACoFD, as well as first response tactics and equipment.	Emergency response plans showing wildfire planning and preparation	Before drilling and operations	LACoFD and City of Whittier

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
PS.1: Future drilling, construction, and operations would generate solid wastes (Less Than Significant).	None.	n/a	n/a	n/a

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
PS.2: Future drilling, construction, and operations would increase demand for potable water (Less Than Significant).	None.	n/a	n/a	n/a

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
REC.1: Concurrent operational activities at the Project Site during periods of the Project could affect recreational activities (Less than Significant with Mitigation).	REC-1 The Applicant shall construct and maintain interpretative signage within the Preserve's trails in coordination with the Habitat Preserve. Interpretative signage shall provide an educational component about the Preserve, drilling activities, mitigation, descriptions of local wildlife, habitats, environmental values of the Puente Hills area, historic uses, and others as determined by the City in consultation with the Habitat Preserve.	See N-1a through N-1b, N-2a through N-2c, and N-4.	See N-1a through N-1b, N-2a through N-2c, and N-4.	See N-1a through N-1b, N-2a through N-2c, and N-4.
REC.2: The new drilling and operations would increase odors that could reach recreational users (Less Than Significant With	Implement mitigation measures AQ-3a through AQ-3e.	See AQ-3a through AQ-3e.	See AQ-3a through AQ-3e.	See AQ-3a through AQ-3e.

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
Mitigation).				
REC.3: New drilling and operations would adversely affect public viewsheds (Significant and Unavoidable).	Implement mitigation measures AE-1a and AE-1b.	See AE-1a and AE-1b.	See AE-1a and AE-1b.	See AE-1a and AE-1b.

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
ER.1: New electrical equipment at the potential project facilities would increase electricity consumption, thereby increasing energy demand (Less Than Significant).	None.	n/a	n/a	n/a
ER.2: Increased fossil fuel consumption and production (diesel, gasoline, and natural gas) at the potential project facilities	None.	n/a	n/a	n/a

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
could thereby decrease availability (Less Than Significant).				

Impact	Mitigation Measure	Compliance Verification		
		Method	Timing	Responsible Party
EJ.1: Future development could disproportionately impact minority and low-income populations (Less Than Significant).	Implement mitigation measures AQ-3a through AQ-3e, SR-3, N-1a through N-1b, N-2a through N-2c, and N-4.	See AQ-3a through AQ-3e, SR-3, N-1a through N-1b, N-2a through N-2c, and N-4.	See AQ-3a through AQ-3e, SR-3, N-1a through N-1b, N-2a through N-2c, and N-4.	See AQ-3a through AQ-3e, SR-3, N-1a through N-1b, N-2a through N-2c, and N-4.