

# **E&B Oil Development Project**

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City of Hermosa Beach

## **Planning Application**

### **PROJECT DESCRIPTION**

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# **E&B OIL DEVELOPMENT PROJECT PROJECT DESCRIPTION**

## **1.0 INTRODUCTION**

E&B Natural Resources Management Corporation, the Applicant, is proposing the development of the E&B Oil Development Project (proposed project) on a 1.3-acre project site located at 555 6<sup>th</sup> Street in the City of Hermosa Beach (City). The project site is bounded on the east by Valley Drive and on the south by 6<sup>th</sup> Street, approximately seven blocks east of the beach and the Pacific Ocean. The project site is owned by the City and is currently used as their City Maintenance Yard. The Project Applicant will lease the project site from the City for the implementation of the proposed project.

The proposed project provides for the development of an onshore drilling and production site that would utilize directional drilling of 30 wells to access the oil and gas reserves in the tidelands (granted by the State of California to the City) and in an onshore area known as the uplands. Both of these areas are located within the Torrance Oil Field beneath the City. In addition, the proposed project would result in the relocation of the City Maintenance Yard to another site and the installation of offsite underground pipelines for the transport of the processed crude oil and gas from the project site to purchasers.

It is the intent of the Project Applicant to utilize the development framework and parameters permitted by the 2012 Settlement Agreement and Conditional Use Permit (CUP) approved by the City in 1993. The proposed project would utilize the latest technology and operational advancements related to safety and efficiency in order to provide an oil development project that would be accomplished safely and in an environmentally sensitive manner and provide financial benefits to the community.

This Project Description for the Planning Application provides a discussion of the following:

- The location and setting of the project site, offsite utilities and intersection improvements, offsite gas and oil underground pipelines, and the truck routes to be used by the proposed project;
- The history and background of the proposed project;
- The Applicant's objectives for the proposed project;
- The characteristics of the proposed project by phase, including drilling of the wells and the construction and operation of the production facility;
- The permits and discretionary approvals identified at this time for the implementation of the proposed project; and
- A list of the technical documentation prepared for the Applicant to assess the potential environmental effects of the proposed project. The technical reports and studies are provided in the Appendices to the Planning Application. The operational practices and

the design features incorporated into the proposed project to address the potential environmental effects are described in detail in the technical reports.

Attachment A to this Project Description provides a review of the proposed project's consistency with the conditions of project approvals defined in the CUP.

Attachment B to this Project Description provides a summary of the improvements to the proposed project that have occurred in technological advancements, operational practices, and the design of the proposed project since the previously proposed project was processed and approved by the City in 1993.

Attachments C, D, and E to this Project Description, respectively, provide information on the oil drilling activities, the production process, and the construction and operation of the gas and oil pipelines that would occur with the implementation of the proposed project.

## 2.0 PROJECT LOCATION AND SETTING

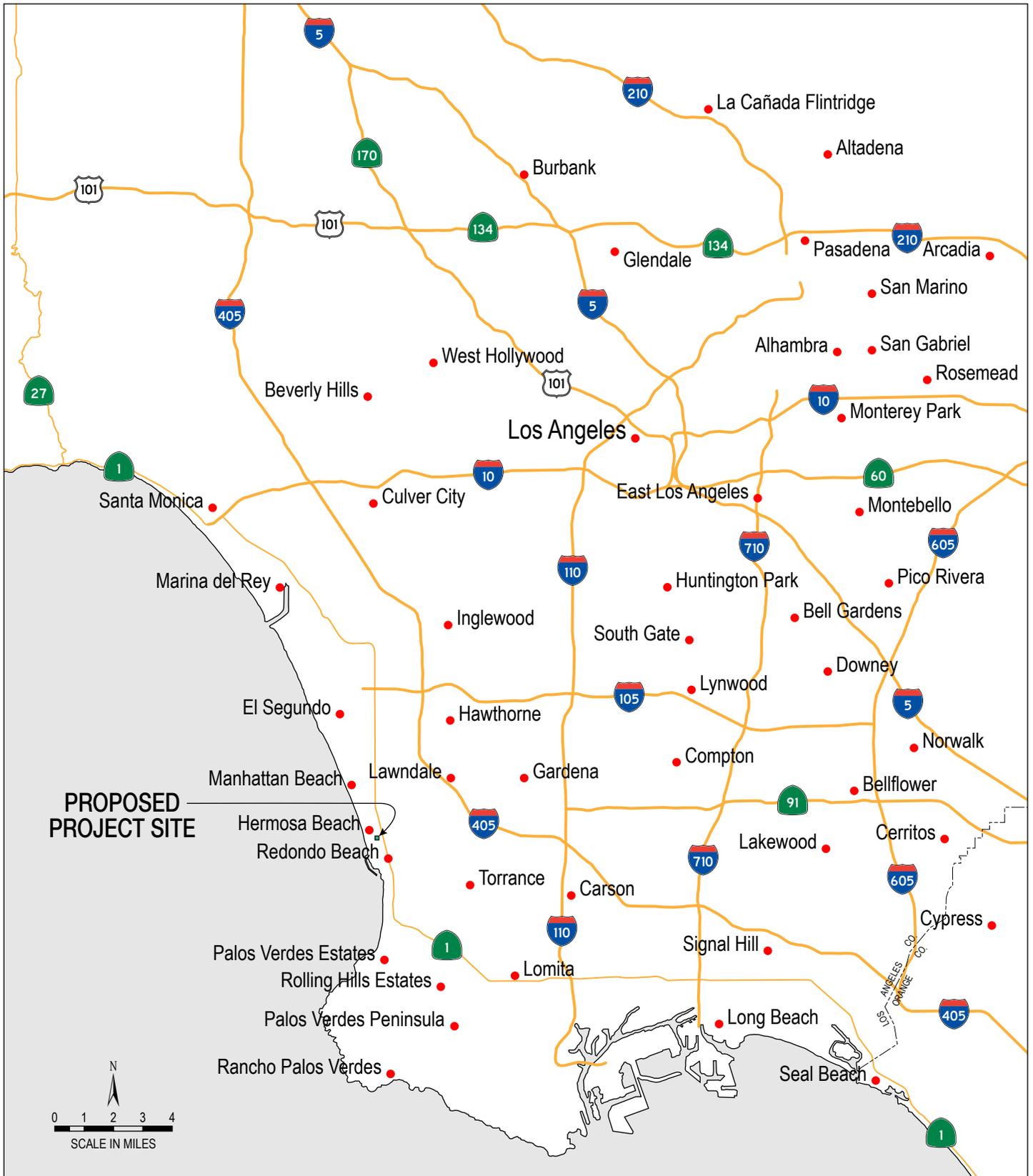
The proposed project would result in the construction of project-related facilities at the following locations:

- The project site located at 555 6<sup>th</sup> Street;
- Within Valley Drive between 8<sup>th</sup> Street and 6<sup>th</sup> Street for the installation of underground utilities;
- At the intersection of 6<sup>th</sup> Street and Valley Drive for improvement of the intersection geometrics;
- Within an offsite gas pipeline alignment from the project site south along Valley Drive/N. Francisca Avenue to a location for a gas metering station within the Southern California Edison (SCE) Utility Corridor east of N. Francisca Avenue; and
- Within an offsite oil pipeline alignment from the project site south along Valley Drive to east along Herondo Street, Anita Street, and 190<sup>th</sup> Street or south along Valley Drive/N. Francisca Avenue to east along the SCE Utility Corridor and 190<sup>th</sup> Street.

These locations for the construction of the project-related facilities, as well as the truck routes that would be used by the proposed project, are described below. The City would provide the information on the site or sites proposed for the relocation of the City Maintenance Yard activities.

### 2.1 Project Site

The onshore drilling and oil and gas recovery facility for the proposed project would be constructed on a 1.3-acre project site located at 555 6<sup>th</sup> Street in the southern portion of the City of Hermosa Beach in southwestern Los Angeles County. The project site would have 30 oil wells, four water injection wells, and supporting production equipment with the implementation of the proposed project. The project site is shown in its regional setting in Figure 1.



Source: Northcutt & Associates; Google Earth aerial dated March 7, 2011.

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Figure 1  
**Regional Location**

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Figure 2 provides the location of the project site in its local setting and shows the existing conditions on and in the vicinity of the project site. As indicated in Figure 2, the project site is bounded by the following: to the east by Valley Drive, the Veterans Parkway (Hermosa Valley Greenbelt/Trail), Ardmore Park and, further to the east, by Ardmore Avenue and residential development; to the south by 6<sup>th</sup> Street, the City Beach Self Storage facility, light manufacturing land uses and, further to the south, South Park and residential development; to the west by light manufacturing land uses, Cypress Street and, further to the west, residential development; and to the north by light manufacturing land uses and, further to the north, residential development and 8<sup>th</sup> Street.

The project site is currently developed as the City Maintenance Yard and the proposed project would require the relocation of this facility to another site or sites as determined by the City. As indicated in Figure 3, existing development on the project site consists of three buildings, two trailers, storage containers, sheds, trash bins, a propane tank, concrete paving and asphalt, fencing, and masonry walls. In addition, within the boundaries of the project site, there is an asphalt parking area to the south of the City Maintenance Yard that provides 15 parking spaces for employees (between the hours of 6:00 a.m. and 6:00 p.m.) and for the public after hours (6:00 p.m. to 6:00 a.m.) and on weekends and holidays.

Although the project site is relatively flat, it is underlain by windblown sand dunes that previously covered the region, resulting in uneven ground due to natural conditions. In the 1920s and 1930s, the northeastern portion of the project had a large depression that was mined for sand. Around 1927, the City's dump and refuse burner was located on the project site and, by 1947, the depression was filled in. The resulting former landfill is approximately 45 feet deep and is filled with glass, porcelain, and ceramic towards the bottom and soils containing miscellaneous metals, wires, glass, and other materials toward the top. Between the depths of 3 feet and 25 feet below ground surface (bgs), the former landfill contains some soil with lead at concentrations above the Environmental Protection Agency (EPA) Regional Screening levels. In addition, soils impact with total petroleum hydrocarbons (TPH) were found at depths of 25 to 44 feet bgs within the central portion of the landfill. For a detailed discussion of the soil conditions on the project site, refer to the Geotechnical Investigation provided in Appendix D the Phase II Environmental Site Assessment provided in Appendix F, and the Remedial Action Plan provided in Appendix G of the Planning Application.

In 1930, an oil well (Stinnett Oil Well No. 1) was drilled in the western portion of the project site. The oil well was later abandoned in 2005 consistent with the current standards of the California Division of Oil, Gas, and Geothermal Resources (DOGGR). During the mid-1940s, the first building was constructed on the project site for City maintenance uses, with the last building constructed in the 1980s. Since the 1990s, with the exception of the addition of trailers, storage containers, and sheds, the project site has generally remained unchanged.



Source: Northcutt & Associates; Google Earth aerial dated March 7, 2011.

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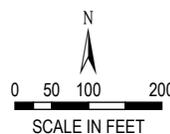


Figure 2  
**Local Setting of Project Site**

**E&B Oil Development Project**



### **2.2 Offsite Utility Improvements**

The proposed project would require the installation of underground conduit, for a distance of 280 linear feet in Valley Drive from 8<sup>th</sup> Street to the northeast corner of the project site, to allow for the provision of electrical service by SCE. The utility poles would be removed along the frontage of the project site with Valley Drive and the overhead electrical and communication lines would be placed underground to allow for site access during construction activities and improvement of the landscape area adjacent to Valley Drive. In addition, the utility poles at the southwest corner of the intersection of 6<sup>th</sup> Street/Valley Drive would be removed and the overhead utility lines would be placed underground. Figure 2 provides the location of these offsite electrical and communication improvements.

The West Basin Municipal Water District would serve the proposed project from an existing reclaimed water line in the Veterans Parkway. Service would be extended to the project site. In addition, a fire hydrant would be provided adjacent to the project site at a location determined by the City of Hermosa Beach Fire Department. Water service for the hydrant may require extension of a water line.

### **2.3 Offsite Intersection Improvements**

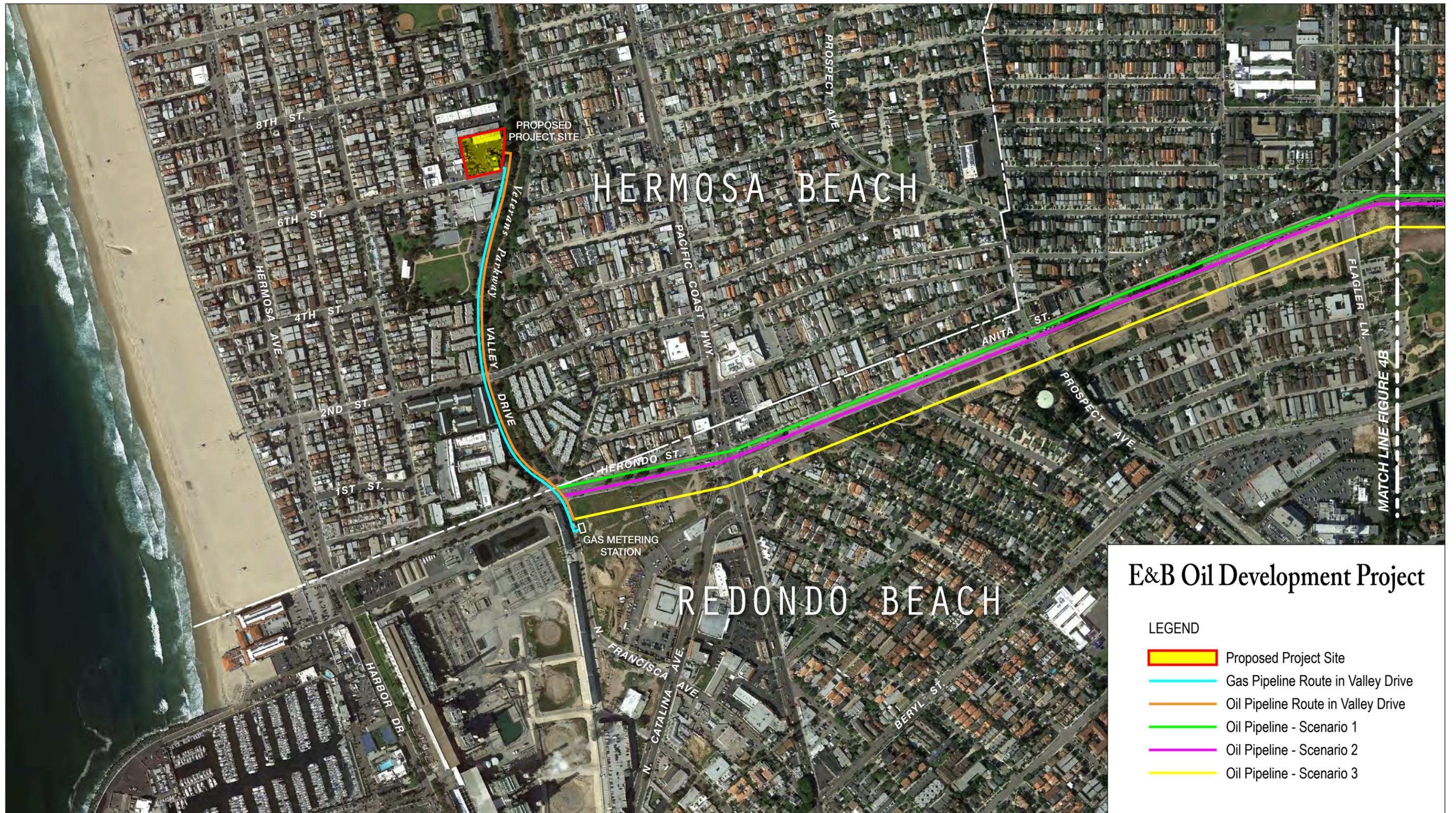
The proposed project would require improvements to the 6<sup>th</sup> Street and Valley Drive intersection geometrics. Figure 2 provides the location of the offsite intersection improvements.

### **2.4 Offsite Gas Pipeline Alignment and Metering Station Site**

Figure 4A provides the conceptual alignment of the proposed offsite underground gas pipeline and the conceptual location of the proposed metering station. An offsite underground pipeline for the transport of gas would be constructed for a distance of 0.43 mile in the right-of-way (ROW) of southbound Valley Drive (which is one-way starting at 2<sup>nd</sup> Street) in the City of Hermosa Beach to a tie in to a Southern California Gas Company (SCG) gas line in the SCE Utility Corridor east of N. Francisca Avenue in the City of Redondo Beach.

The gas pipeline would consist of two parallel pipelines, four inches in diameter, and located at a depth of approximately 3.5 to 4 feet below ground surface (bgs) within the road ROW until it ties into the SCG line at a proposed metering station immediately to the east of N. Francisca Avenue. The pipeline would be a loop system that allows for the gas to be returned to the project site for further treatment in the event that the produced gas did not meet SCG standards. The metering station site, which would be provided as a part of the proposed project and owned by SCG, would be approximately 40 by 60 feet in size and surrounded by an 8-foot high block wall. The construction and operation of the proposed gas line and metering station is discussed in greater detail in Attachment E to this Project Description.

As shown in Figure 4A, the gas pipeline is bounded: to the east by the Veterans Parkway and Ardmore Park and, further to the east, by Ardmore Avenue and residential development in



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### LEGEND

- Proposed Project Site
- Gas Pipeline Route in Valley Drive
- Oil Pipeline Route in Valley Drive
- Oil Pipeline - Scenario 1
- Oil Pipeline - Scenario 2
- Oil Pipeline - Scenario 3

Source: E&B Natural Resources Management, October 2012; Google Earth aerial dated March 7, 2011.

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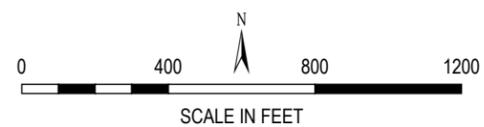
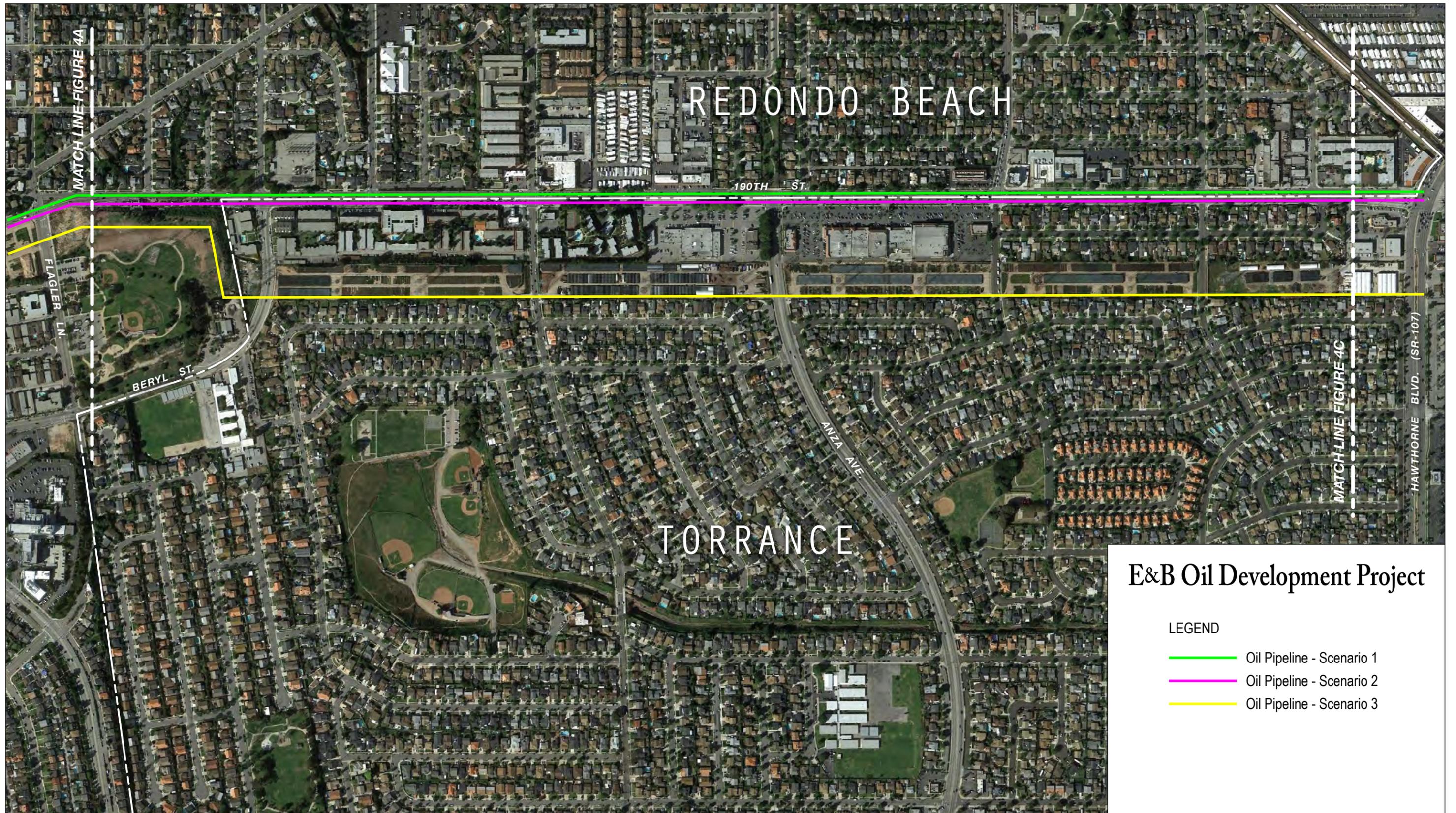


Figure 4A  
**Conceptual Locations of Gas and  
 Oil Pipeline Scenarios**



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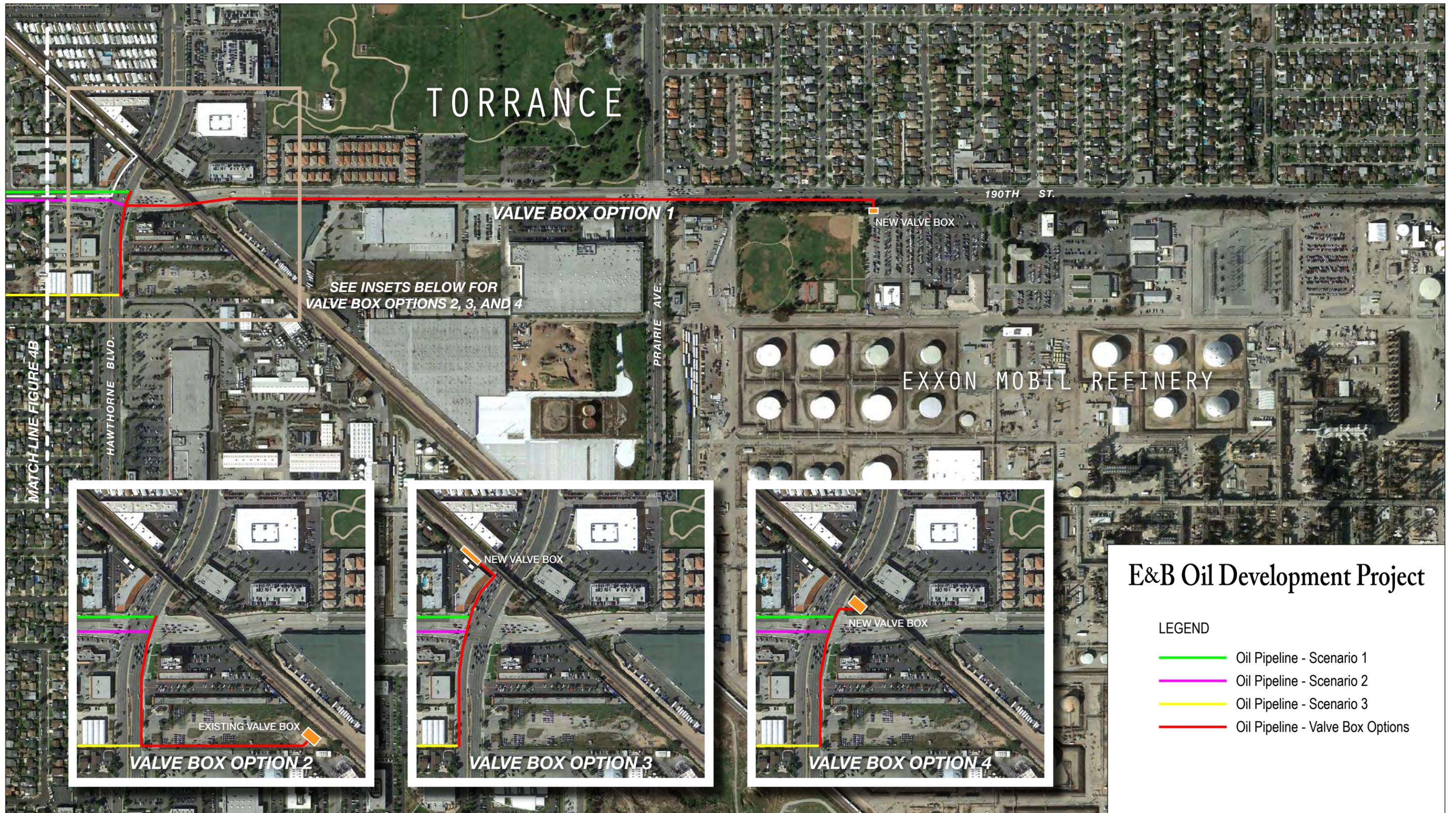
### LEGEND

- Oil Pipeline - Scenario 1
- Oil Pipeline - Scenario 2
- Oil Pipeline - Scenario 3

Source: E&B Natural Resources Management, October 2012; Google Earth aerial dated March 7, 2011.



Figure 4B  
**Conceptual Locations of Gas and  
Oil Pipeline Scenarios**



Source: E&B Natural Resources Management, October 2012; Google Earth aerial dated March 7, 2011.

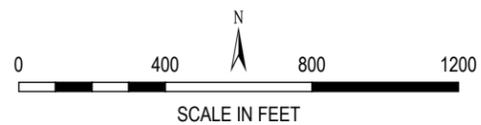


Figure 4C  
**Conceptual Locations of Gas and Oil Pipeline Scenarios**

the City of Hermosa Beach; and to the west by the City Beach Self Storage facility, light manufacturing land uses, South Park, and residential development in the City of Hermosa Beach and a self storage facility and facilities associated with the AES Power Plant to the west in the City of Redondo Beach.

### **2.5 Offsite Oil Pipeline Alignment**

An offsite underground pipeline for the transport of oil to a valve box location in the City of Torrance would be constructed for a maximum distance of approximately 3.55 miles in one of three potential pipeline scenarios that would traverse through the Cities of Hermosa Beach, Redondo Beach, and Torrance. The pipeline would be eight inches or less in diameter, located at a depth of approximately 3.5 to 4 feet bgs depending on the grade. At one of four potential valve box locations, the pipeline would tie-in to an existing pipeline that transports oil to a refinery. Figures 4A and 4B provide the conceptual alignments of the three oil pipeline scenarios, the respective jurisdictional boundaries, and the adjacent land uses. Figure 4C provides the four valve box location options. The construction and operation of the proposed oil pipeline is discussed in greater detail in Attachment E to this Project Description.

As shown in Figure 4A, the oil pipeline would be constructed for a distance of 0.39 mile in the ROW of southbound Valley Drive (which is one-way with on-street parking) in the City of Hermosa Beach to the corner of Valley Drive/N. Francisca Avenue and Herondo Street in the City of Redondo Beach. At this point, the oil pipeline would turn to the east along one of the following three pipeline scenarios:

- Scenario 1 – Scenario 1 consists of the construction of the oil pipeline towards the east within the ROW of Herondo Street, Anita Street, and 190<sup>th</sup> Street in the City of Redondo Beach to the intersection of 190<sup>th</sup> Street/Hawthorne Boulevard in the City of Torrance. At this point, Scenario 1 would continue to one of the four valve box options discussed below.
- Scenario 2 – Scenario 2 consists of the construction of the oil pipeline towards the east within the ROW of Herondo Street and Anita Street in the City of Redondo Beach and the ROW of 190<sup>th</sup> Street in the City of Torrance to the intersection of 190<sup>th</sup> Street/Hawthorne Boulevard. At this point, Scenario 2 would continue to one of the four valve box options discussed below.
- Scenario 3 – Scenario 3 consists of the construction of the oil pipeline towards the east within the SCE Utility Corridor in the Cities of Redondo Beach and Torrance. When the oil pipeline meets Hawthorne Boulevard in the City of Torrance, Scenario 3 would continue to one of the four valve box options discussed below.

The oil pipeline will end at one of the valve box locations discussed below:

- Valve Option 1 – For Pipeline Scenarios 1 and 2, the pipeline would continue from the Hawthorne Boulevard/190<sup>th</sup> Street intersection down 190<sup>th</sup> Street to the Exxon Mobil Refinery, where it would connect with a valve box location within the refinery site. For Pipeline Scenario 3, the pipeline would turn north in Hawthorne Boulevard and east in 190<sup>th</sup> Street to the refinery site.

- Valve Option 2 - For Pipeline Scenarios 1 and 2, the pipeline would turn south in Hawthorne Boulevard to the SCE Utility Corridor where it would turn east to the valve box location. For Pipeline Scenario 3, the pipeline would continue east in the SCE Utility Corridor across Hawthorne Boulevard to the valve box location.
- Valve Option 3 – For Pipeline Scenarios 1, 2, and 3, the pipeline would turn north in Hawthorne Boulevard to the valve box location adjacent to the Santa Fe Rail Road line.
- Valve Option 4 - For Pipeline Scenarios 1, 2, and 3, the pipeline would turn north in Hawthorne Boulevard to the valve box location northeast of the intersection of 190<sup>th</sup> Street/Hawthorne Boulevard.

### 2.6 Truck Routes

The proposed project would utilize City designated truck routes for the transport of demolition debris, the drilling rig and associated equipment, exported soil, and supplies and materials during construction activities, the transport of oil during Phase 2 when the initial drilling and testing phase would occur, and for the ongoing maintenance and operations of the proposed project. Figures 5 and 6 provide the inbound and outbound truck routes, respectively, for the proposed project as described below:

#### **Inbound Trucks**

1. Inbound trucks from westbound Artesia Boulevard
2. Left on to southbound Pacific Coast Highway
3. Left on to westbound Pier Avenue
4. Left on southbound Valley Drive
5. Right into the project driveway on Valley Drive

Or

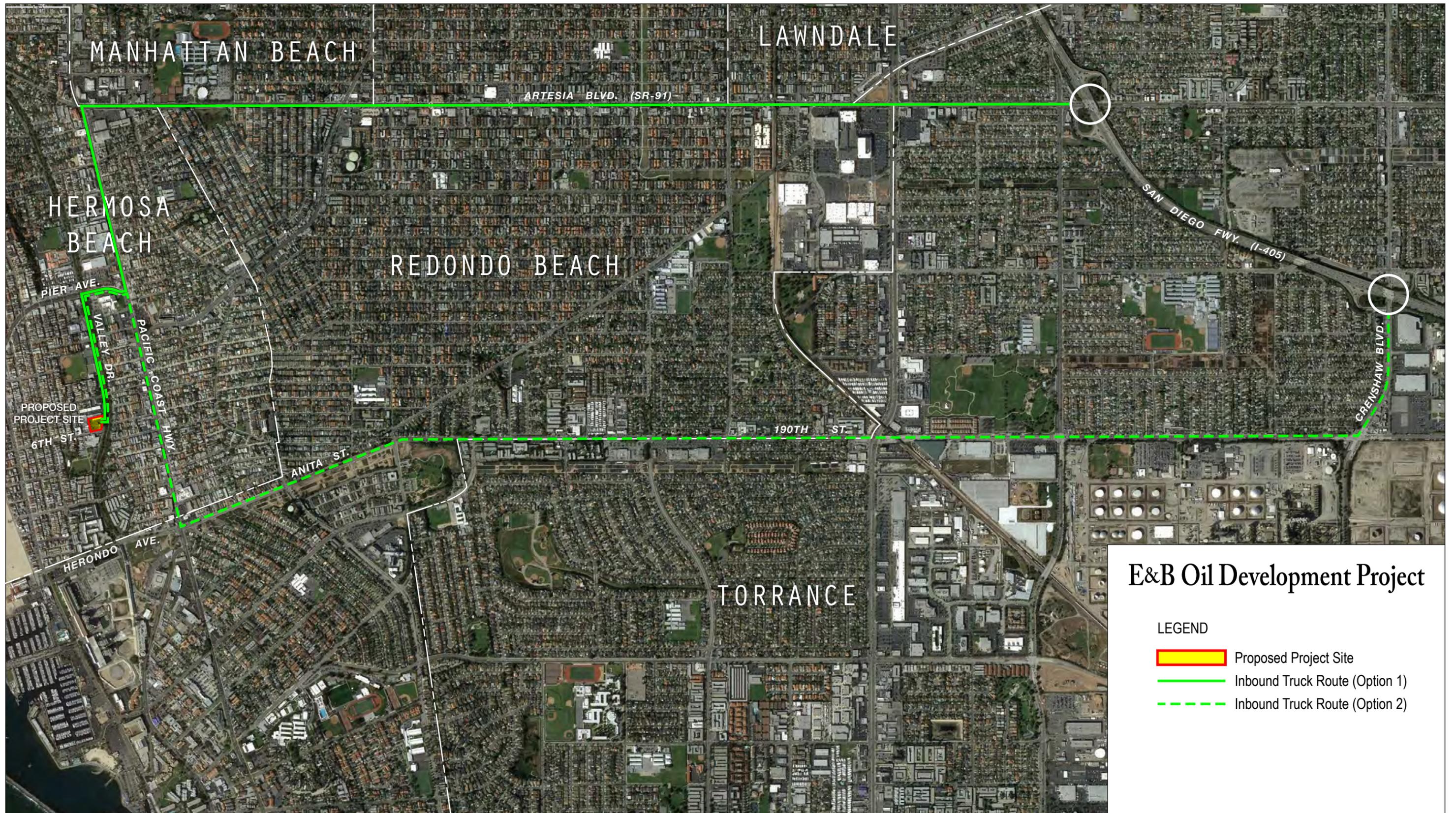
1. Inbound trucks from westbound 190<sup>th</sup> Street (which becomes Anita Street)
2. Right on northbound Pacific Coast Highway
3. Left on to westbound Pier Avenue
4. Right on to southbound Valley Drive
5. Right into the project driveway on Valley Drive

#### **Outbound Trucks**

1. Outbound trucks on to eastbound 6<sup>th</sup> Street
2. Right on to southbound Valley Drive
3. Left on to eastbound Herondo Street
4. Continue on to Anita Street, then 190<sup>th</sup> Street to the Interstate 405 (I-405)/Crenshaw interchange

Or

1. Outbound trucks on to eastbound 6<sup>th</sup> Street
2. Right on to southbound Valley Drive
3. Left on to eastbound Herondo Street
4. Left on to northbound Pacific Coast Highway



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### LEGEND

- Proposed Project Site
- Inbound Truck Route (Option 1)
- Inbound Truck Route (Option 2)

Source: Arch Beach Consulting, June 2012; Google Earth aerial dated March 7, 2011.

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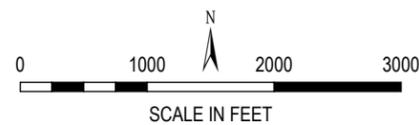
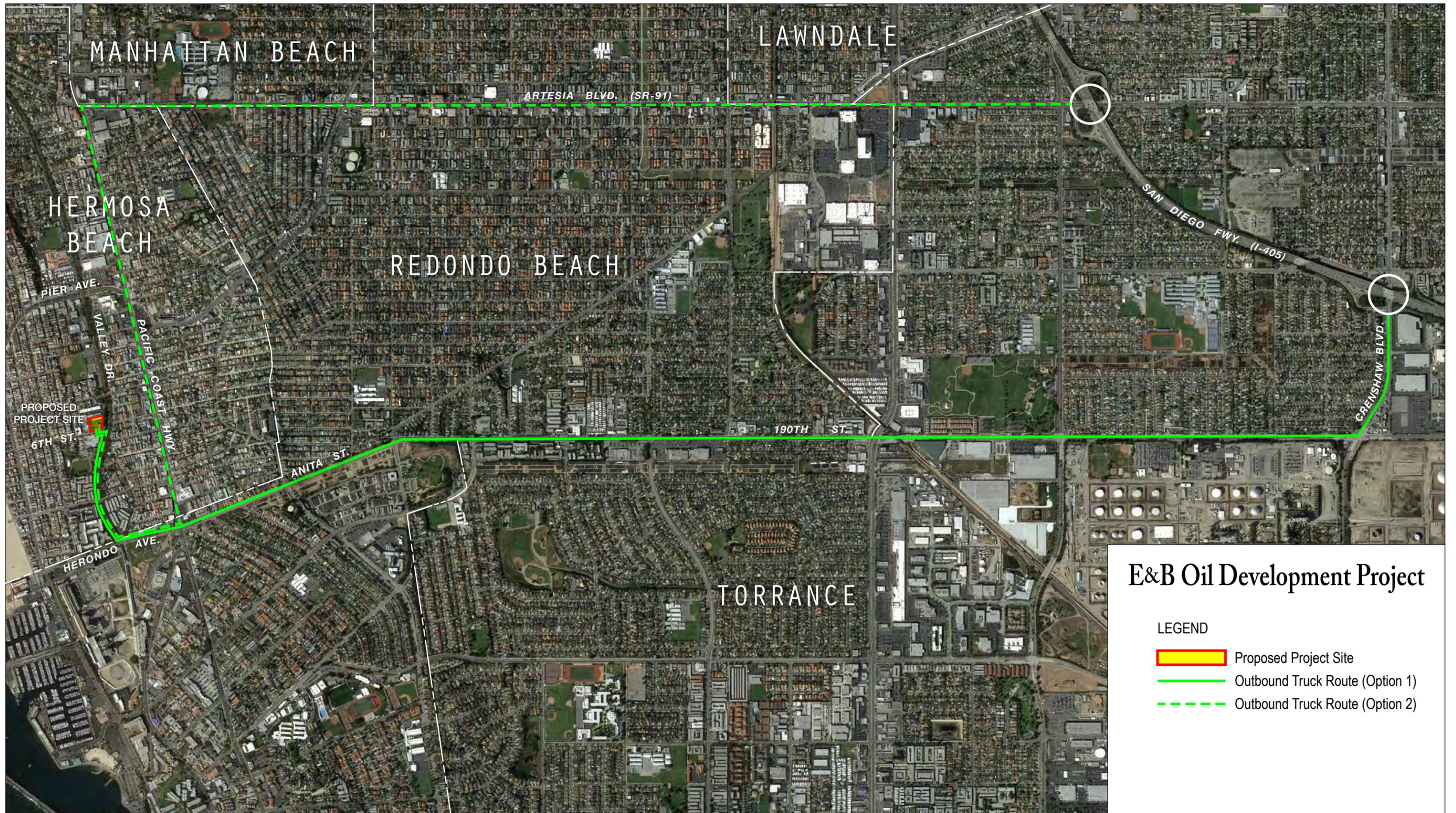


Figure 5  
Location of Inbound Truck Routes



Source: Arch Beach Consulting, June 2012; Google Earth aerial dated March 7, 2011.

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**LEGEND**

- Proposed Project Site
- Outbound Truck Route (Option 1)
- Outbound Truck Route (Option 2)

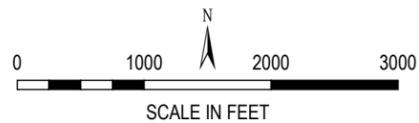


Figure 6  
Location of Outbound Truck Routes

5. Continue northbound on Pacific Coast Highway or right on to eastbound Artesia Boulevard
6. Continue on Artesia Boulevard to the I-405/Artesia Boulevard interchange

Figure 7 provides the truck route that would be used to transport oil by tanker truck during Phase 2 when the drilling and testing phase would occur prior to the construction of the oil pipeline for the proposed project.

### **3.0 PROJECT HISTORY AND BACKGROUND**

#### **3.1 Project History**

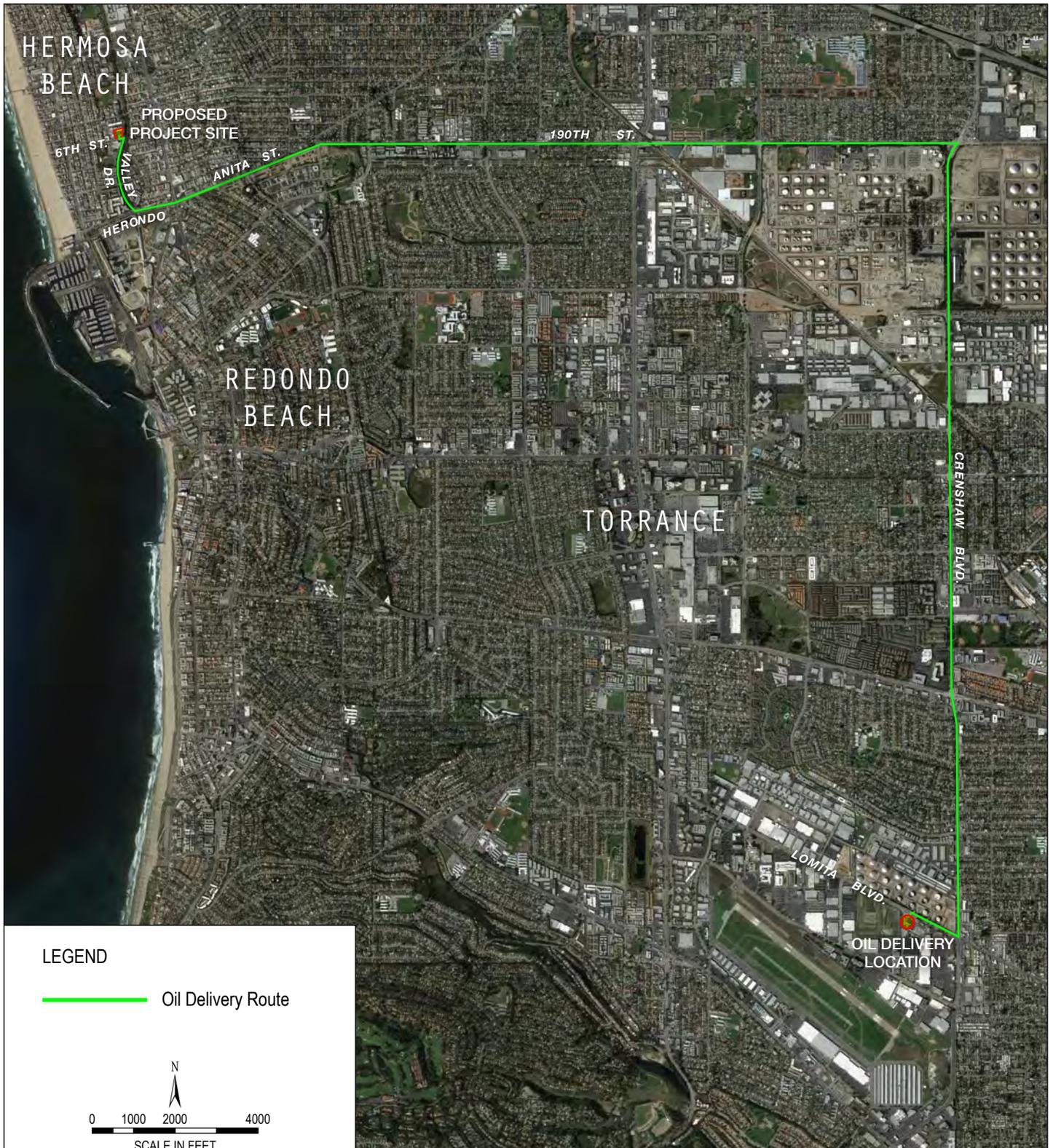
The Wilmington-Torrance Oil Field was discovered in the Los Angeles Basin at the turn of the century. In 1919, the State of California granted the City of Hermosa Beach, in trust, the tidelands within the Torrance Oil Field. Although the equipment and methods used were unsophisticated, oil drilling increased in the Los Angeles Basin into the 1930s. The resulting issues related to the oil drilling practices of that time period caused the voters in several cities to pass ordinances banning oil drilling. In the City of Hermosa Beach, where many oil wells had been drilled (including Stinnett Oil Well No. 1 at the City Maintenance Yard), a citywide oil and gas drilling prohibition was passed in 1932.

Changes in the oil drilling practices and production operations have occurred since the 1930s. These changes included: advancements in technology resulting in equipment designed for safety and monitoring systems to reduce the potential for the development of hazardous situations; updated codes and training that provided fire departments with high standards for fire safety; and the development of directional drilling that allows for the consolidation of numerous production sites into one site.

In an effort to identify ways to generate additional City revenue, an independent consultant was hired by the City to investigate the potential for oil revenue and to confirm the possible loss of the City's oil resources to oil companies drilling along the City boundary with the City of Redondo Beach. The findings of the investigation were forwarded to the California State Lands Commission for their review. As a result, it was confirmed that oil companies in Redondo Beach were draining oil from the City of Hermosa Beach.

In 1984, Ballot Measures P and Q were passed by the voters in the City of Hermosa Beach, granting exceptions to the drilling ban that authorized oil development on two City-owned parcels, the City Maintenance Yard and the South School site. Subsequently in 1985, the City adopted the Oil Code within the City's Zoning Ordinance (a component of the City's Municipal Code) that established terms and conditions governing oil drilling and development in the City, including the requirement for a Conditional Use Permit (CUP) on the City-owned parcels.

In 1986, the City selected the Macpherson Oil Company (Macpherson) to develop an oil production facility to recover oil, gas, and other hydrocarbons from the City Maintenance Yard. Also in 1986, Macpherson and the City entered into a lease that provided Macpherson



Source: Arch Beach Consulting, August 2012; Google Earth aerial dated March 7, 2011.

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Figure 7  
 Oil Delivery Location for  
 Tanker Trucks in Phase 2

with the right to conduct oil and gas operations within the City. The original 1986 lease was amended many times, with an amendment in 1992 becoming the lease between Macpherson and the City under which the development of the proposed project would proceed.

Under the provisions of the lease, the City applied to the California State Lands Commission to allow drilling for oil, gas, and other hydrocarbons in the tidelands area and for approval of the lease. The City prepared an Environmental Impact Report (EIR) for the Macpherson project that was certified on May 9, 1990 along with the City's Statement of Overriding Considerations. On that same date, the City Council adopted amendments to the Zoning Ordinance to make oil drilling a permitted use with a CUP in a Light Manufacturing (M-1) zone and to allow an exception to the 35-foot height limit requirement in an M-1 zone for a temporary period during drilling operations.

The California State Lands Commission considered the EIR certified by the City and, on April 28, 1993, approved the lease of January 14, 1992 (the Oil and Gas Lease No. 2) between the City and Macpherson authorizing drilling for both on-shore and off-shore resources from the City Maintenance Yard. The Hermosa Beach Stop Oil Coalition (Coalition) filed a lawsuit against the Commission, challenging its approval, and the matter was returned to the Commission by order of the trial court to determine whether the Macpherson project was in the best interests of the State. In March 1994, the Commission confirmed its decision to approve the lease, finding that the Macpherson project was in the best interests of the State.

Under the provisions of the lease, Macpherson applied to the City for a CUP for the project and, on August 12 1993, the City Council certified an Addendum to the EIR and adopted Resolution No. 93-5362 thereby approving the CUP for oil development at the City Maintenance Yard and construction of oil and gas pipelines along Valley Drive. The Coalition and other petitioners filed a lawsuit against the City challenging the approval of the CUP. While the trial court initially ruled that the Macpherson project exceeded certain size restrictions contained in Measures P and Q, the Court of Appeal reversed that decision in June 1996 and ordered further proceedings by the trial court on CEQA issues. The trial court denied the CEQA claims and the Coalition and other petitioners abandoned their appeal in September 1997, concluding the litigation and confirming the validity of the City's approval of the CUP.

In September 1993, the Macpherson Oil Company submitted an application to the California Coastal Commission for a Coastal Development Permit (CDP). After withdrawal of their initial CDP application, Macpherson submitted a new application for a CDP in November 1996. To address certain hazard issues raised by the California Coastal Commission, Macpherson further revised the CDP application in November 1997. On February 4, 1998, the Commission approved the CDP subject to certain conditions.

In November 1995, during the pending status of the CDP proceedings, Ballot Measure E was passed in the City, which eliminated the provisions for limited oil and gas development at the City Maintenance Yard and the School Site that had been authorized by Measures P and Q. The Coalition asserted that Measure E applied retroactively to the Macpherson project and that, initially, the City continued to perform under the lease based on potential legal

exposure. In April 1997, the Coalition filed a lawsuit for a court order that Measure E applied retroactively to the Macpherson project. In November 1998, the trial court ruled that Measure E applied to the Macpherson project, but that it would constitute “an unconstitutional impairment of contract” (*Hermosa Beach Stop Oil Coalition v. City of Hermosa Beach*, 86 Cal.App.4<sup>th</sup> 534, 546 [2001] [*Hermosa Beach 2001*]). In *Hermosa Beach 2001*, the Court of Appeal reversed the trial court and determined that Measure E did not constitute an unconstitutional impairment of the contract and upheld the applicability of Measure E to the Macpherson project, banning oil development in the City. During the pending status of the lawsuit, the City conducted further investigation with respect to the Macpherson project’s hazards and terminated the project. This action by the City resulted in additional claims by Macpherson for breach of contract (Oil and Gas Lease No. 2) by the City. The Court of Appeal in *Hermosa Beach 2001* declined to rule on the breach of contract claims.

After the decision in *Hermosa Beach 2001*, Macpherson and the City continued to litigate whether Measure E constituted a breach of the lease. Through a series of rulings, the trial and appellate courts decided that Macpherson could pursue breach of contract remedies against the City and that Macpherson could be entitled to damages for a breach of the lease unless Macpherson could not have otherwise obtained the drilling and well permits from the City. The trial on the issue of potential damages was scheduled for April 2012, with Macpherson seeking \$750 million in damages from the City. After the trial court ruled on several certain evidentiary pre-trial motions, the discussions between Macpherson, the Applicant, and the City commenced to settle the lawsuit.

In March 2012, the Hermosa Beach City Council unanimously entered into a Settlement Agreement with the Macpherson and the Applicant. As a result of the Settlement Agreement with the City and Macpherson, the Applicant has obtained, subject to voter approval, the rights to drill and produce oil and gas in the extent of the Torrance Oil Field that is within the jurisdiction of the City from the City Maintenance Yard site. This would occur in exchange for the delivery of certain consideration on its own behalf and on the behalf of the City to Macpherson thereby ending lengthy and costly litigation against the City.

### **3.2 Project Background**

Oil and gas production is the process of extracting crude oil and gas from the earth. Oil and gas are decayed organic matter that is imbedded and trapped in the openings and pores in the rocks. Once brought to the surface, the oil, gas, and water mixture is processed to recover the salable products (crude oil and gas) from the water.

In order for the Applicant to determine if there is a viable oil development project, two key steps needed to occur: first, a determination needed to be made whether or not there was the potential for subsurface hydrocarbons to exist in the defined “area of interest” (in this case within the City’s jurisdiction); and, second, if it is determined that there is the potential for subsurface hydrocarbons to exist, the right to develop the minerals must be secured and surface access to perform the appropriate drilling operations needed to be obtained.

To determine the potential for subsurface hydrocarbons, the Applicant's petroleum geologists reviewed data related to the "area of interest." This included the detailed review and analysis of maps, historical well data, offset operations, prior studies, seismic data, and other documentation. Based on the technical assessment of this information, it was determined that the potential for hydrocarbons exist in the tidelands granted by the State of California to the City and in an on-shore area known as the uplands. To secure the right to develop the minerals, the Applicant entered into a Settlement Agreement with the City and MacPherson whereby they bought the right to extract oil and gas. The remaining step of obtaining approval for surface access to perform the appropriate drilling operations is the subject of the Planning Application.

The proposed project would utilize directional drilling techniques to access the crude oil and gas reserves in the tidelands (off-shore) and uplands (on-shore) in the portions of the Torrance Oil Field within the City's jurisdiction. The approximate extent of the City's jurisdiction within the Torrance Oil Field is provided in Figure 8. Figure 9 provides a typical well course cross section illustrating how wells can reach the oil reserves, within the tidelines, from the project site. The primary target zones are the Upper Main, Lower Main, and Del Amo Zones with some production potential within the Schist Conglomerate. These are all part of the Puente Formation.

As shown in Figure 9, the Upper Main Zone is the uppermost part of the Puente Formation and is expected to be the shallowest oil productive zone in the City. Of the three known producing horizons in the Torrance Oil Field, the Upper Main Zone is the most prolific. The Upper Main Zone beneath the Hermosa Beach tidelands and uplands is expected to be 300 feet thick and composed of inter-bedded thin sands and shales. The shales are fractured and provide both fractured porosity and permeability. The fractures are critical to the performance of the reservoir in the area due to the fine-grained and thin-bedded nature of the sands.

The Lower Main Zone lies below the Upper Zone in the Puente Formation. Similar to the Upper Main Zone, the shales of the Lower Main Zone are fractured and important for oil production. However, the Lower Main Zone has fewer interbedded fine-grained sands and is over 500 feet thick.

The Del Amo Zone lies beneath the Lower Main Zone. It contains the least amount of thin-bedded sandstone in the Puente Formation. Similar to the other two zones, the shales of the Del Amo Zone are fractured and important for oil production. The Del Amo Zone varies the most in thickness and could be from 200 feet up to 700 feet beneath the City.

The Schist Conglomerate underlies the Del Amo Zone and is resting on metamorphic basement rock (Catalina Schist). The Schist Conglomerate could be as much as 400 feet thick and is composed of reworked fragments derived from erosion of the underlying Catalina Schist. Although it is unknown if the Schist Conglomerate is productive beneath the City, it is still a viable exploration target.

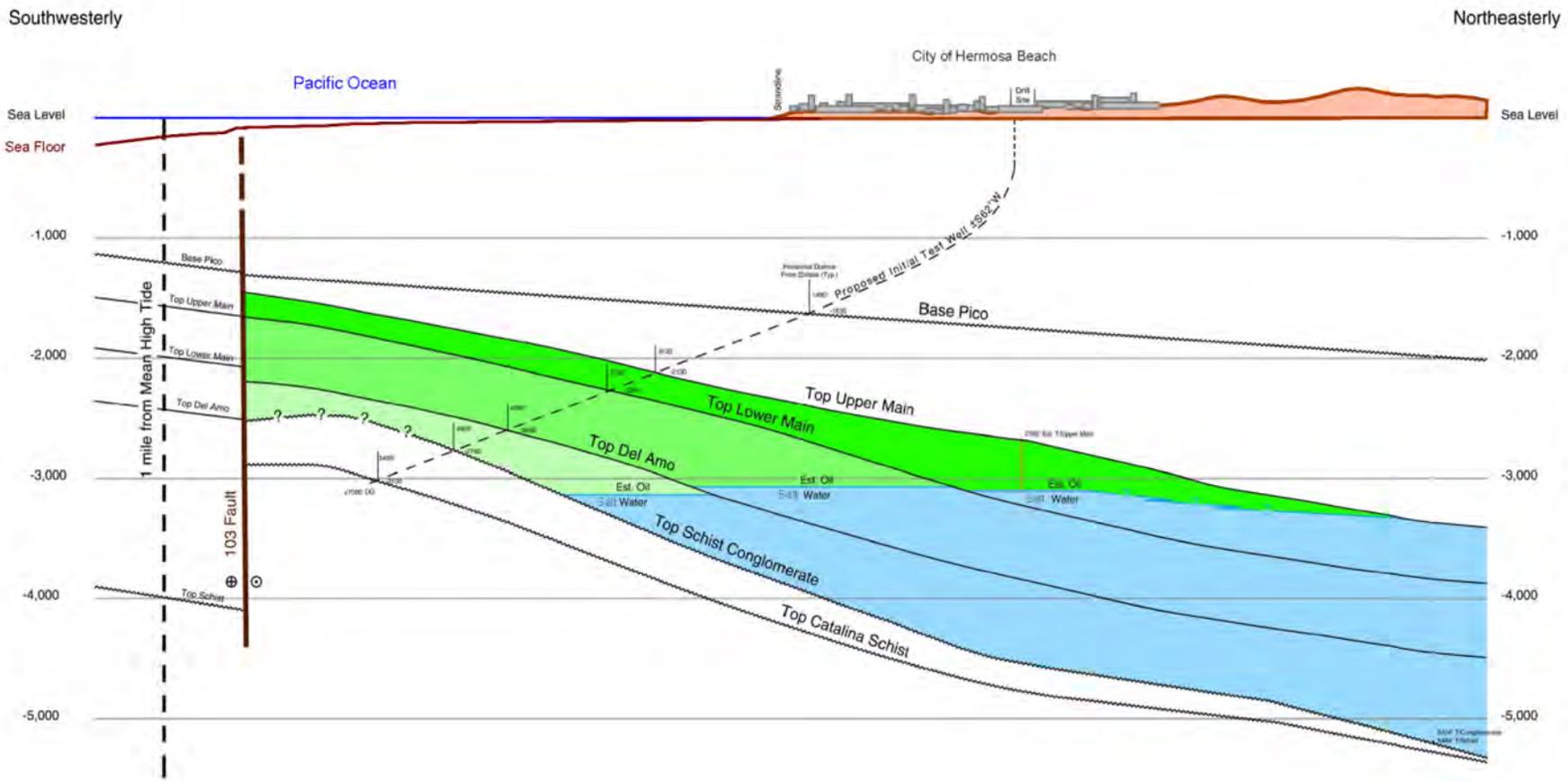


Source: E&B Natural Resources Management Corp.; Google Earth aerial dated March 7, 2011.

E&B Natural Resources  
[www.EBNR-Hermosa.com](http://www.EBNR-Hermosa.com)

# E&B Oil Development Project

Figure 8  
**Extent of Torrance Oil Field within the  
 Jurisdiction of Hermosa Beach**



Source: E&B Natural Resources Management Corp.

E&B Natural Resources  
[www.EBNR-Hermosa.com](http://www.EBNR-Hermosa.com)

E&B Oil Development Project

Figure 9  
**Typical Well Course**

The proposed project provides for the development of a surface location from which the oil wells can be drilled and the production of the extracted oil and gas can occur. This is referred to as a consolidated drill site since it would result in less surface disturbance by drilling wells from one location rather than from several different surface locations. The use of the City Maintenance Yard as the project site for the proposed project has been made possible by advancements in directional drilling that have occurred over time. An overview of the drilling process is discussed in Attachment D to this Project Description.

### 4.0 PROJECT OBJECTIVES

The Applicant's objectives for the proposed project consist of the following:

- Develop the proposed project consistent with the March 2, 2012 Settlement Agreement with the City utilizing directional drilling techniques from the project site which is the current City Maintenance Yard.
- Maximize oil and gas production from the Torrance Oil Field within the City's jurisdiction, thereby maximizing the economic benefits to the City.
- Provide an oil and gas development project on the project site that utilizes the latest technology and operational advancements related to safety and production efficiency in order to provide a proposed project that would be safe and meets the applicable environmental requirements.
- Conduct construction and drilling activities on the project site incorporating technological advancements, operational practices, and design features related to air quality, odors, noise, hazards, and water quality to minimize the potential impacts on the adjacent community and the environment.
- Provide landscaping, hardscape, signage, lighting, and other design features to minimize the visual effects of the proposed project on the adjacent community.
- Implement operational practices and incorporate design features to provide safe vehicular ingress and egress during temporary construction activities and the ongoing operation of the proposed project.

### 5.0 CHARACTERISTICS OF THE PROPOSED PROJECT

The proposed project would occur in four phases consisting of the following:

- Phase 1: Site Preparation
- Phase 2: Drilling and Testing
- Phase 3: Final Design and Construction
- Phase 4: Development and Operations

The construction activities on the project site, including the operation of earthmoving equipment, would be conducted between the hours of 8:00 A.M. and 6:00 P.M. Monday through Friday (except national holidays) and 9:00 A.M. and 5:00 P.M. Saturday consistent

with the City's Municipal Code. Offsite construction activities within the public ROW would occur between the hours of 8:00 A.M. and 3:00 P.M. in the City of Hermosa Beach and 9:00 A.M. and 3:00 P.M. in the Cities of Redondo Beach and Torrance consistent with their respective Municipal Codes.

Truck deliveries to the project site would be limited to the hours of 9:00 A.M. and 3:00 P.M. Monday through Friday, except in the case of an emergency and with the prior approval of the Director of Public Works. The project-related truck trips would be limited to 18 round trips per day and limited to the defined truck routes.

An overall project schedule is provided in Table 1. The characteristics of the four phases of the proposed project are described below.

### **5.1 Phase 1: Site Preparation**

The purpose of Phase 1 would be to prepare the project site for drilling and testing as well as the subsequent phases of the proposed project. It is anticipated that Phase 1 would occur for a period of approximately six months as indicated in the schedule provided in Table 2. The vehicles, equipment, and employees estimated for Phase 1 are provided in Tables 3, 4, and 5, respectively. Parking for the employees and public parking removed during Phase 1 would be provided in an adjacent private parking area located at the northeast corner of Cypress Street/6<sup>th</sup> Street. Additional project-related personnel would also utilize parking spaces within the parking areas for the building located at 600 Cypress Street on the northwest corner of Cypress Street/6<sup>th</sup> Street.

Figures 10, 11, 12, 13, and 14 provide the conceptual grading plan, site plan, elevations, and landscape concept plan for the proposed project at the completion of Phase 1.

Phase 1 would consist of the activities and improvements discussed below. These activities are provided in the general chronological order that they would occur.

#### **Underground Existing Overhead Utilities**

There are overhead power lines and communication lines on poles that run through the existing trees along Valley Drive. These existing lines would be removed along the project frontage and relocated underground adjacent to the project site in a location determined by the utility companies and the City. Figure 2 provides the general location where the utility lines would be placed underground.

#### **Construction of Improvements to Intersection of 6<sup>th</sup> Street and Valley Drive**

The proposed project would include the construction of improvements to the intersection of 6<sup>th</sup> Street/Valley Drive to provide the necessary turning radius for the project-related trucks. Figure 15 provides the conceptual design of the proposed intersection improvements. As shown in Figure 15, these improvements would result in: the removal of a portion of the landscaped area and entry driveway to the City Beach Self Storage Facility; redesign of the sidewalk on the southwest corner of the intersection; relocation of the stop sign and striping for the northbound lanes on Valley Drive to address the redesign of the southwest corner;





**TABLE 3**  
**PHASE 1: SITE PREPARATION**  
**VEHICLE ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

PHASE 1 ACTIVITY	VEHICLES REQUIRED	MAXIMUM NO. OF VEHICLE TRIPS PER DAY	DURATION (NO. OF WORKING DAYS)
Underground existing overhead utilities along Valley Drive and at the intersection of 6 <sup>th</sup> Street and Valley Drive	Utility truck	2	25
	Concrete truck (10-cubic yard capacity)	2	3
Construct redesigned intersection at 6 <sup>th</sup> Street and Valley Drive	Dump truck	3	5
	Concrete truck (10-cubic yard capacity)	2	3
Remove buildings	Trucks (25-ton capacity)	10	5
Remove concrete paving, asphalt, chain link fencing, and masonry walls	Trucks (25-ton capacity)	15	10
Construct retaining walls along western property boundary and a portion of the southern property boundary	Concrete trucks (10-cubic yard capacity)	5	4
	Flatbed truck	1	1
	Large truck with flatbed semi-trailer	1	3
Rough grading, excavate well cellar, and place crushed aggregate base material	Double-Bottom dump trucks (14-cubic yard capacity)	15	8
Construct 6-foot chain link fence	Flatbed truck	1	5
Construct well cellar	Concrete trucks (10-cubic yard capacity)	3	2
	Concrete pumper truck	1	2
	Large truck with flatbed semi-trailer	1	1
Install electrical service (install 280 linear feet from 8 <sup>th</sup> Street to project site and install onsite electrical equipment)	Line crew trucks	2	10
	Cable truck	1	10
	Dump trucks	4	5
	Electrician trucks	2	30
	Flatbed truck	2	4
Install landscaping	Flatbed truck	1	2
Install 32-foot sound attenuation wall	Concrete trucks (10-cubic yard capacity)	3	4
	Large truck with flatbed semi-trailer	2	10

Source: Processes Unlimited International, Inc., October 5, 2012.

**TABLE 4**  
**PHASE 1: SITE PREPARATION**  
**EQUIPMENT ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

PHASE 1 ACTIVITY	EQUIPMENT REQUIRED <sup>a</sup>	AMOUNT OF EQUIPMENT	DURATION (NO. OF WORKING DAYS)
Underground existing overhead utilities along Valley Drive and at the intersection of 6 <sup>th</sup> Street and Valley Drive	Backhoe	1	10
Construct redesigned intersection at 6 <sup>th</sup> Street and Valley Drive	Backhoe AC Paver Roller	1 1 1	20 3 3
Remove buildings	938 K wheel loader	1	10
Remove concrete paving, asphalt, chain link fencing, and masonry walls	Hydraulic concrete/AC slab buster 938 K wheel loader	1 1	10 15
Construct retaining walls along western property boundary and a portion of the southern property boundary	Diesel-powered auger	1	10
Rough grading, excavate well cellar, and place crushed aggregate base material	938 K wheel loader Roller Tamper Backhoe	1 1 1 1	20 8 8 3
Construct 6-foot chain link fence	None required	0	NA
Construct well cellar	Backhoe	1	3
Install electrical service (install 280 linear feet from 8 <sup>th</sup> Street to project site and install onsite electrical equipment)	Backhoe Small crane	1 1	20 3
Install landscaping	None Required	0	NA
Install 32-foot sound attenuation wall	Small cranes Diesel-powered auger Fork lift	2 1 1	15 10 15

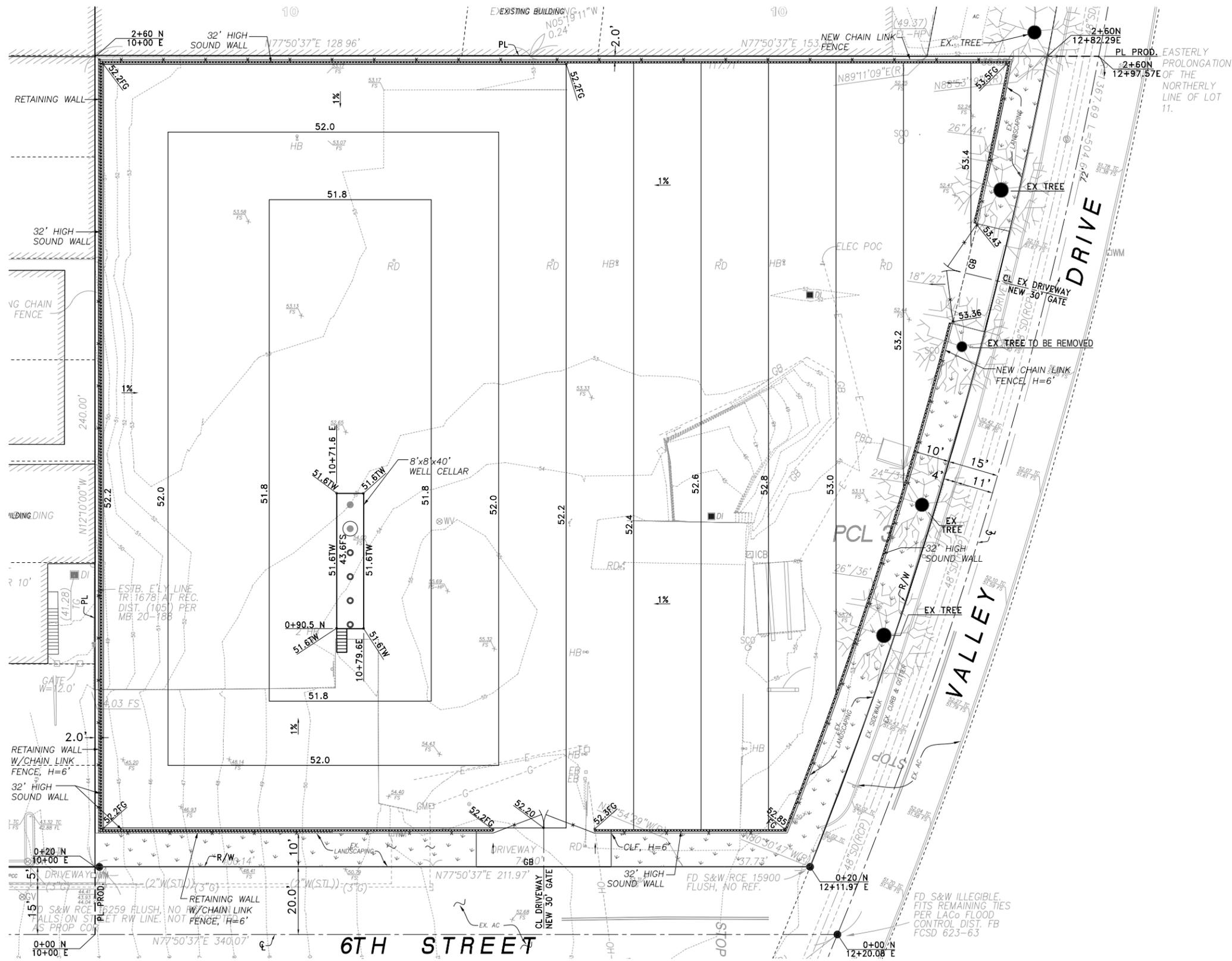
Source: Processes Unlimited International, Inc., October 5, 2012.

Note:  
<sup>a</sup> Delivered to project site at beginning of activity and removed from project site when activity is completed.

**TABLE 5  
PHASE 1: SITE PREPARATION  
NUMBER OF EMPLOYEES DURING CONSTRUCTION AND OPERATIONS**

<b>PHASE 1 ACTIVITY</b>	<b>NUMBER OF EMPLOYEES</b>	<b>NO. OF WORKING DAYS</b>	<b>LOCATION OF PARKING</b>
Underground existing overhead utilities along Valley Drive and at the intersection of 6 <sup>th</sup> Street and Valley Drive	10	25	Adjacent parking area
Construct redesigned intersection at 6 <sup>th</sup> Street and Valley Drive	8	20	Adjacent parking area
Remove buildings	8	20	Adjacent parking area
Remove concrete paving, asphalt, chain link fencing, and masonry walls	6	15	Adjacent parking area
Construct retaining walls along western property boundary and a portion of the southern property boundary	14	30	Adjacent parking area
Rough grading, excavate well cellar, and place crushed aggregate base material	10	20	Adjacent parking area
Construct 6-foot chain link fence	4	5	Adjacent parking area
Construct well cellar	8	10	Adjacent parking area
Install electrical service (install 280 linear feet from 8 <sup>th</sup> Street to project site and install onsite electrical equipment)	15	30	Adjacent parking area
Install landscaping	2	8	Adjacent parking area
Install 32-foot sound attenuation wall	8	15	Adjacent parking area

*Source: Processes Unlimited International, Inc., October 5, 2012.*



# E&B Oil Development Project

- LEGEND**
-  Retaining Wall
  -  Temporary Sound Wall
  -  Chain Link Fence

Source: ASHBA Engineers Limited, September 21, 2012.

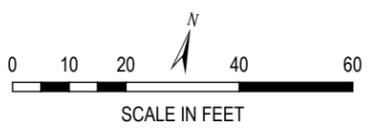
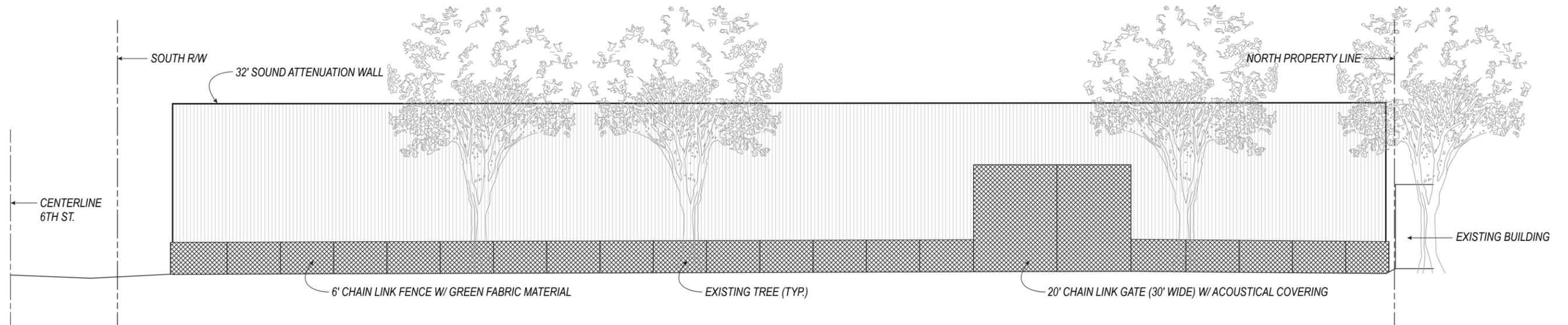
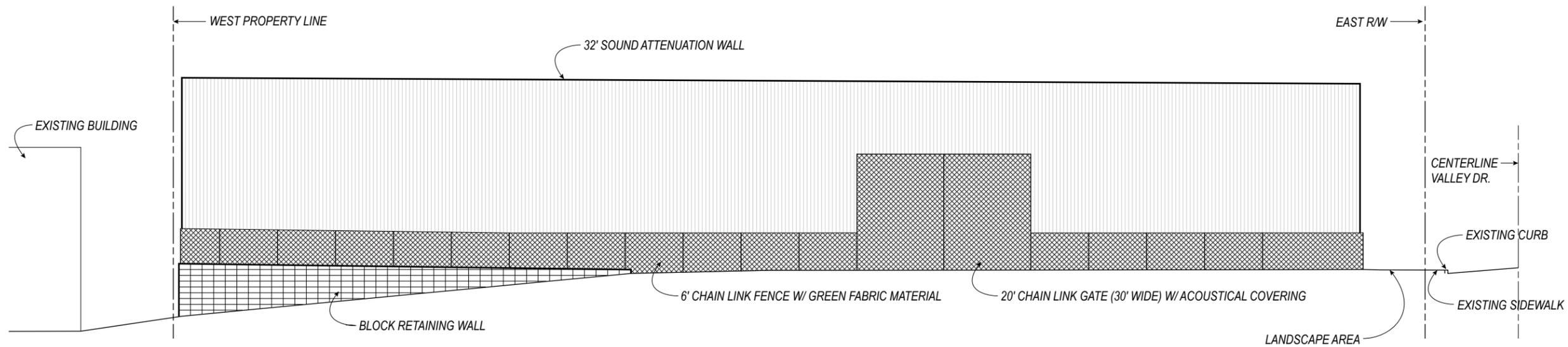


Figure 10  
Phase 1: Site Preparation  
Conceptual Grading Plan





VIEW FROM VALLEY DRIVE (LOOKING WEST)

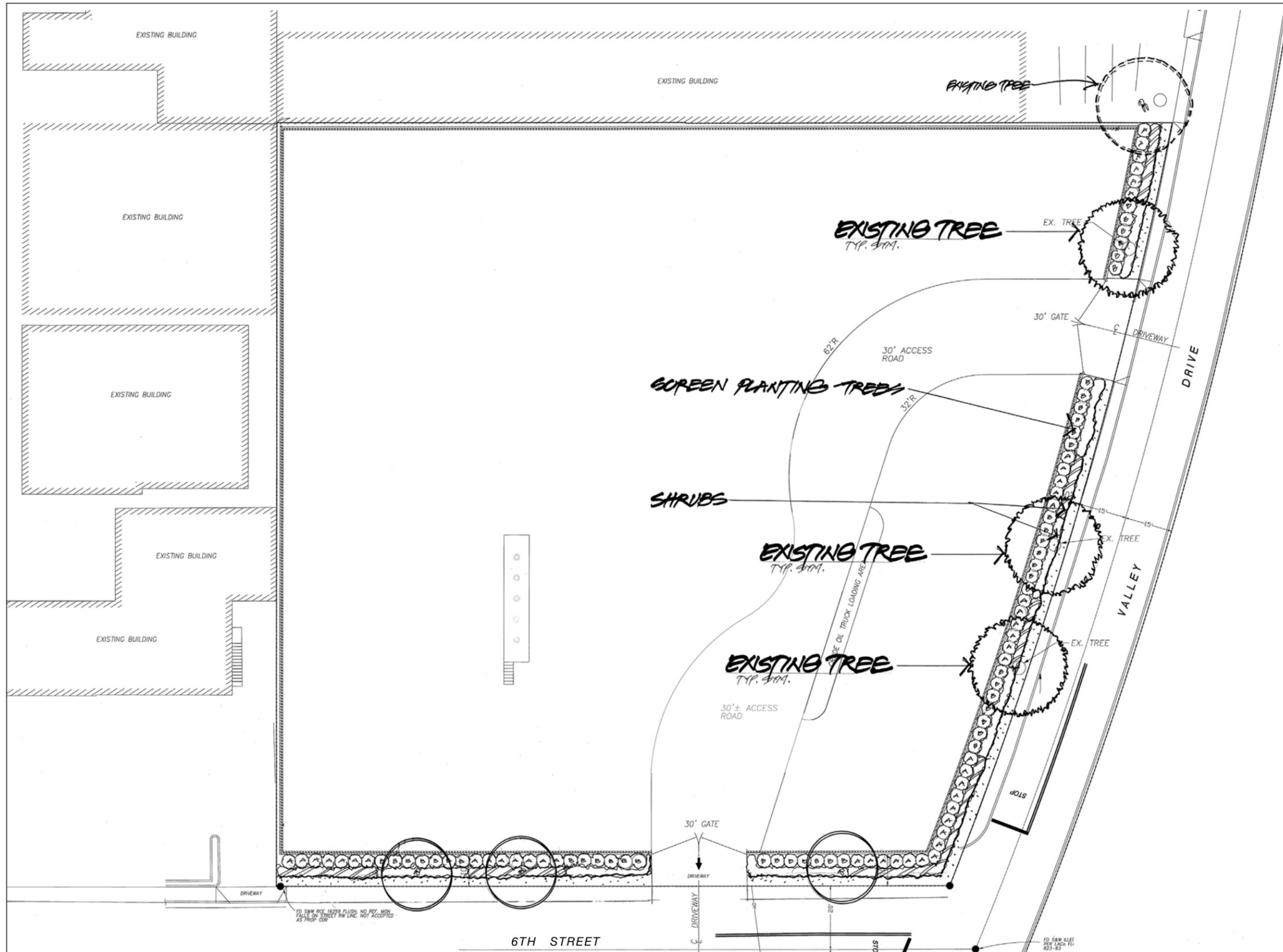


VIEW FROM 6TH STREET (LOOKING NORTH)

# E&B Oil Development Project

Figure 12  
Phase 1: Site Preparation  
Elevations From 6th Street and  
Valley Drive

Source: ASHBA Engineers Limited, September 21, 2012.



Source: RJCLA Landscape Architects & Planners, October 17, 2012.

## E&B Oil Development Project

### PLANT PALETTE

Symbol	Botanical Name	Common Name	Size
<b>New Trees/Screen Planting Trees</b>			
	Cupaniopsis	Carrotwood	36" Box
	Prunus Caroliniana	Carolina Cherry	24" Box
	Podocarpus Macrophyllus	Yew Pine	24" Box
<b>New Shrubs/Ground Covers</b>			
	Agave Attenuata	N.C.N.	5 Gal.
	Phormium Tenax 'Rainbow'	New Zealand Flax	5 Gal.
	Lantana Montevidensis	Trailing Purple Lantana	1 Gal.

**E&B Natural Resources**

www.EBNR-Hermosa.com

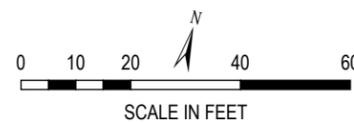
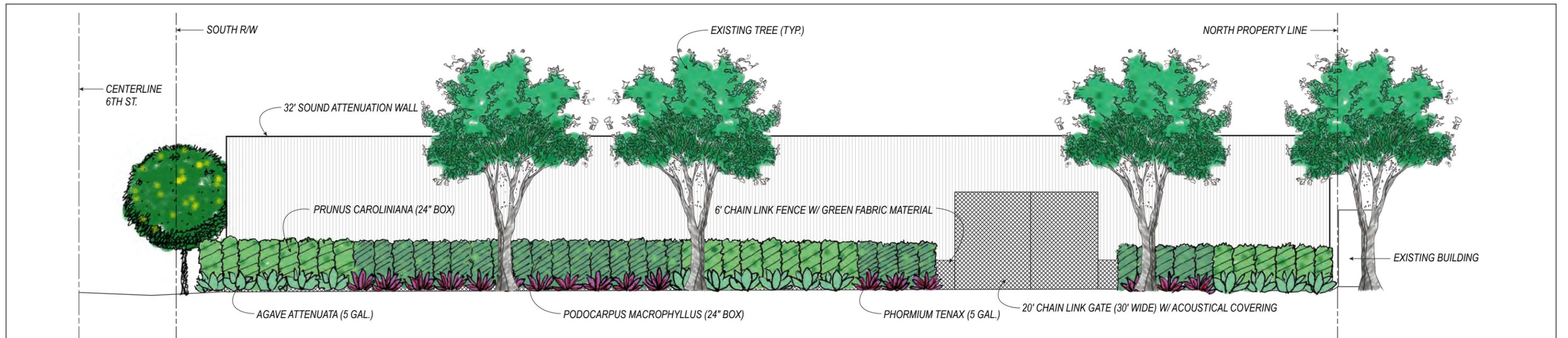
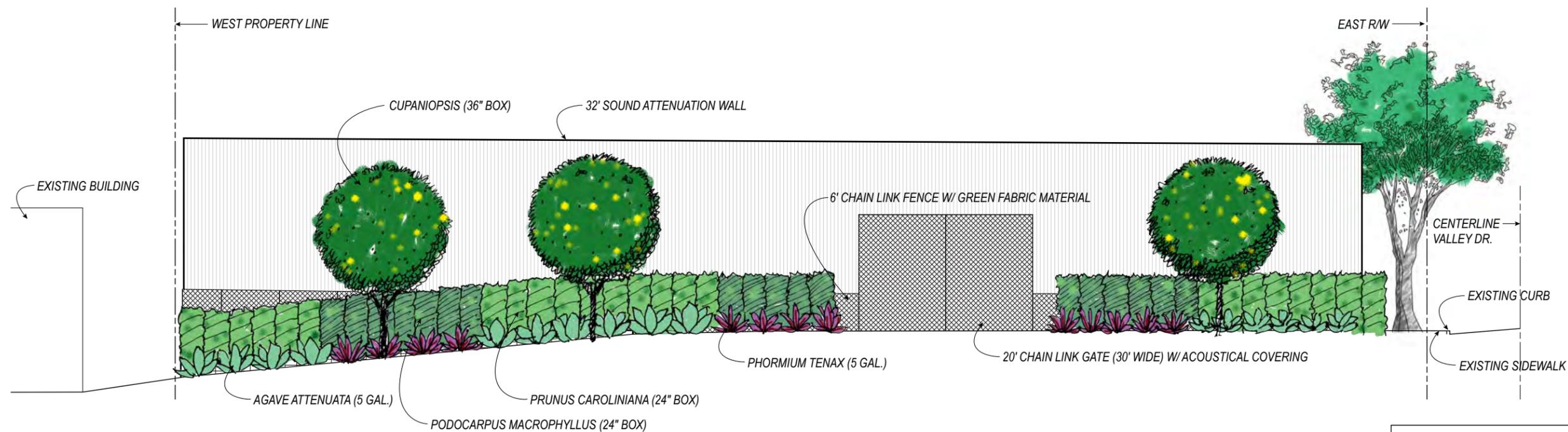


Figure 13  
Phase 1: Site Preparation  
Conceptual Landscape Plan



VIEW FROM VALLEY DRIVE (LOOKING WEST)



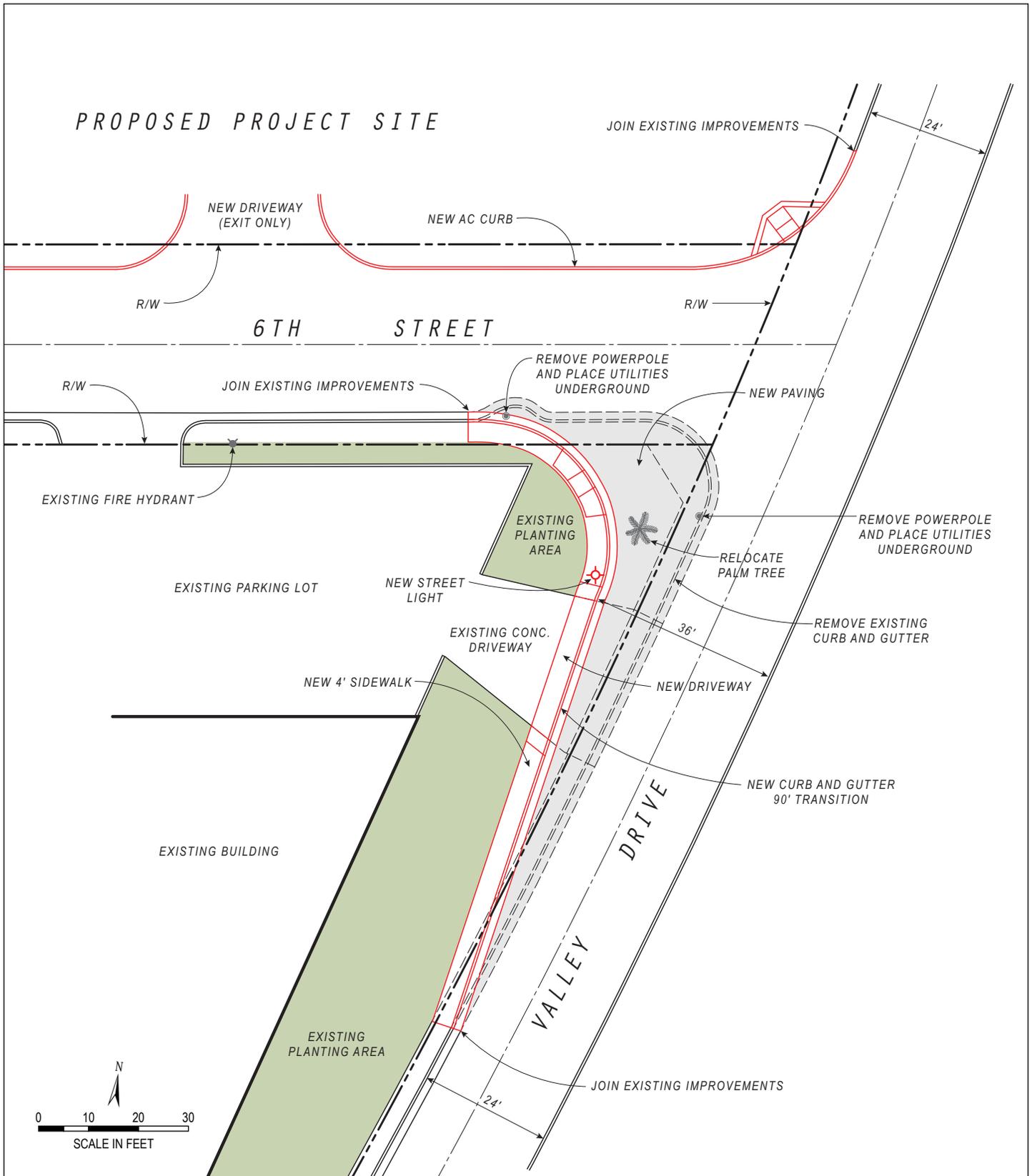
VIEW FROM 6TH STREET (LOOKING NORTH)

# E&B Oil Development Project

Figure 14  
 Phase 1: Site Preparation  
 Conceptual Landscaping Along  
 6th Street and Valley Drive

Source: ASHBA Engineers Limited, September 21, 2012; RJCLA Landscape Architects & Planners, October 24, 2012.





Source: ASHBA Engineers, Ltd., October 25, 2012.

Figure 15  
**Phase 1: Site Preparation  
 Improvements to Intersection of  
 6th Street/Valley Drive**

removal of a utility pole and underground the utilities on the southwest corner of the intersection; removal of a utility pole and underground the utilities on 6<sup>th</sup> Street; and the removal of two on-street parking spaces on 6<sup>th</sup> Street. As a part of the intersection improvements, the stop sign and striping for the southbound lanes on Valley Drive would be relocated to allow for adequate line of sight with the addition of the perimeter fencing on the project site. In addition, the curb on the northwest corner along 6<sup>th</sup> Street adjacent to the project site would be temporarily provided as a rolled asphalt curb for Phases 1 and 2. The two on-street parking spaces removed from 6<sup>th</sup> Street would be relocated to the adjacent private parking area located at the northeast corner of Cypress Street/6<sup>th</sup> Street on a temporary basis during Phases 1, 2, and 3 of the proposed project and provided on a permanent basis in Phase 4 at a location defined in the Parking Program prepared in conjunction with the City.

### **Relocation of City Maintenance Yard**

The current use on the project site, the City Maintenance Yard, would be relocated to another site or sites selected by the City. The City is currently investigating sites for the relocation and addressing if current activities at the City Maintenance Yard may be moved to one site or multiple sites. The relocation of the City Maintenance Yard and the onsite parking spaces would occur prior to initiation of any site clearance.

### **Clearance of Project Site**

Prior to the initiation of the site clearance activities, temporary 16-foot sound attenuation walls would be erected on the project site. These sound walls are designed to be movable and would be relocated within the project site as needed to attenuate noise associated with the demolition and construction activities that would occur during Phase 1. The temporary sound walls would be removed from the project site after the onsite construction activities in Phase 1 are completed.

Following the relocation of the City Maintenance Yard, the project site would be cleared consistent with demolition plans reviewed and approved by the City. The site clearance activities would include the removal of three existing buildings, two trailers, storage containers, sheds, trash bins, a propane tank, concrete paving and asphalt, fencing and masonry walls. In addition, the asphalt parking area to the west of the City Maintenance Yard would be removed, resulting in the removal of 15 parking spaces. Prior to the demolition of the older building on the eastern portion of the project site, the building materials would be assessed for asbestos containing materials and lead based paint, consistent with the requirements of the South Coast Air Quality Management District (SCAQMD). If asbestos containing materials or lead based paint were detected, the appropriate abatement process would be implemented. The building materials removed from the project site would be transported by truck to the appropriate off-site location for recycling or disposal.

The 15 parking spaces available to the public (in the evenings, weekends, and holidays) that would be removed from the parking area on the project site would be relocated to the adjacent private parking area located at the northeast corner of Cypress Street/6<sup>th</sup> Street on a temporary basis during Phases 1, 2, and 3 of the proposed project and provided on a

permanent basis in Phase 4 at a location defined in the Parking Program prepared in conjunction with the City.

Three of the four existing mature trees along the frontage of the project site on Valley Drive would be retained to help screen construction activities. The tree that would be removed is unhealthy and would limit access to the project site. The three remaining trees would be trimmed to keep branches from hanging over the onsite equipment and avoid trespass activities.

### **Construction of Retaining Walls and Rough Grading**

Once the project site is cleared, retaining walls would be constructed along the western boundary of the project site and set back 10 feet along the western portion of the southern property boundary. A minimal amount of rough grading would occur to allow for: the construction of a well cellar for three exploratory oil wells and a water injection well; a change in grade to provide surface drainage towards the well cellar in the event of an oil spillage or rainfall; the set up and movement of the drill rig; and the installation of temporary production equipment. It is not anticipated that the rough grading would require the import or export of fill material. Figure 10 provides the conceptual grading plan that indicates the retaining wall locations and rough grading at the completion of Phase 1.

### **Installation of Perimeter Fencing**

Following the rough grading, the project site would be enclosed by a six-foot temporary perimeter chain link fence covered with green fabric material. The fence would include secured gates for the entrance off of Valley Drive and the exit to 6<sup>th</sup> Street. The appropriate signage would be provided consistent with the requirements of the City. Figure 10 provides the location of the fencing and gates at the completion of Phase 1. Figure 12 provides an elevation of the fencing.

### **Construction of Well Cellar**

A cement well cellar approximately eight feet wide by forty feet long by eight to 12 feet deep would be constructed for three exploratory wells and one water injection well to allow for the drilling of the wells in Phase 2. The well cellar would provide containment of rainwater as wells as any potential oil spillage during Phase 2. Figure 11 shows the location of the well cellar.

### **Installation of Offsite Electrical Conduit and Onsite Electrical Equipment**

Electrical service for the proposed project would be provided by Southern California Edison (SCE). The electrical conduit and onsite electrical equipment for all phases of the proposed project would be installed in Phase 1. The electrical load during Phase 2 and Phase 3 would be 4.5 Megawatts (MW) and 0.3 MW, respectively. During Phase 4, the electrical load during drilling would be 7.0 MW and during ongoing operations would be 3.0 MW. SCE has determined that the existing 16 kilovolt (kV) circuit running along 8<sup>th</sup> Street to the north of the project site has the necessary capacity to serve the proposed project. To receive electrical service from SCE, the proposed project would provide for the installation of an

underground conduit for a linear distance of 280 feet in Valley Drive from 8<sup>th</sup> Street to the northeast corner of the project site.

Electrical equipment consisting of step down transformer(s), switchgear, and variable frequency drive units would be installed in the northeast corner of the project site. The electricity would be used to provide power for well pumps, the temporary production equipment, the temporary construction trailer, safety system controls, onsite lighting, and the drill rig used in Phase 2. An uninterruptable power supply would be installed for critical systems such as the temporary production equipment safety systems and security lights. An emergency generator would be installed to provide power for the safe shutdown of the drilling operation in the event of a loss of power from SCE.

Figure 2 provides the general location of the offsite underground conduit. Figure 11 provides the location of the electrical equipment installed on the project site.

### **Completion of Onsite Surface and Entrance/Exit**

The surface of the project site would be covered with crushed aggregate base material to serve as a dust inhibitor and driving surface. A temporary berm would be constructed around the area where the temporary production equipment would be installed in Phase 2. The existing driveway access from Valley Drive and 6<sup>th</sup> Street would be used. On both sides of the driveway on 6<sup>th</sup> Street, a rolled asphalt curb would be provided.

### **Installation of Temporary Landscaping**

Landscaping would be provided along the eastern and southern perimeter of the project site to provide a visual buffer effect, through the layering of plantings, to create depth to the landscape “screen.” The plant materials and irrigation would be consistent with the requirements of the City. The trees and other plant materials would be planted in a manner that allows for their replanting as a part of the permanent landscaping provided in Phase 3. Reclaimed water supplied by West Basin Municipal Water District would be used for irrigation. Figures 13 and 14 provide the conceptual landscape plan and plant materials for the temporary landscaping provided at the completion of Phase 1.

### **Installation of 32-Foot Sound Attenuation Wall**

At the completion of the improvements provided with Phase 1, a 32-foot sound attenuation wall would be erected inside the chain link construction fence. Figure 12 provides the elevations of the project site, including the sound attenuation walls, from Valley Drive and 6<sup>th</sup> Street at the completion of Phase 1.

## **5.2 Phase 2: Drilling and Testing**

The purpose of Phase 2 would be to conduct the drilling and testing of wells in order to determine the potential productivity and economic viability of the proposed project. During this phase, up to three test wells and one water disposal/injection well would be drilled. These wells would be drilled utilizing directional drilling technology, which enables the wells to be drilled laterally for long distances, so that the bottom-hole locations may be located several thousand feet from the surface location of each well head on the project site.

It is anticipated that Phase 2 would occur for approximately 12 months as indicated in the schedule provided in Table 6. The vehicles, equipment, and employees estimated for Phase 2 are provided in Tables 7, 8, and 9, respectively. Parking for the employees would be provided in adjacent private parking areas as discussed above for Phase 1. Figure 16 provides the conceptual site plan (with the drill rig onsite) for the proposed project during Phase 2. Since Phase 1 prepares the project site for Phase 2, the conceptual landscape plan and elevations provided above for Phase 1 would also be applicable to Phase 2.

Phase 2 would consist of the activities and improvements discussed below. These activities are provided in the general chronological order that they would occur.

### **Installation of Temporary Construction Trailer**

A temporary construction trailer would be installed in the northeast portion of the project site. In addition, the associated utilities, including potable water and sewer, would be extended from the existing lines located along 6<sup>th</sup> Street that currently serve the City Maintenance Yard. Water and sewer service would be provided by the California Water Service Company and the City, respectively. Electricity would be provided by SCE as discussed above.

### **Delivery and Set Up of Drill Rig**

An electric drilling rig and its associated equipment would be brought to the project site by trucks. As indicated in Table 7, the drill rig and its associated equipment would be brought to the project site on large trucks with trailers permitted by the City and the California Highway Patrol (CHP). The approximately 87-foot high drill rig would be powered by electricity. A large crane with a 150-foot boom would be used to erect the drill rig. Support equipment for the drill rig would include, but not be limited to, pipe racks, mud and cutting system, pumps, hydraulic equipment, an accumulator, and a backup generator. In the event of a loss of power from SCE, a generator, which would be non-road portable diesel-fuel generators certified by the California Air Resources Board (CARB), would provide power for the safe shutdown of the drilling operation. The drill rig and its associated equipment are discussed in greater detail in Attachment C to this Project Description.

### **Installation of Temporary Production Equipment**

Temporary oil, water, and gas production equipment would be installed on the project site. This temporary equipment would include, but is not limited to, a well test station, an induced gas flotation/filter skid, a gas combustor (enclosed ground flare), fluid handling tanks, piping, vapor recovery unit, pumps, and vessels. The production equipment would be delivered by trucks to the project site. The temporary production equipment would be installed in the eastern portion of the project site within an area enclosed by a containment berm. Figure 16 provides the conceptual site plan that indicates the location of the temporary production equipment.



**TABLE 7  
PHASE 2: DRILLING AND TESTING  
VEHICLE ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

PHASE 2 ACTIVITY	VEHICLES REQUIRED	MAXIMUM NO. OF VEHICLE TRIPS PER DAY	DURATION (NO. OF WORKING DAYS)
Install temporary construction trailer and associated utilities	Flatbed truck	1	3
Deliver and set up drill rig and its associated equipment	Large trucks with trailer <sup>a</sup>	4	10
Install temporary oil, water, and gas handling equipment	Large truck with flatbed semi-trailer	3	5
	Large truck with trailer	2	4
	Electrician trucks	2	30
	Welders truck	1	30
Drill three test wells and one water injection well	Large truck with flatbed semi-trailer	3	80
	Large truck with flatbed semi-trailer	2	80
	Bin trucks with roll-off bins (20-cubic yard capacity)	2	80
	Liquid haul truck (100-150 barrel capacity vacuum truck)	2	80
	Standard trash truck	1	16
	Large truck with flatbed semi-trailer	1	20
	Hydracrane	-- <sup>b</sup>	-- <sup>b</sup>
Testing of wells (approximately 800 barrels per day production rate)	Oil haul truck (175 barrel capacity)	7-12 <sup>c</sup>	215
Remove drill rig and associated equipment	Large truck with trailer <sup>a</sup>	4	10

Source: Processes Unlimited International, Inc., October 5, 2012.

- Notes:
- <sup>a</sup> Some will be permitted loads due to size and/or the weight of drill rig and associated equipment being delivered. It is assumed that there would be 11 permit loads during Phase 2.
  - <sup>b</sup> This equipment will only be used on an as needed basis.
  - <sup>c</sup> Assume worst case is three weekdays per week shipping schedule resulting in 12 trips, three days per week, for a total of 36 trips per week. Normal shipping schedule will be seven trips, five days per week, for a total of 35 trips per week.

**TABLE 8**  
**PHASE 2: DRILLING AND TESTING**  
**EQUIPMENT ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

PHASE 2 ACTIVITY	EQUIPMENT REQUIRED <sup>a</sup>	AMOUNT OF EQUIPMENT	DURATION (NO. OF WORKING DAYS)
Install temporary construction trailer and associated utilities	Office trailer	1	NA
Deliver and set up drill rig and its associated equipment	Fork lift Dry hole digger/auger Large crane (150-foot boom)	1 1 1	12 1 10
Install temporary oil, water, and gas handling equipment	Small crane	1	30
Drill three test wells and one water injection well	Electric drill rig Dry holes digger/auger Fork lift	1 1 1	120 120 80
Testing of wells (approximately 800 barrels per day production rate)	None required	0	NA
Remove drill rig and associated equipment	Large crane (150-foot boom)	1	10

Source: Processes Unlimited International, Inc., October 5, 2012.

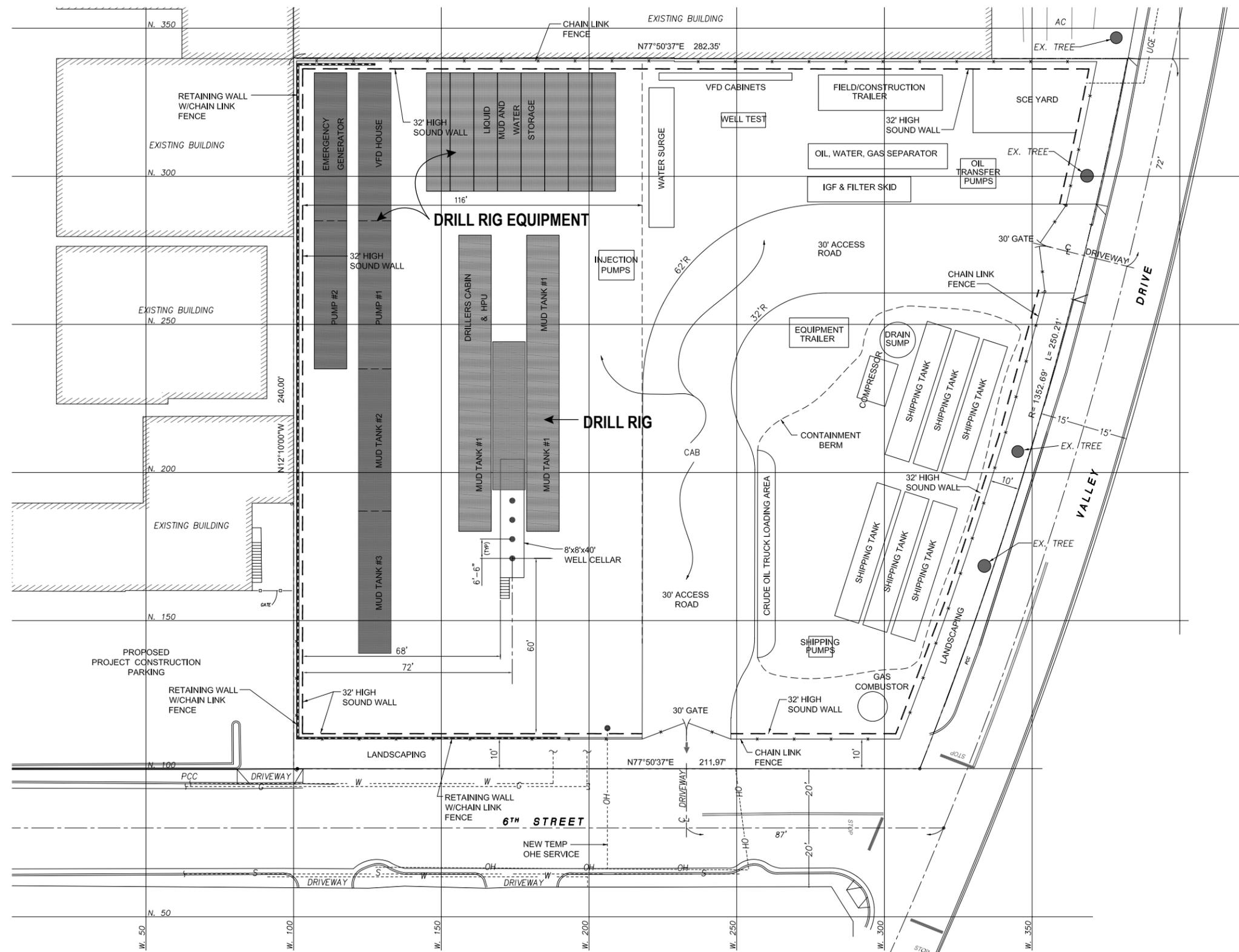
Notes:

<sup>a</sup> Delivered to project site at beginning of activity and removed from project site when activity is completed.

**TABLE 9  
PHASE 2: DRILLING AND TESTING  
NUMBER OF EMPLOYEES DURING CONSTRUCTION AND OPERATIONS**

<b>PHASE 2 ACTIVITY</b>	<b>NUMBER OF EMPLOYEES</b>	<b>NO. OF WORKING DAYS</b>	<b>LOCATION OF PARKING</b>
Install temporary construction trailer and associated utilities	5	5	Adjacent parking area
Deliver and set up drill rig and its associated equipment	20	12	Adjacent parking area
Install temporary oil, water, and gas handling equipment	12	30	Adjacent parking area
Drill three test wells and one water injection well	20	128	Adjacent parking area
Testing of wells (approximately 800 barrels per day production rate)	5	304	Adjacent parking area
Remove drill rig and associated equipment	20	12	Adjacent parking area

*Source: Processes Unlimited International, Inc., October 5, 2012.*



# E&B Oil Development Project

**LEGEND**

G	Gas
W	Water
CAB	Crushed Aggregate Base
OHE	Overhead Electrical
UGE	Underground Electrical
— — — — —	32' Sound Wall
— — — — —	New Retaining Wall
- - - - -	Property Line
- x - x - x -	Chain Link Fence
●	Well Site

Source: Processes Unlimited International, Inc., September 12, 2012.

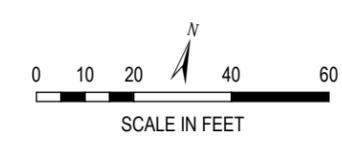


Figure 16  
**Phase 2: Drilling and Testing**  
**Conceptual Site Plan (with Drill Rig)**

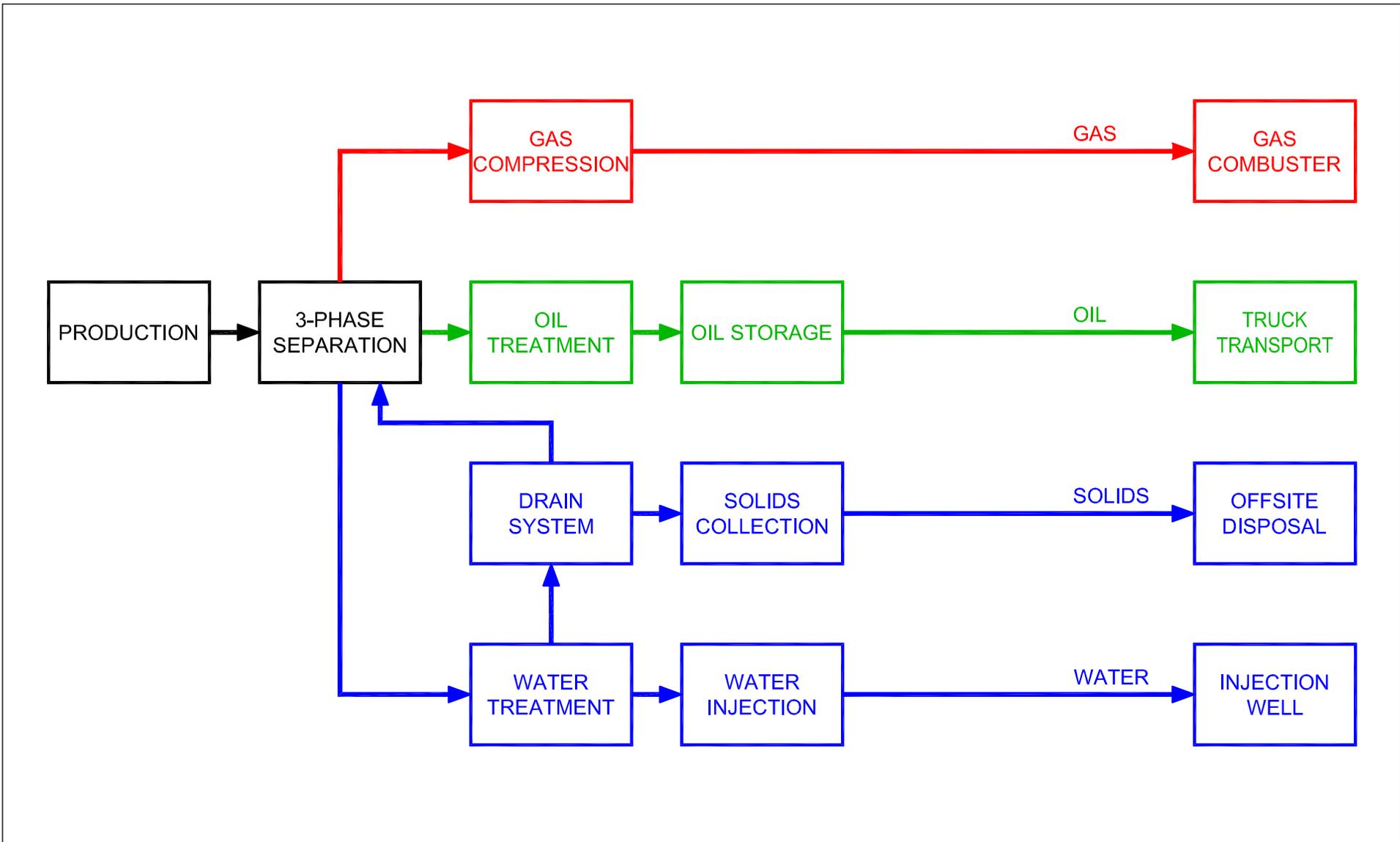
### Drill Wells and Commence Testing

Once the drill rig and associated equipment set up is complete, up to three test wells would be drilled utilizing directional drilling technology. This would enable the wells to be drilled laterally for long distances so that the bottom-hole locations may be located several thousand feet from the surface location of the well head on the project site. All well heads would be permitted and drilled and cemented in accordance with the State Division of Oil, Gas, and Geothermal Resources (DOGGR) regulations. Prior to drilling, conductor casing would be installed and drilling can begin. Once the drilling is completed, the cemented casing would be run from the surface to the bottom of the wellbore where the well penetrates the oil-producing reservoir below the oil water contact. The well would be plumbed into the temporary production equipment and a pump system installed. The pump system, installed below ground, would bring the oil, gas, and water to the surface for testing. In addition, one water injection well would be drilled to allow for the reinjection of processed produced water back into the oil-producing reservoir below the oil water contact. The drill rig would operate continuously for 24 hours per day, seven days per week, until the appropriate depth and bottom-hole location for each well has been reached. It is estimated it would take approximately 30 days per well for each of the four wells. After the drilling of the three oil wells and one water injection well is complete, the drill rig would immediately be removed from the project site. The drilling activities are discussed in detail in Attachment C to this Project Description. Figure 16 provides the conceptual site plan that shows how the drill rig and its associated equipment would be located on the project site during drilling.

Drilling each well would require approximately 130,000 gallons (or 0.4 acre-feet) of water. The water would be reclaimed water provided by the West Basin Municipal Water District from an existing reclaimed water line in the Veterans Parkway. The West Basin Municipal Water District has provided the Applicant with a will serve letter.

The drilling process requires the use of drilling mud to circulate drilled rock cuttings out of the well hole, retain the integrity of the well hole, and control reservoir pressure. The drilling mud would be collected onsite in Baker tanks (enclosed tanks that are approximately 12 feet tall by 40 feet long and hold up to 500 barrels each). Although most of the mud would be reused on subsequent wells, some mud would be removed from the project site and disposed of each day by truck at an approved disposal site. In addition, all other waste generated by the test drilling would be transported by truck to the appropriate disposal site.

After the completion of the first test well and the water injection well, the production and testing of the extracted oil would occur. Figure 17 shows the steps involved to process the oil, water, and gas produced from the test wells in Phase 2. The processing of the oil, water, and gas during Phase 2 is discussed in detail in Attachment D to this Project Description. The temporary production equipment on the project site would be used to process the oil (consisting of the removal of gas, water, and solids). The oil would be processed to a standard that would be suitable for sale. The produced water would be processed and reinjected back into the oil-producing reservoir below the oil water contact. The proposed project would be designed to handle up to 250,000 standard cubic feet of gas per day. The gas would be disposed of through burning in the gas combustor.



Source: E&B Natural Resources Management Corp.

During Phase 2, the proposed project is designed to handle up to 800 barrels of oil per day. After the oil is processed, it would be removed from the project site by truck and delivered to an off-site location at an oil receiving facility at 2650 Lomita Boulevard in Torrance. Figure 7 provides the truck route that would be used.

Noise abatement would be incorporated into the operational practices and the design of the drill rig and temporary production equipment. The Noise Impact Study provided in Appendix J to the Planning Application provides a detailed analysis of the potential noise and vibration that could occur during drilling and production activities in Phase 2. In addition, the Noise Impact Study provides a detailed discussion of the operational practices and design features that would be incorporated into the drilling and production operations, the drill rig and associated equipment, and the temporary production equipment used in Phase 2.

The Air Quality Impact Study provided in Appendix C to the Planning Application provides a detailed analysis of the potential air emissions and odors that could occur during the drilling and production activities in Phase 2 and describes the operational practices and design features that would address the potential for odors.

### **Safety Systems**

Phase 2 of the proposed project would be designed as a closed-loop system. A closed-loop system is a design criterion that does not allow for the venting or emitting of fluids into the atmosphere as part of the operation of the facility. During Phase 2, a computerized safety system would closely monitor the closed loop system providing early warnings, corrective actions, and shutdowns, if necessary, to address any events that would be encountered. Corrective actions would be provided by a series of safety devices installed within the piping, vessels, and tanks along the entire system. In addition, redundancy would be built into the system to provide an extra level of protection, ensuring there would be a backup for each safety device. Each device would be strategically placed to provide early warning, corrective action, or shut down of a specific segment of the system or the entire facility, if necessary. All safety devices would be tested on a regular basis by qualified operators and audited by the regulatory agencies. Highly trained operators would be onsite 24 hours per day, seven days per week, to monitor all aspects of the proposed project's production process during Phase 2. The safety and control systems as a part of Phase 2 are discussed in detail in Appendix B to the Planning Application.

A comprehensive fire protection system as required by Federal, State, and local codes, ordinances and regulations would be provided for the drilling and testing facilities on the project site. Emergency access would be incorporated into the design of Phase 2. The Fire Protection Plan for Phase 2 of the proposed project would be provided for review and approval by the City of Hermosa Beach Fire Department and incorporated into the Phase 2 Site Safety Plan.

The design and operation of the proposed project would occur consistent with the requirements of the California Fire Code (CFC) and the National Fire Protection Association (NFPA) standards. Appendix B to the Project Description provides a detailed discussion of the laws, ordinances, regulations, and standards (LORS) that would be applicable to the

proposed project including the requirements for the storage of hazardous materials, the installation and use of fire protection systems and devices, and safety for employees and emergency responders.

Security on the project site during Phase 2 would be provided by onsite personnel and a site security program, including a Closed Circuit Television system, a gate access system, and intrusion and motion detection system, to control all access to and from the proposed project. In addition, temporary lighting would be provided to address site security and ensure safe drilling and operation of the production equipment. The lighting would be shielded/hooded and directed downward consistent with the requirements of the City.

### **Determine if Oil Production Project is Viable**

The information obtained from the test wells during Phase 2 would provide valuable data that would enable the Applicant to determine if the production of oil and gas on the project site would be economically viable. If it is determined to be economically viable, the Applicant would proceed to in Phase 3: Final Design and Construction and Phase 4: Development and Operations to maximize oil and gas recovery from the reservoir and optimize the capacity of the oil and gas production facilities constructed as part of the proposed project.

If it is determined that the production of oil and gas on the project site would not be economically viable, the Applicant would remove the sound attenuation walls, the temporary production equipment, and the temporary construction trailer and properly abandon the three test wells and the water injection well in accordance with the requirements of DOGGR. The project site would be left as a clean, graded site with site improvements including the retaining walls, the perimeter chain link fence, and the perimeter landscaping.

If it is determined that the production of oil and gas on the project site would be economically viable, the Applicant would begin Phase 3 of the proposed project.

### **5.3 Phase 3: Final Design and Construction**

The purpose of Phase 3 would be to utilize the production information from Phase 2 to prepare the final design of the facility, prepare the final drilling program, procure the equipment, conduct site remediation and final grading of the project site, and construct the permanent oil and gas production facilities, and other supporting onsite and offsite improvements for the proposed project.

It is anticipated that Phase 3 would occur for a period of approximately 14 months as indicated in the schedule provided in Table 10. The vehicles, equipment, and employees estimated for Phase 3 are provided in Tables 11, 12, and 13, respectively. Parking for the employees would be provided in adjacent private parking areas as described above for Phase 1.

Figures 18, 19, 20, 21, and 22 provide the conceptual grading plan, site plan, elevations (with the 32-foot sound attenuation wall), and conceptual landscape plan for the proposed project at the completion of Phase 3.



**TABLE 11**  
**PHASE 3: FINAL DESIGN AND CONSTRUCTION**  
**VEHICLE ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

PHASE 3 ACTIVITY	VEHICLES REQUIRED	MAXIMUM NO. OF VEHICLE TRIPS PER DAY	DURATION (NO. OF WORKING DAYS)
Remove temporary oil, water, and gas production equipment	Large truck with trailer	5	10
	Electrician and welder trucks	3	10
Remove three existing mature trees along Valley Drive	Tree trimming trucks with grinder	2	2
Remove 32-foot noise attenuation wall and install 16-foot noise attenuation wall	Large truck with flatbed semi-trailer	4	7
Implement Remedial Action Plan to address lead and Total Petroleum Hydrocarbon contaminated soil (includes export of approximately 9,000 cubic yards of soil)	Double-Bottom dump truck (14-cubic yard capacity)	18	40
Construct retaining walls along portions of eastern and southern property boundary	Concrete trucks (10-cubic yard capacity)	3	4
	Large truck with flatbed semi-trailer	1	4
Final grading (balanced)	None required	0	NA
Construct extension of first well cellar and all of second well cellar	Concrete truck (10-cubic yard capacity)	8	6
	Concrete pumper truck	1	6
	Large truck with flatbed semi-trailer	1	2
Construct 16-foot split-faced block perimeter wall	Large truck with flatbed semi-trailer	1	22
	Concrete truck (10-cubic yard capacity)	4	10
Remove 16-foot noise attenuation wall	Large trucks with flatbed semi-trailer	4	2
Construct or install on-site facilities: - Small office building - Permanent oil and gas production equipment - Tanks, sumps, and pumps - Permanent site utilities (telephone, water, and sewer) - Final improvements for site access and paving of onsite surface area	Concrete truck (10-cubic yard capacity)	10	190
	Large truck with trailer	5	30
	Dump truck	15	4
	Electrician trucks	2	100
	Large truck with flatbed semi-trailer	4	30
Construct street improvements (new curbs, gutter, and sidewalks)	Flatbed truck	1	5
	Concrete truck (10-cubic yard capacity)	3	5
	Dump truck	10	5

**TABLE 11 (CONTINUED)  
 PHASE 3: FINAL DESIGN AND CONSTRUCTION  
 VEHICLE ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

<b>PHASE 3 ACTIVITY</b>	<b>VEHICLES REQUIRED</b>	<b>MAXIMUM NO. OF VEHICLE TRIPS PER DAY</b>	<b>DURATION (NO. OF WORKING DAYS)</b>
Install landscaping	Landscaoper trucks	2	7
	Flatbed truck	1	7
Construct off-site oil line, gas line, and gas metering station	Pipe fitter trucks (150 brake horse power)	2	80
	Dump trucks (250 brake horse power)	12	60
	Flatbed trucks (250 brake horse power)	2	70
	Concrete truck (10-cubic yard capacity)	12	70
Start-up and commissioning of oil and gas production equipment	Electrician trucks	2	20
Install 32-foot sound attenuation wall	Concrete trucks (10-cubic yard capacity)	3	4
	Large truck with flatbed semi-trailer	2	10
Set conductor	Large truck with flatbed semi-trailer	1	30

*Source: Processes Unlimited International, Inc., October 5, 2012.*

**TABLE 12**  
**PHASE 3: FINAL DESIGN AND CONSTRUCTION**  
**EQUIPMENT ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

PHASE 3 ACTIVITY	EQUIPMENT REQUIRED <sup>a</sup>	AMOUNT OF EQUIPMENT	DURATION (NO. OF WORKING DAYS)
Remove temporary oil, water, and gas production equipment	Small crane	1	10
Remove three existing mature trees along Valley Drive	Tree trimming grinder	2	2
Remove 32-foot noise attenuation wall and install 16-foot noise attenuation wall	Small crane Forklift	1 1	10 10
Implement Remedial Action Plan to address lead and Total Petroleum Hydrocarbon contaminated soil (includes export of approximately 9,000 cubic yards of soil)	CAT 365C Hydraulic Excavator Backhoe (108 brake horse power)	1 1	40 40
Construct retaining walls along portions of eastern and southern property boundary	Diesel auger Fork lift	1 1	6 20
Final grading (balanced)	Dozer Roller Tamper Water truck	1 1 1 1	3 3 3 3
Construct extension of first well cellar and all of second well cellar	Backhoe	1	15
Construct 16-foot split-faced block perimeter wall	Forklift	1	40
Remove 16-foot noise attenuation wall	Forklift	1	2
Construct or install on-site facilities: - Small office building - Permanent oil and gas production equipment - Tanks, sumps, and pumps - Permanent site utilities (telephone, water, and sewer) - Final improvements for site access and paving of onsite surface area	Crane (120 brake horse power) Welders (45 brake horse power) Forklifts (146 brake horse power) Manlifts (120 brake horse power) Diesel auger Backhoe (108 brake horse power) AC paver (120 brake horse power) Roller	1 3 2 2 1 1 1 1	180 175 190 120 10 170 2 2
Construct street improvements (new curbs, gutter, and sidewalks)	Dozer AC paver Roller	1 1 1	3 2 2

**TABLE 12 (CONTINUED)**  
**PHASE 3: FINAL DESIGN AND CONSTRUCTION**  
**EQUIPMENT ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

<b>PHASE 3 ACTIVITY</b>	<b>EQUIPMENT REQUIRED<sup>a</sup></b>	<b>AMOUNT OF EQUIPMENT</b>	<b>DURATION (NO. OF WORKING DAYS)</b>
Install landscaping	None required	0	NA
Construct off-site oil line, gas line, and gas metering station	Sideboom truck (150 brake horse power) Trencher (120 brake horse power) Backhoe (108 brake horse power) Water truck (300 brake horse power) Paver (120 brake horse power)	2 1 1 1 1	70 60 60 70 10
Start-up and commissioning of oil and gas production equipment	None required	0	NA
Install 32-foot sound attenuation wall	Small cranes Diesel-powered auger Fork lift	2 1 1	15 5 15
Set conductor	Dry hole digger/auger	1	45-60

*Source: Processes Unlimited International, Inc., October 5, 2012.*

Notes:

<sup>a</sup> Delivered to project site at beginning of activity and removed from project site when activity is completed.

**TABLE 13**  
**PHASE 3: FINAL DESIGN AND CONSTRUCTION**  
**NUMBER OF EMPLOYEES DURING CONSTRUCTION AND OPERATIONS**

PHASE 3 ACTIVITY	NUMBER OF EMPLOYEES	NO. OF WORKING DAYS	LOCATION OF PARKING
Remove temporary oil, water, and gas production equipment	12	10	Adjacent parking area
Remove three existing mature trees along Valley Drive	-- <sup>a</sup>	2	-- <sup>a</sup>
Remove 32-foot noise attenuation wall and install 16-foot noise attenuation wall	8	10	Adjacent parking area
Implement Remedial Action Plan to address lead and Total Petroleum Hydrocarbon contaminated soil (includes export of approximately 9,000 cubic yards of soil)	8	40	Adjacent parking area
Construct retaining walls along portions of eastern and southern property boundary	20	20	Adjacent parking area
Final grading (balanced)	6	3	Adjacent parking area
Construct extension of first well cellar and all of second well cellar	15	25	Adjacent parking area
Construct 16-foot split-faced block perimeter wall	20	40	Adjacent parking area
Remove 16-foot noise attenuation wall	5	2	Adjacent parking area
Construct or install on-site facilities: - Small office building - Permanent oil and gas production equipment - Tanks, sumps, and pumps - Permanent site utilities (telephone, water, and sewer) - Final improvements for site access and paving of onsite surface area	35	190	Adjacent parking area
Construct street improvements (new curbs, gutter, and sidewalks)	8	10	Adjacent parking area
Install landscaping	6	7	Adjacent parking area
Construct off-site oil line, gas line, and gas metering station	20	80	Offsite location determined by contractor
Start-up and commissioning of oil and gas production equipment	5	20	Adjacent parking area

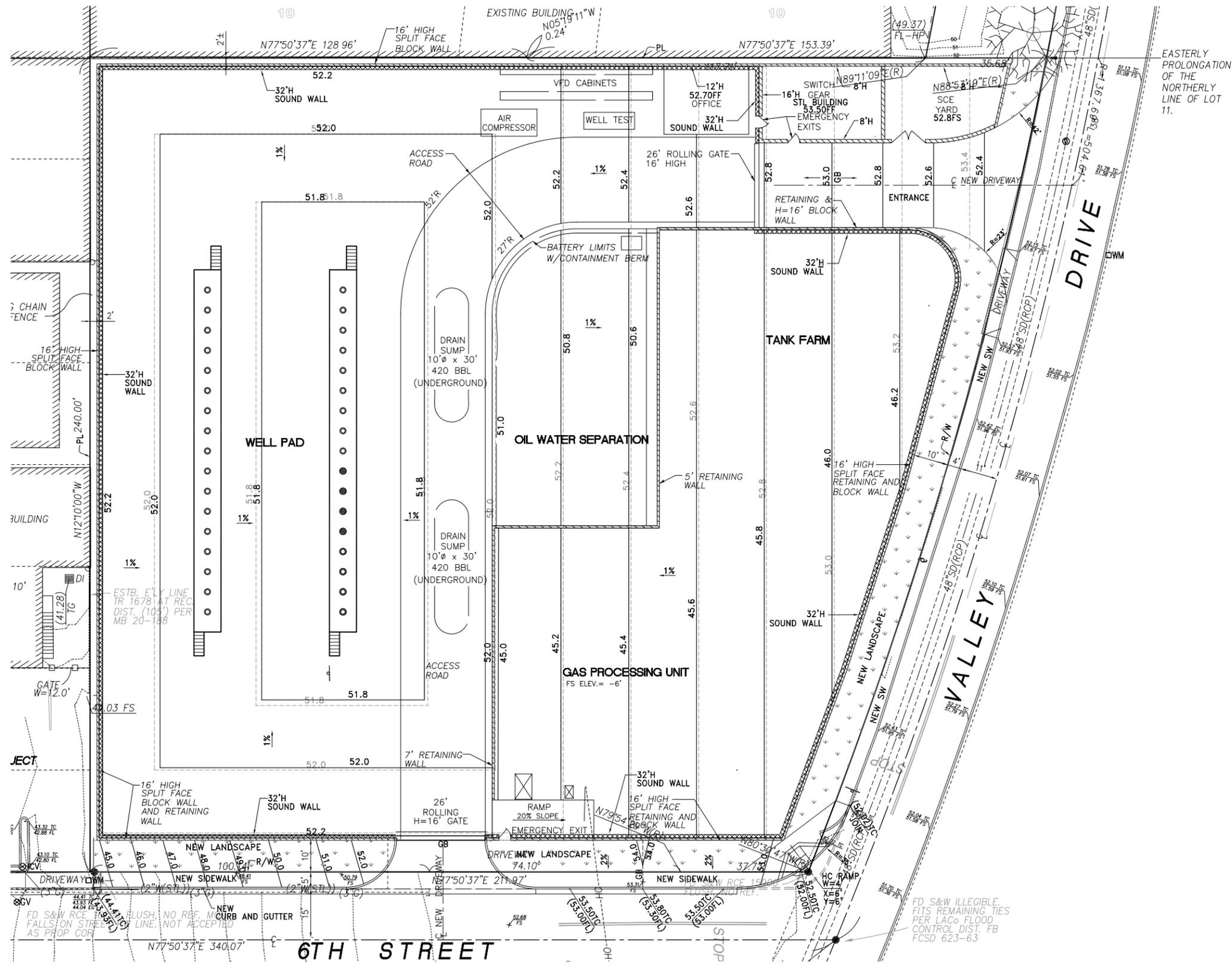
**TABLE 13 (CONTINUED)**  
**PHASE 3: FINAL DESIGN AND CONSTRUCTION**  
**NUMBER OF EMPLOYEES DURING CONSTRUCTION AND OPERATIONS**

PHASE 3 ACTIVITY	NUMBER OF EMPLOYEES	NO. OF WORKING DAYS	LOCATION OF PARKING
Install 32-foot sound attenuation wall	8	15	Adjacent parking area
Set conductor	5	45	Adjacent parking area

Source: Processes Unlimited International, Inc., October 5, 2012.

Notes:

<sup>a</sup> Task conducted by contractor’s employees that will drive the tree trimming trucks to the project site. No parking needed.



# E&B Oil Development Project

- LEGEND**
-  Retaining Wall
  -  Temporary Sound Wall
  -  Chain Link Fence

Source: ASHBA Engineers Limited, September 21, 2012.

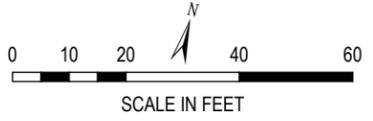
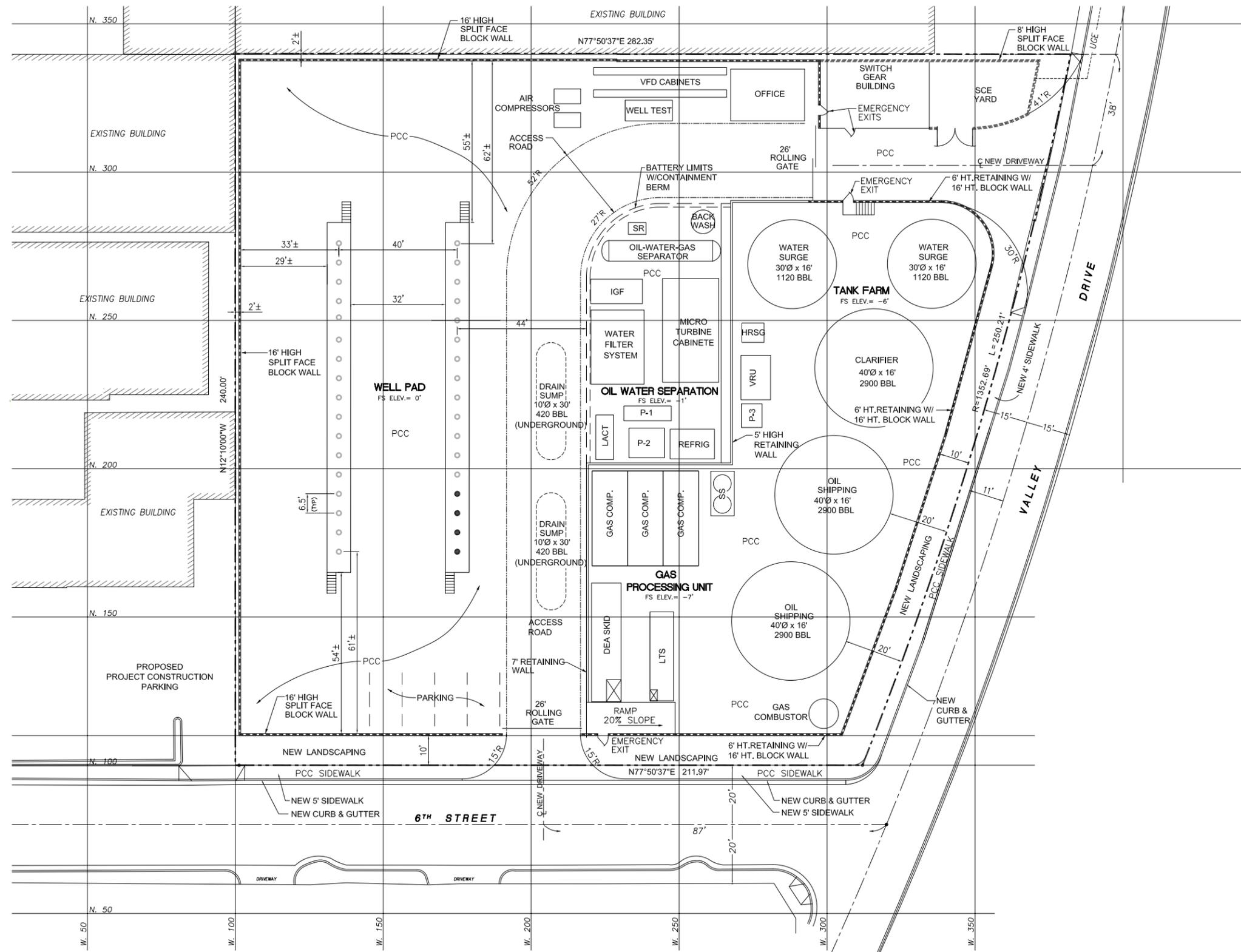


Figure 18  
**Phase 3: Final Design and Construction  
Conceptual Grading Plan**



# E&B Oil Development Project

## LEGEND

- IGF Induced Gas Flotation Oil Removal
- VRU Vapor Recovery Unit
- LACT Lease Automatic Custody Transfer
- HRSG Heat Recovery Steam Generator
- UGE Underground Electrical
- P-1 Oil/Water/Gas Separation Pumps
- P-2 Water Injection Pumps
- P-3 Oil Shipping Pumps
- PCC Portland Cement Concrete
- DEA Diethanolamine CO<sub>2</sub> Removal Heated Equipment
- LTS Low Temperature Separation Water Removal Heated Equipment
- SS H<sub>2</sub>S Removal
- SR Solids Removal
- Existing Well Site
- Future Well Site
- Access Road
- 16' High Split-Face Block w/o Retaining Wall
- ==== 8' High Split-Face Block Wall
- - - - Property Line

Source: Processes Unlimited International, Inc., September 12, 2012.

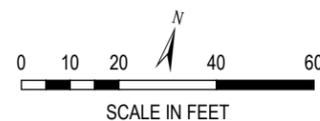
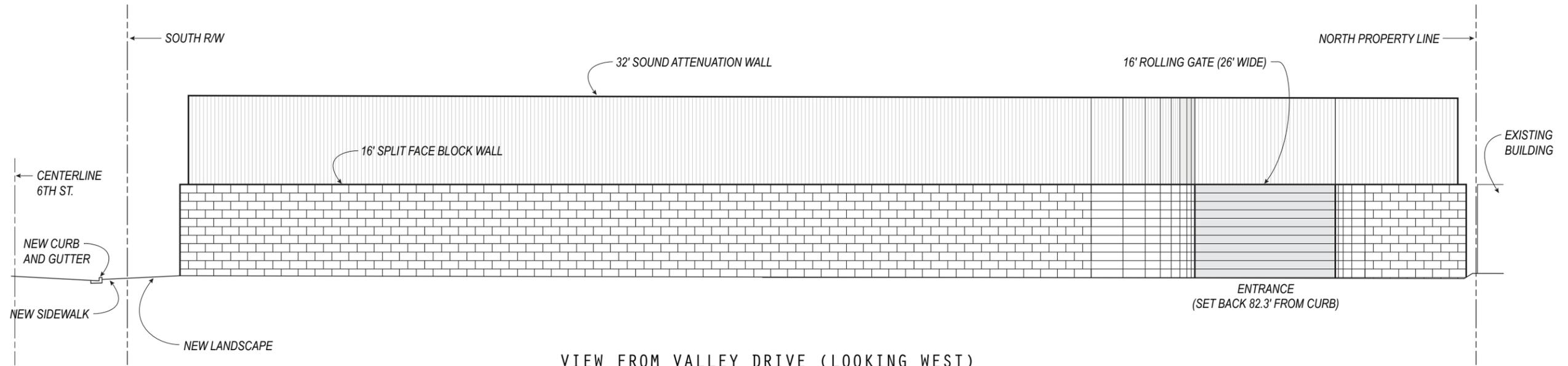
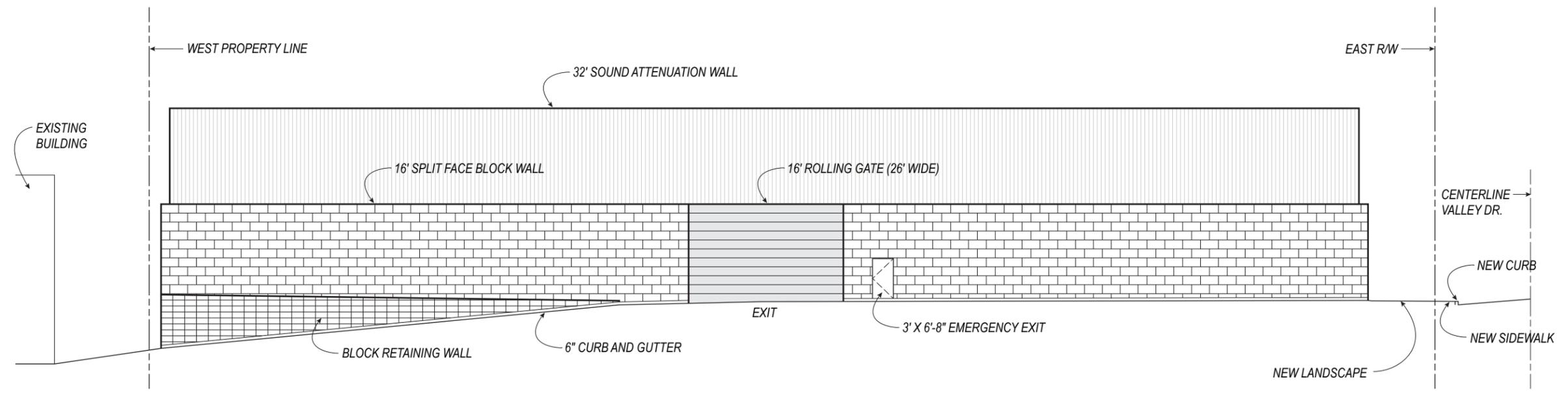


Figure 19  
**Phase 3: Final Design and Construction  
Conceptual Site Plan**



VIEW FROM VALLEY DRIVE (LOOKING WEST)



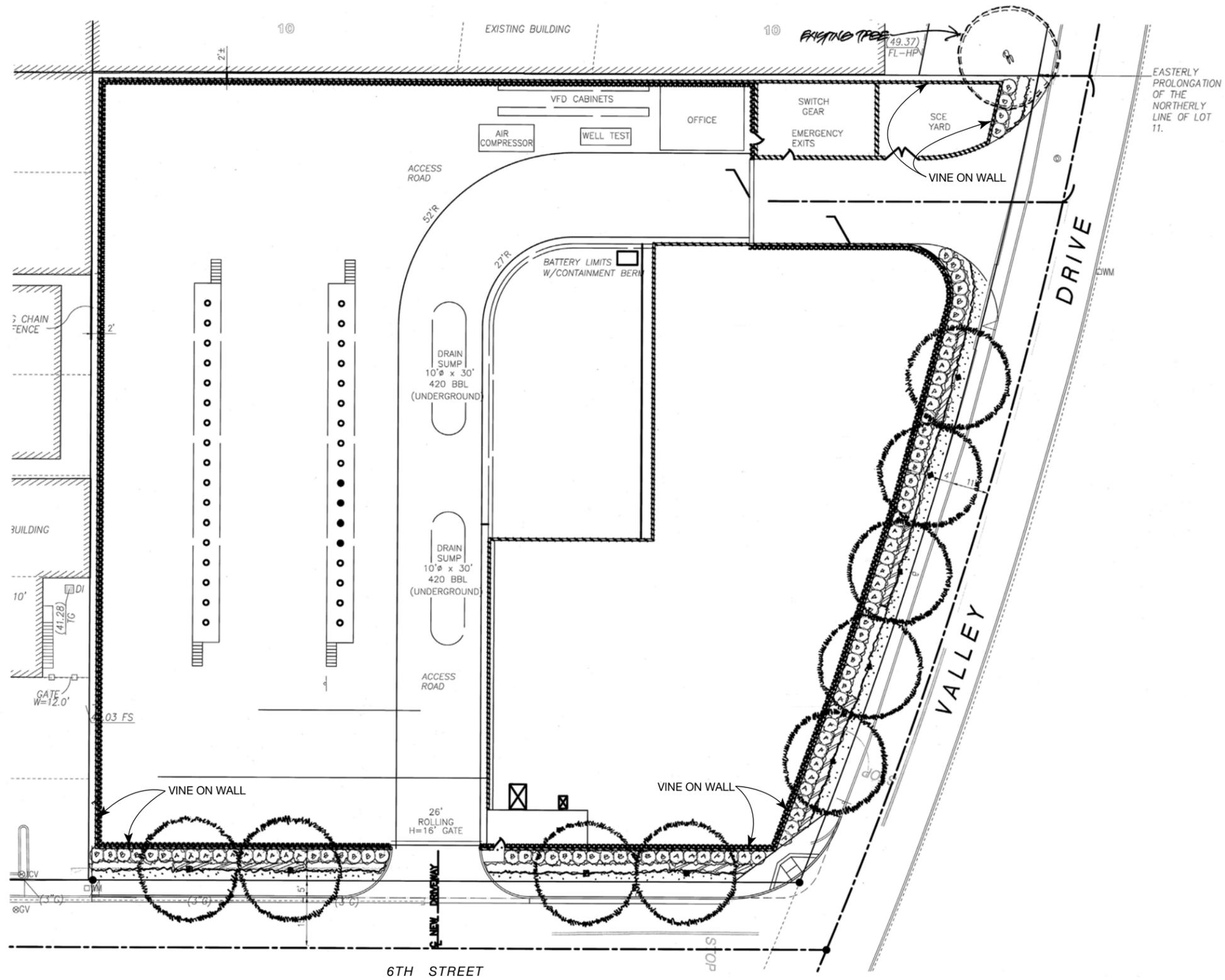
VIEW FROM 6TH STREET (LOOKING NORTH)

# E&B Oil Development Project

Figure 20  
**Phase 3: Final Design and Construction**  
**Elevations From 6th Street**  
**and Valley Drive (with Sound Wall)**

Source: ASHBA Engineers Limited, September 21, 2012.



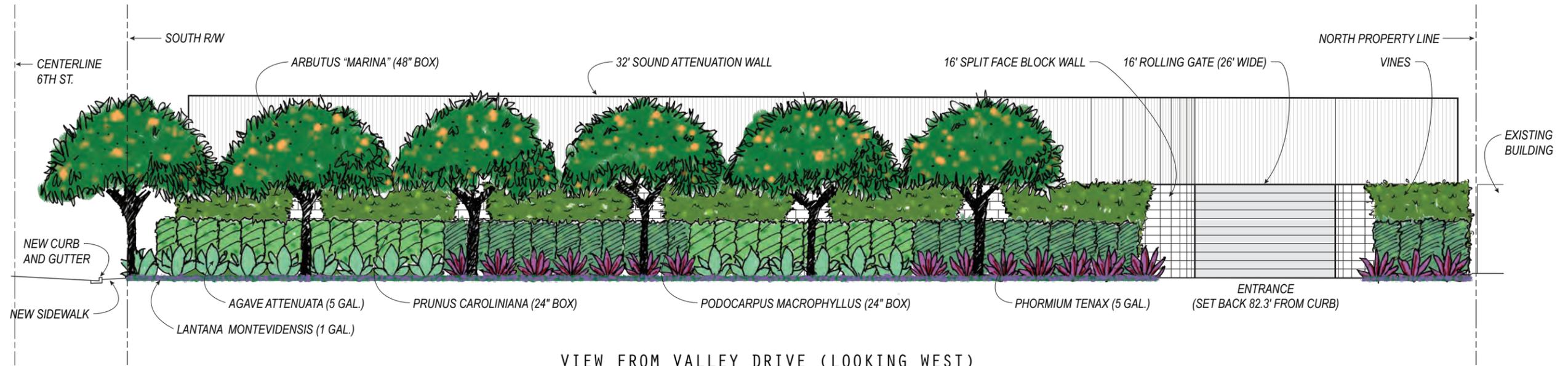


## E&B Oil Development Project

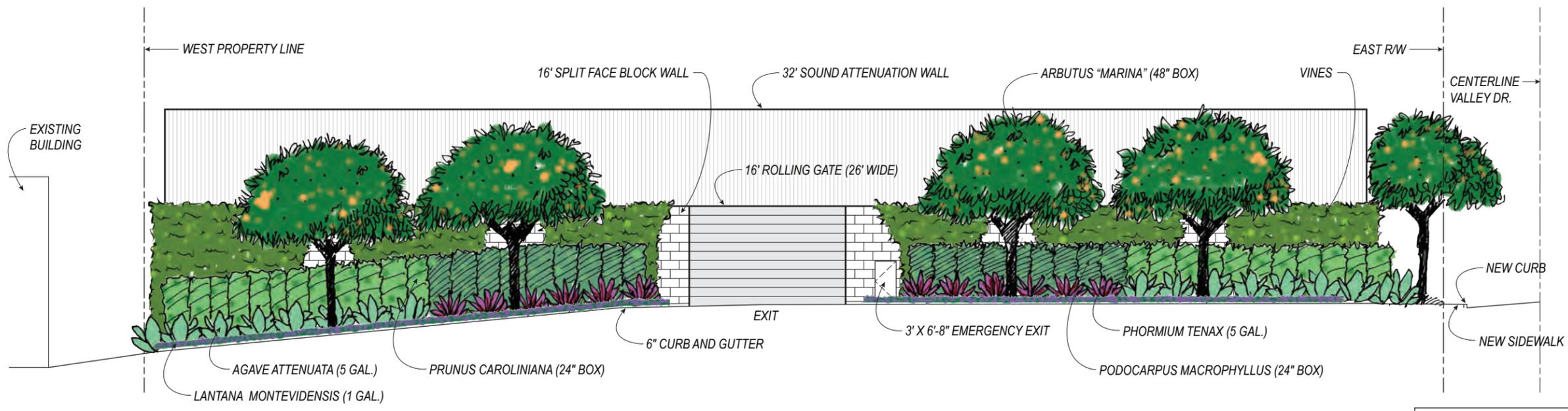
### PLANT PALETTE

Symbol	Botanical Name	Common Name	Size
<b>New Trees/Screen Planting Trees</b>			
	Arbutus 'Marina'	Strawberry Tree	48" Box
	Prunus Caroliniana	Carolina Cherry	24" Box
	Podocarpus Macrophyllus	Yew Pine	24" Box
<b>New Shrubs/Ground Covers</b>			
	Agave Attenuata	N.C.N.	5 Gal.
	Phormium Tenax 'Rainbow'	New Zealand Flax	5 Gal.
	Lantana Montevidensis	Trailing Purple Lantana	1 Gal.

Source: RJCLA Landscape Architects & Planners, October 17, 2012.



VIEW FROM VALLEY DRIVE (LOOKING WEST)



VIEW FROM 6TH STREET (LOOKING NORTH)

# E&B Oil Development Project

Figure 22  
 Phase 3: Final Design and Construction  
 Conceptual Landscaping Along 6th Street  
 and Valley Drive (with Sound Wall)

Source: ASHBA Engineers Limited, September 21, 2012; RJCLA Landscape Architects & Planners, October 24, 2012.



Phase 3 would consist of the activities and improvements discussed below. These activities are provided in the general chronological in order that they would occur.

### **Prepare Final Engineering Design**

During the first few months of Phase 3, the final design of the permanent oil and gas production facilities would occur based on the oil and gas analysis and production results from the Phase 2 activities. Final design would include the sizing and development of the exact specifications for the oil, gas, and water separation production equipment and the detailed engineering to prepare the required final construction drawings.

### **Remove Temporary Production Equipment**

The temporary oil, water, and gas production equipment installed on the project site during Phase 2 would be removed. The wells drilled during Phase 2 would be shut in and steel plating would be placed on top of the well cellar.

### **Remove Remaining Trees**

The three remaining mature trees along the frontage of the project site would be removed to allow for the construction of final site improvements including a perimeter wall and the installation of the permanent landscaping.

### **Remove 32-Foot Sound Attenuation Wall and Perimeter Fencing**

The 32-foot sound attenuation wall and the 6-foot perimeter chain link fencing would be removed from the project site.

### **Install 16-Foot Sound Attenuation Wall**

Prior to the initiation of earthmoving activities, a temporary 16-foot sound attenuation wall would be brought to the project site. These sound walls are designed to be movable and would be relocated within the project site as needed to attenuate noise and dust associated with the earthmoving activities needed for the implementation of the Remedial Action Plan and the final grading of the project site. The temporary sound walls would be removed from the project site after the onsite earthmoving and grading activities are completed.

### **Implementation of Remedial Action Plan**

The Remedial Action Plan would be implemented to address lead and total petroleum hydrocarbon (TPH) contaminated soil within the former landfill area in the northeastern portion of the project site. It is anticipated that approximately 9,000 cubic yards of lead contaminated soil would be removed from the project site in accordance with the Remedial Action Plan and hauled to a Class 1 landfill at the Kettleman Hills Facility, approximately 190 miles from the project site. The TPH contaminated soil would be treated onsite via vapor extraction. For a detailed discussion of the soil remediation that would occur prior to final grading of the project site, refer to the Remedial Action Plan provided in Appendix G of the Planning Application.

### **Construction of Remaining Retaining Walls and Final Grading**

Retaining walls would be constructed 10 feet back from the Valley Drive and 6<sup>th</sup> Street property lines, along the eastern boundary of the project site and eastern portion of the southern boundary of the project site. In addition, retaining walls would be constructed within the project site for the containment area associated with the production equipment. After the completion of the retaining walls, the project site would be graded to allow for: the completion of the first well cellar and the construction of the second well cellar; completion of the final site drainage; the installation of the permanent production equipment and storage tanks, a small office/control room building, and electrical equipment; the construction of the perimeter block wall; and other site improvements. The final grading of the project site would not require the import or export of fill material. Figure 18 provides the conceptual grading plan that indicates the location of the retaining wall locations and the final grading of the project site.

### **Complete Construction of Well Cellars**

The cement well cellar constructed in Phase 2 would be extended and the second well cellar would be constructed to allow for the drilling of the remaining wells in Phase 4. At completion, the well cellars would be approximately eight feet wide by 120 feet long by 8 to 12 feet deep, with stairs at each end and covered with expanded metal grating. The well cellars would be equipped with storm water management collection sumps and pumps to direct storm water to the drain sump for processing and injection, into the oil-producing reservoir below the oil water contact, by the water injection wells drilled in Phase 4. Figure 18 shows the location of the well cellars.

### **Construction of 16-Foot Split-Face Block Wall**

A 16-foot split-face block wall would be constructed around the perimeter of the project site. The wall would be set back 10 feet from the Valley Drive and 6<sup>th</sup> Street property lines to allow for a landscape area. The wall would have a gated entrance off of Valley Drive (set back 70 feet from the sidewalk) and a gated exit to 6<sup>th</sup> Street. The gates would be metal and motor operated. The appropriate signage would be provided consistent with the requirements of the City. Figure 19 provides the location of the wall and gates constructed in Phase 3. Figure 20 provides an elevation of the wall and gates.

### **Remove 16-Foot Sound Attenuation Wall**

After the completion of the Remedial Action Plan, final site grading, and construction of the well cellars and perimeter wall, the 16-foot temporary sound attenuation wall would be removed from the project site.

### **Construction of Small Office Building**

A small office building consisting of approximately 650 square feet would be constructed in the northeast portion of the project site for employees and to provide facilities for the control and monitoring equipment. The building would have a restroom and break room. The associated utilities, including water, sewer, natural gas, and telephone would be provided by the improvements extended to the project site in Phase 1. Water and sewer service would be

provided by the California Water Service Company and the City, respectively. Natural gas would be provided by SCG and electricity would be provided by SCE. Telephone service would be provided by Verizon.

### **Installation of Permanent Production Equipment**

Permanent oil, water, and gas production equipment would be installed on the project site. The permanent oil production facilities would include, but is not limited to, tanks, vessels, piping, pumps, filters, and supporting metering equipment. Containment provided by a retaining wall would be provided around all of the vessels, tanks and other equipment containing oil. The design capacity of the containment would exceed the fluid capacity of the largest tank by 110 percent as well as any contingency for rainwater and other liquids.

In Phase 4, the oil production facility would be used to separate the gas, water, and solids from the oil, after which the oil would be temporarily stored in tanks prior to transport from the project site via pipeline. The separated water would be accumulated in tanks, filtered, and then reinjected into the oil-bearing reservoir beneath the oil water contact by the four water injection wells. Gas from each well would be treated on the project site. The permanent gas production facilities would have compressors, vessels, a hydrogen sulfide (H<sub>2</sub>S) and carbon dioxide (CO<sub>2</sub>) removal system, a moisture removal system, and an odorizing system. The use of this equipment is discussed in Phase 4 below.

### **Construction of Final Site Improvements**

With the exception of the areas where the concrete well cellar, the containment area, and the oil and gas production equipment have been constructed, the ground surface of the project site would be paved with concrete or asphaltic concrete and designed so that no fluids, including rain water up to a 100-year storm event, would leave the project site. Liquids, including rainwater, would be captured in the containment areas or the well cellars, processed through the production facility, and reinjected into the oil-bearing reservoir beneath the oil water contact line via four water injection wells.

### **Construction of Final Street Improvements Along Project Frontage**

The proposed project would include the construction of street improvements along the frontage of the project site on 6<sup>th</sup> Street and Valley Drive. The improvements would include the installation of new curbs, gutters, and sidewalks.

### **Installation of Final Landscaping**

Permanent landscaping would be provided along the perimeter of the project site to provide a visual buffer effect that softens and screens the project site through the layering of plant materials. The plant materials and irrigation would be consistent with the requirements of the City. To the extent feasible, plant materials used in the temporary landscape plan installed in Phase 1 would be reused in the permanent landscaping. Reclaimed water supplied by the West Basin Municipal Water District would be used for irrigation. Figure 21 and 22 provides the conceptual landscape plan and plant materials for the permanent landscaping that would be provided at the completion of Phase 3.

### **Construction of Offsite Pipelines**

During Phase 3, an offsite gas pipeline (designed to handle approximately 2.5 million cubic feet per day) and an offsite oil pipeline (designed to handle approximately 8,000 barrels per day) would be construction as a part of the proposed project. The offsite underground pipeline for the transport of gas would be constructed for a distance of 0.43 mile in the ROW of southbound Valley Drive in the City of Hermosa Beach to a tie in to a SCG gas line in the SCE Utility Corridor east of N. Francisca Avenue in the City of Redondo Beach. The offsite underground pipeline for the transport of oil to a valve location in the City of Torrance would to be constructed for a maximum distance of approximately 3.55 miles in one of three potential pipeline scenarios that would traverse through the Cities of Hermosa Beach, Redondo Beach, and Torrance. Refer to Section 2.0 above for a detailed discussion of the gas pipeline alignment and the oil pipeline alignment scenarios and valve box location options. Attachment E describes the construction and operation of the offsite pipelines.

### **Installation of 32-Foot Sound Attenuation Wall**

At the completion of the improvements in Phase 3, a 32-foot sound attenuation wall would be erected inside the 16-foot block wall. Figure 20 provides the elevations of the project site, including the sound attenuation walls with the block walls, from Valley Drive and 6<sup>th</sup> Street at the completion of Phase 3.

### **Set Conductor Pipe**

Prior to drilling in Phase 4, a dry-hole digger/auger would be used to set the conductor casing in the well cellars for all of the intended wells on the project site. A hole approximately 18 inches in diameter would be drilled to a depth of approximately 80 feet. A conductor pipe would be lowered to the bottom of the hole and cemented in place. This would form the seal of the near-surface formation and serve as a steel conduit to allow the drilling fluid used in the next stage of the well to be circulated to the surface without washing away the shallow near-surface dirt. All conductors necessary to develop the proposed project would be set and the dry hole digger/auger would be moved off the project site.

### **Safety Systems**

A comprehensive fire protection system as required by Federal, State, and local codes, ordinances and regulations would be provided for all of the oil and gas production facilities on the project site. The Fire Protection Plan for Phase 4 would be provided for review and approval by the City of Hermosa Beach Fire Department (Fire Department) and incorporated into the Phase 4 Site Safety Plan. Emergency access would be incorporated into the design of the proposed project. An additional fire hydrant would be provided adjacent to the project site as a part of the proposed project. The location would be determined by the Fire Department and installation would occur as a part of the construction completed in Phase 3.

The design and operation of the proposed project would occur consistent with the requirements of the California Fire Code (CFC) and the National Fire Protection Association (NFPA) standards. Appendix B to the Project Description provides a detailed discussion of the laws, ordinances, regulations, and standards (LORS) that would be applicable to the proposed project including the requirements for the storage of hazardous materials, the

installation and use of fire protection systems and devices, and safety for employees and emergency responders.

In addition, as a part of the construction occurring in Phase 3, the fire suppression systems for the ongoing operation of the proposed project in Phase 4 would be installed. The fire suppression systems would include a foam injection system and automated detection and annunciation systems. Automated alarm systems would be installed for the detection of chemicals and fire hazards to notify the onsite personnel that a potential problem is occurring. If it is determined that a chemical fire or fire emergency exists, the onsite operator would activate the emergency shutdown system and notify the Fire Department immediately. That response would be provided by the Fire Department and their allied agencies as a part of their mutual and automatic aid agreement contracts. The onsite personnel for the proposed project would not be trained as first responders to a fire or spill emergency.

The permanent lighting for the proposed project would be installed as a part of Phase 3. The lighting would be provided to address site security and ensure safe drilling and operation of the production equipment. Consistent with the requirements of the City, the lighting would be design to be directed downward and shielded in order to avoid obtrusive light spillage beyond the project site, reflective glare, and illumination of the nighttime sky.

The security system for Phase 4 would be installed and initiated during Phase 3. The security on the project site would be provided by onsite personnel and a site security program that would include, but not be limited to, a Closed Circuit Television System, a gate access system, and intrusion and motion detection system. The security system would control all access to and from the project site.

### **5.4 Phase 4: Development and Operations**

The purpose of Phase 4 would be to maximize oil and gas recovery from the reservoirs by drilling additional wells and activating the permanent facility. To accomplish this, Phase 4 would result in: the drilling of the remaining wells (for a total of 30 oil and gas wells and four water disposal/injection wells); the start up and operation of the permanent oil production equipment; the transport of the oil and gas by pipeline to their respective destinations; and the ongoing maintenance of the proposed project. The proposed project would be designed for a maximum capacity of 8,000 barrels of oil per day and 2.5 million cubic feet of gas per day.

It is anticipated that Phase 4 would occur for a period of approximately 30 to 35 years as indicated in the schedule provided in Table 14. The drilling of the remaining wells would occur during the first 30 months of Phase 4. The vehicles, equipment, and employees estimated for Phase 4 are provided in Tables 15, 16, and 17, respectively. During drilling, parking for the employees would be provided in the adjacent private parking area as described above for Phase 1. Parking for the employees would be provided on the project site after the drilling of all the wells is completed and the drill rig is removed from the project site.



**TABLE 15**  
**PHASE 4: DEVELOPMENT AND OPERATIONS**  
**VEHICLE ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

PHASE 4 ACTIVITY	VEHICLES REQUIRED	MAXIMUM NO. OF VEHICLE TRIPS PER DAY	DURATION (NO. OF WORKING DAYS)
Deliver and set up drill rig and its associated equipment	Large truck with trailer <sup>a</sup>	4	10
Drill remaining 27 oil wells and three water injection wells	Large truck with flatbed semi-trailer	1	240
	Large truck with flatbed semi-trailer	3	600
	Bin trucks with roll-off bins (20-cubic yard capacity)	2	600
	Liquid haul truck (100-150 barrel capacity vacuum truck)	2	600
	Standard trash trucks	1	260
	Large truck with flatbed semi-trailer	2	150
	Hydracrane	-- <sup>b</sup>	-- <sup>b</sup>
Remove drill rig	Large truck with trailer <sup>a</sup>	4	10
Remove 32-foot sound attenuation wall	Large truck with flatbed semi-trailer	2	7
Conduct routine maintenance and operations	Pickup trucks	8	Life of Project
	Utility truck	1	Life of Project
	Liquid haul truck (100-150 barrel capacity vacuum truck)	4	Life of Project
	Hydracrane	-- <sup>b</sup>	-- <sup>b</sup>
Conduct major maintenance	Pickup trucks	7	90 days per year
	Hydracrane	-- <sup>b</sup>	-- <sup>b</sup>
	Large truck with flatbed semi-trailer	-- <sup>b</sup>	-- <sup>b</sup>
	Workover Rig	-- <sup>c</sup>	-- <sup>c</sup>

Source: Processes Unlimited International, Inc., October 5, 2012.

Notes:

<sup>a</sup> Some will be permitted loads due to size and/or the weight of drill rig and associated equipment being delivered. It is assumed that there would be 11 permit loads during Phase 4.

<sup>b</sup> This vehicle will only be used on an as needed basis.

<sup>c</sup> This piece of equipment will be driven to the project site on an as needed basis up to 15 times per year. The use of the workover rig is included in the equipment assumptions.

**TABLE 16**  
**PHASE 4: DEVELOPMENT AND OPERATIONS**  
**EQUIPMENT ASSUMPTIONS FOR CONSTRUCTION AND OPERATIONS**

PHASE 4 ACTIVITY	EQUIPMENT REQUIRED <sup>a</sup>	AMOUNT OF EQUIPMENT	DURATION (NO. OF WORKING DAYS)
Deliver and set up drill rig and its associated equipment	Fork lift Large crane (150-foot boom)	1 1	10 1
Drill remaining 27 oil wells and three water injection wells	Electric drill rig Fork lift	1 1	910 910
Remove drill rig	Large crane (150-foot boom)	1	10
Remove 32-foot sound attenuation wall	Small crane Forklift	1 1	10 10
Conduct routine maintenance and operations	None required	0	NA
Conduct major maintenance	Diesel workover rig Forklift	1 1	90 days per year <sup>b</sup> as needed

Source: Processes Unlimited International, Inc., October 5, 2012.

Notes:  
<sup>a</sup> Delivered to project site at beginning of activity and removed from project site when activity is completed. However, this does not apply to the workover rig as discussed in Footnote “b” below.  
<sup>b</sup> The workover rig could be delivered to project site up to 15 times per year. However, the maximum number of days that the workover rig could be used on-site would be 90 days per year.

**TABLE 17  
 PHASE 4: DEVELOPMENT AND OPERATIONS  
 NUMBER OF EMPLOYEES DURING CONSTRUCTION AND OPERATIONS**

<b>PHASE 4 ACTIVITY</b>	<b>NUMBER OF EMPLOYEES</b>	<b>NO. OF WORKING DAYS</b>	<b>LOCATION OF PARKING</b>
Deliver and set up drill rig and its associated equipment	20	15	Adjacent parking area
Drill remaining 27 oil wells and three water injection wells	20	910	Adjacent parking area
Remove drill rig	20	12	Adjacent parking area
Remove 32-foot sound attenuation wall	8	10	Adjacent parking area
Conduct routine maintenance and operations	4	Life of project	Onsite parking
Conduct major maintenance	14	90 days per year	Onsite parking

*Source: Processes Unlimited International, Inc., October 5, 2012.*

Figures 23, 24, 25, 26, and 27 provide the conceptual site plan (with and without the drill rig or workover rig), elevations, and the conceptual landscape plan for the proposed project during Phase 4.

Phase 4 would consist of the activities and improvements discussed below. These activities are provided in the general chronological in order that they would occur.

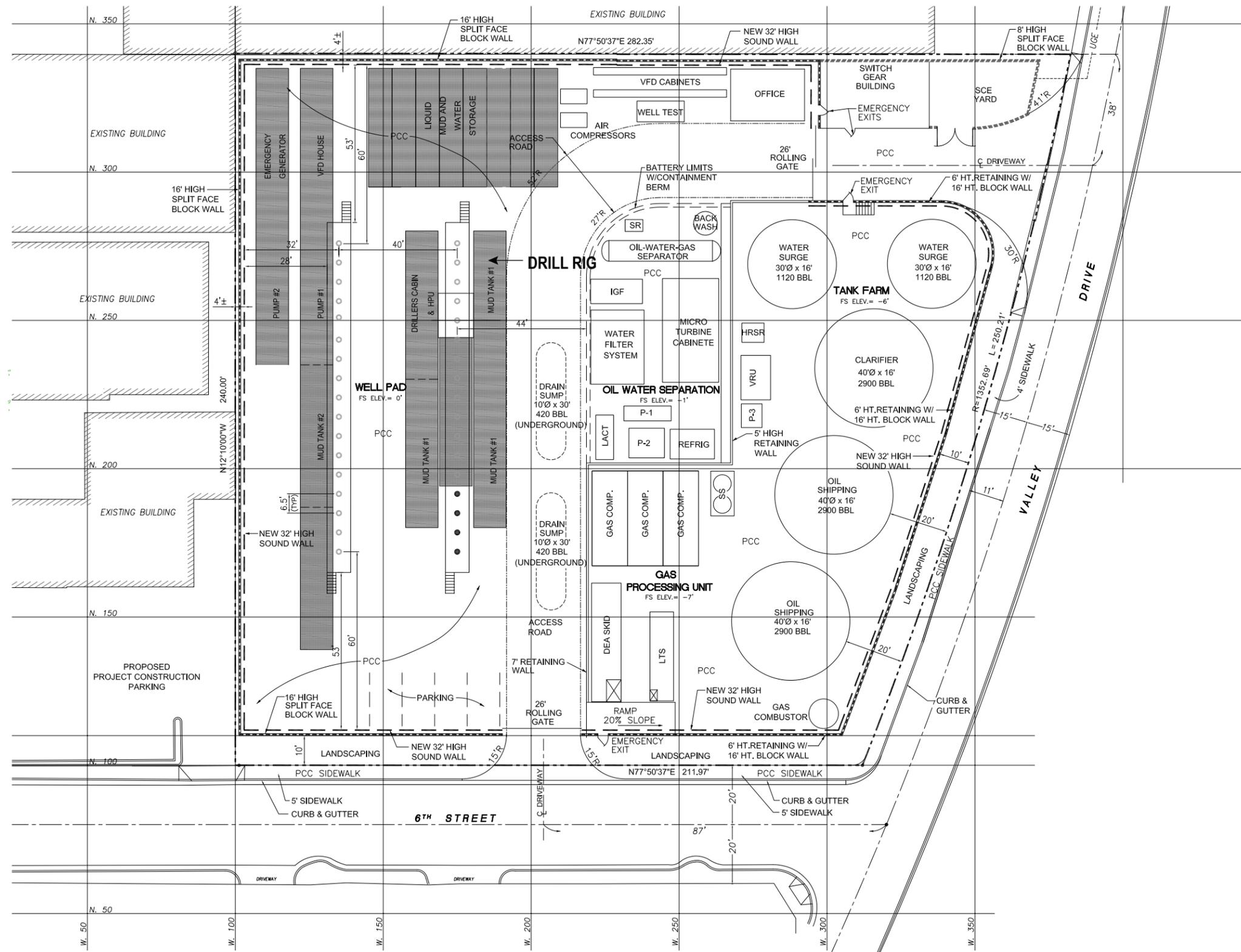
### **Delivery and Set Up of Drill Rig**

An electric drilling rig and its associated equipment would be brought to the project site by trucks. As indicated in Table 15, the drill rig and its associated equipment would be brought to the project site on large trucks with trailers permitted by the City and the CHP. The approximately 87-foot high drill rig would be powered by electricity. A large crane with a 150-foot boom would be used to erect the drill rig. The crane would be removed from the project site after the drill rig and supporting equipment has been set in place. Support equipment for the drill rig would include pipe racks, mud and cutting system, pumps, hydraulic equipment, an accumulator, and a backup generator. In the event of a loss of power from SCE, the generator, which would be a non-road portable diesel-fuel generators certified by the California Air Resources Board (CARB), would provide power for the safe shutdown of the drilling operation. The drill rig and its associated equipment are discussed in greater detail in Attachment C to this Project Description.

### **Drill Remaining Wells and Commence Production**

The drilling of the remaining oil wells and water injection wells, up to a total of 30 oil wells and four water injection wells, would involve the same activities as described above for Phase 2. As discussed above in Phase 2, once the drilling of a well is complete, the cemented casing would be run from the surface to the bottom of the wellbore where the well penetrates the oil-producing reservoir. The well would be plumbed into the temporary production equipment and pump system that had been installed. The pump system, installed below ground, would bring the oil, gas, and water to the surface for testing. In addition, up to three water injection wells would be drilled to allow for the reinjection of processed produced water back into the oil-producing reservoir below the oil water contact line. The drill rig would operate continuously for 24 hours per day, seven days per week, until the appropriate depth and bottom-hole location for each well has been reached. It is estimated it would take approximately 30 days per well. After the drilling of the wells is complete, the drill rig would immediately be removed from the project site. The drilling activities are discussed in detail in Attachment C to this Project Description. Figure 23 provides the conceptual site plan that shows how the drill rig and its associated equipment would be located on the project site during drilling.

Drilling each well would require approximately 130,000 gallons (or 0.4 acre-feet) of water. The water would be reclaimed water provided by the West Basin Municipal Water District from an existing waterline in the Veterans Parkway. The West Basin Municipal Water District has provided the Applicant with a will serve letter.



# E&B Oil Development Project

## LEGEND

- IGF Induced Gas Flotation Oil Removal
- VRU Vapor Recovery Unit
- LACT Lease Automatic Custody Transfer
- HRSG Heat Recovery Steam Generator
- UGE Underground Electrical
- P-1 Oil/Water/Gas Separation Pumps
- P-2 Water Injection Pumps
- P-3 Oil Shipping Pumps
- PCC Portland Cement Concrete
- DEA Diethanolamine CO<sub>2</sub> Removal Heated Equipment
- LTS Low Temperature Separation Water Removal Heated Equipment
- SS H<sub>2</sub>S Removal
- SR Solids Removal
- Existing Well Site
- Future Well Site
- Access Road
- 16' High Split-Face Block w/o Retaining Wall
- 8' High Split-Face Block Wall
- 32' High Sound Wall
- - - - Property Line

Source: Processes Unlimited International, Inc., September 12, 2012.

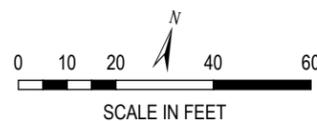
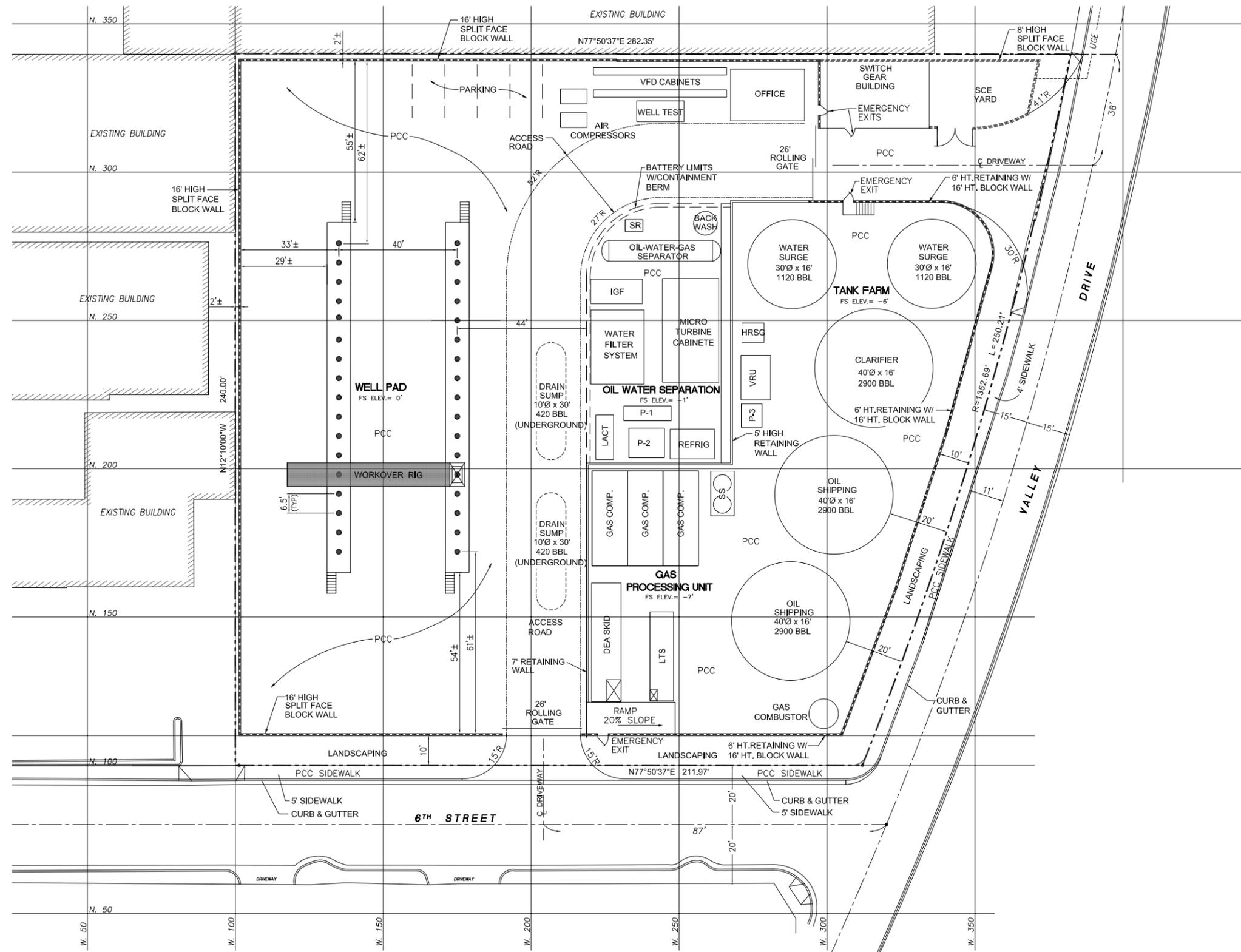


Figure 23  
**Phase 4: Development and Operations**  
**Conceptual Site Plan (with Drill Rig)**



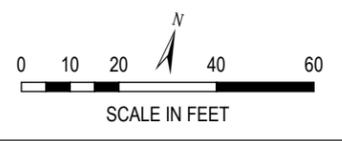
# E&B Oil Development Project

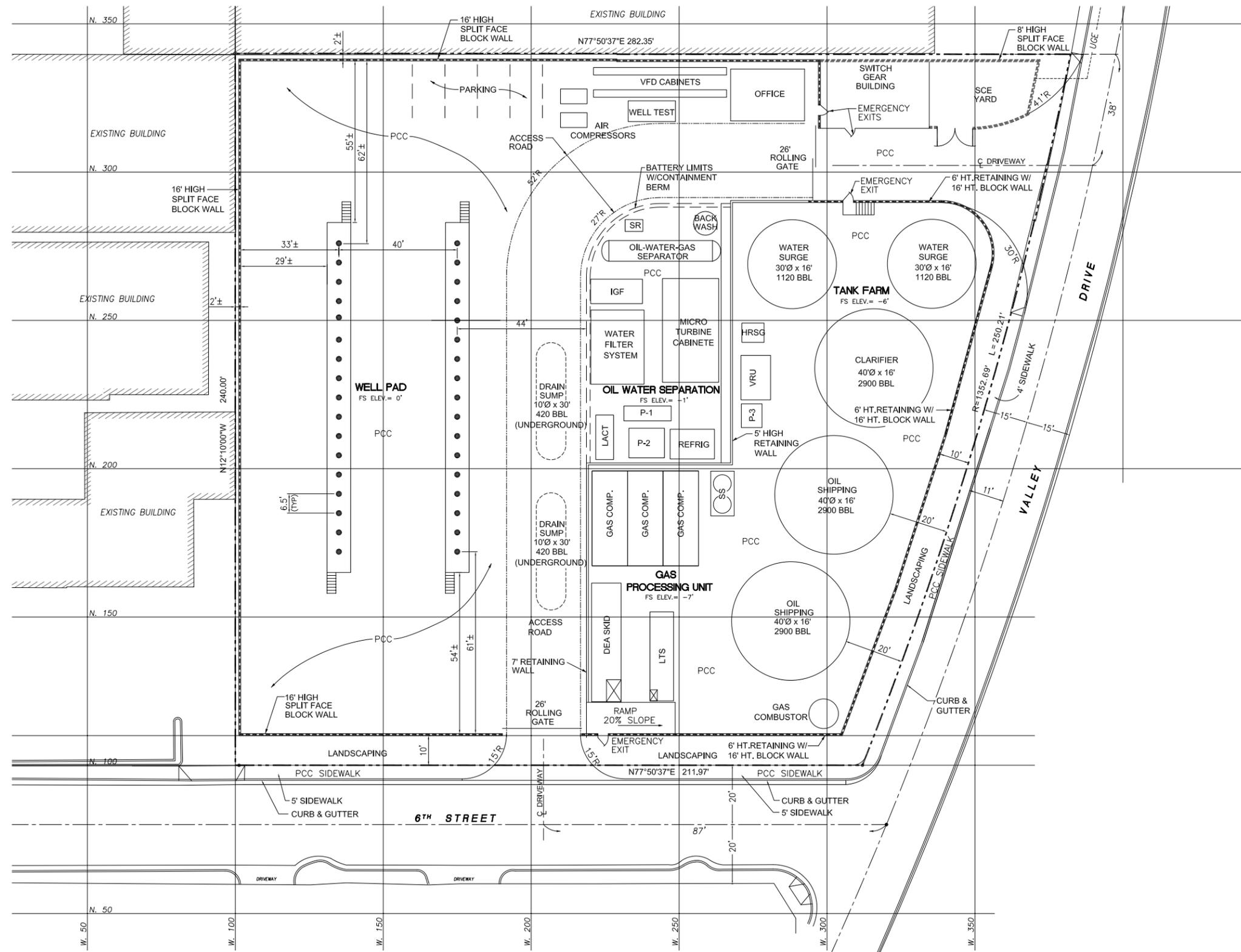
**LEGEND**

IGF	Induced Gas Flotation Oil Removal
VRU	Vapor Recovery Unit
LACT	Lease Automatic Custody Transfer
HRSG	Heat Recovery Steam Generator
UGE	Underground Electrical
P-1	Oil/Water/Gas Separation Pumps
P-2	Water Injection Pumps
P-3	Oil Shipping Pumps
PCC	Portland Cement Concrete
DEA	Diethanolamine CO <sub>2</sub> Removal Heated Equipment
LTS	Low Temperature Separation Water Removal Heated Equipment
SS	H <sub>2</sub> S Removal
SR	Solids Removal
●	Existing Well Site
---	Access Road
---	16' High Split-Face Block w/o Retaining Wall
---	8' High Split-Face Block Wall
---	Property Line

Source: Processes Unlimited International, Inc., September 12, 2012.

Figure 24  
**Phase 4: Development and Operations**  
**Conceptual Site Plan (with Workover Rig)**





# E&B Oil Development Project

## LEGEND

- IGF Induced Gas Flotation Oil Removal
- VRU Vapor Recovery Unit
- LACT Lease Automatic Custody Transfer
- HRSG Heat Recovery Steam Generator
- UGE Underground Electrical
- P-1 Oil/Water/Gas Separation Pumps
- P-2 Water Injection Pumps
- P-3 Oil Shipping Pumps
- PCC Portland Cement Concrete
- DEA Diethanolamine CO<sub>2</sub> Removal Heated Equipment
- LTS Low Temperature Separation Water Removal Heated Equipment
- SS H<sub>2</sub>S Removal
- SR Solids Removal
- Existing Well Site

- Access Road
- 16' High Split-Face Block w/o Retaining Wall
- 8' High Split-Face Block Wall
- - - - - Property Line

Source: Processes Unlimited International, Inc., September 12, 2012.

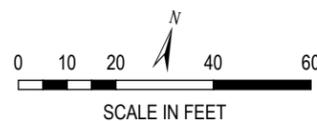
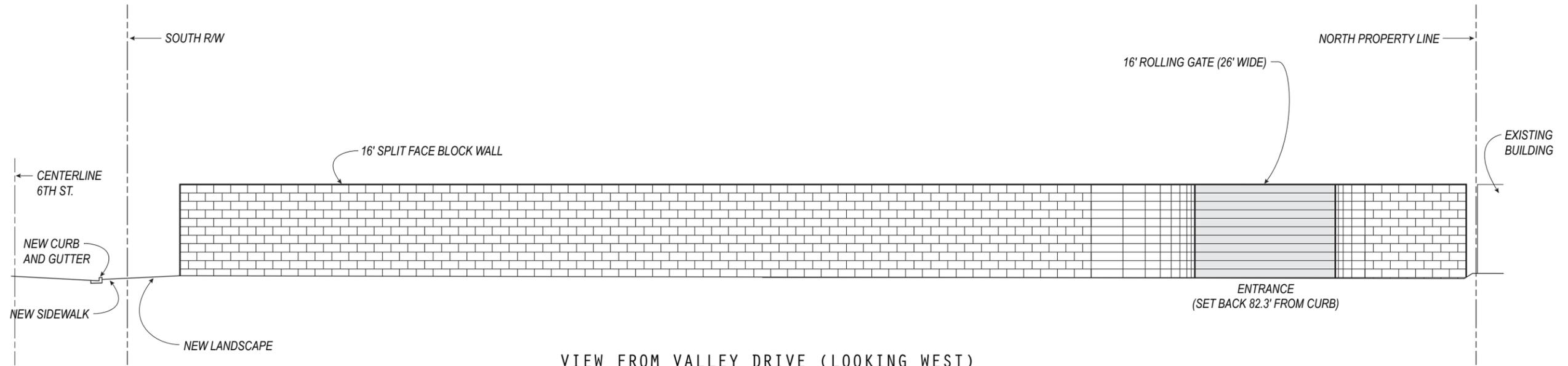
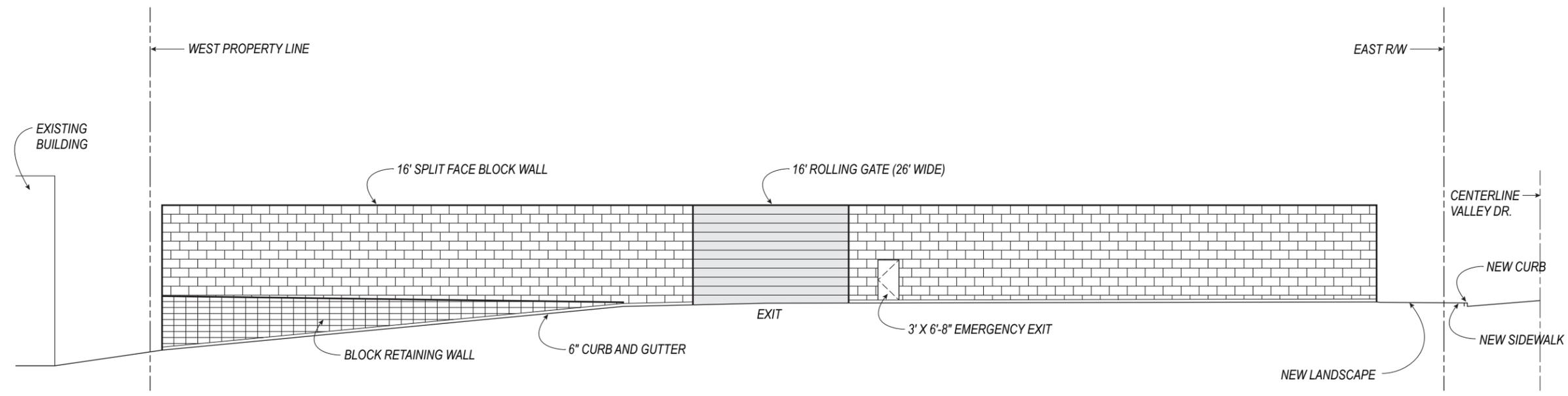


Figure 25  
**Phase 4: Development and Operations**  
**Conceptual Site Plan**



VIEW FROM VALLEY DRIVE (LOOKING WEST)



VIEW FROM 6TH STREET (LOOKING NORTH)

# E&B Oil Development Project

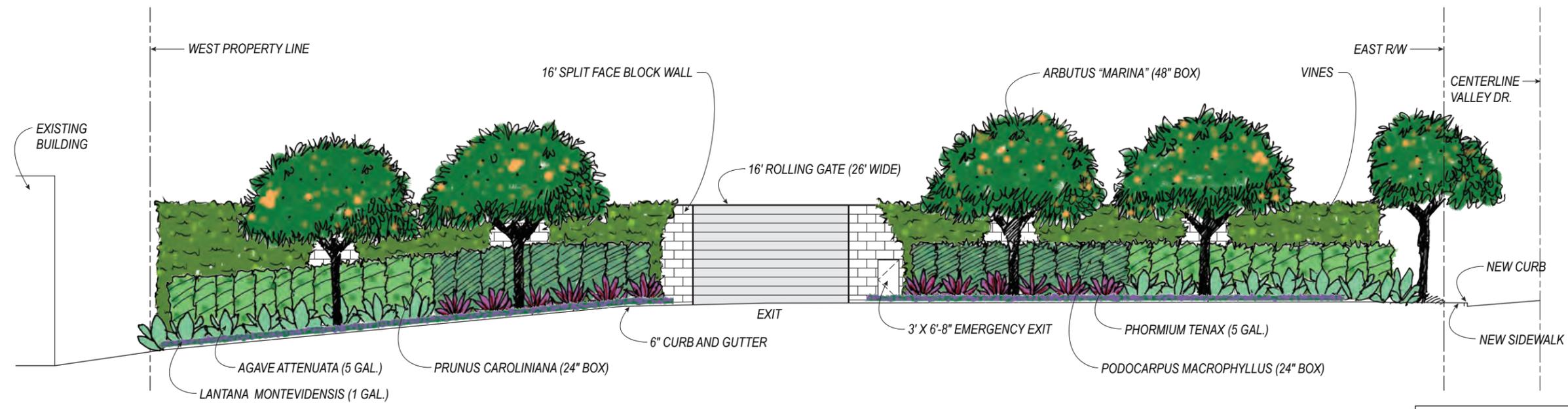
Figure 26  
Phase 4: Development and Operations  
Elevations From 6th Street  
and Valley Drive

Source: ASHBA Engineers Limited, September 21, 2012.





VIEW FROM VALLEY DRIVE (LOOKING WEST)



VIEW FROM 6TH STREET (LOOKING NORTH)

# E&B Oil Development Project

Figure 27  
 Phase 4: Development and Operations  
 Conceptual Landscaping Along  
 6th Street and Valley Drive

Source: ASHBA Engineers Limited, September 21, 2012; RJCLA Landscape Architects & Planners, October 24, 2012.



The drilling process requires the use of drilling mud to circulate drilled rock cuttings out of the well hole, retain the integrity of the well hole, and control reservoir pressure. The drilling mud would be collected onsite in tanks. Although most of the mud would be reused on subsequent wells, some mud would be removed from the project site and disposed. In addition, all other waste generated by the test drilling would be transported by truck to the appropriate disposal site.

During the drilling of the remaining oil wells and the water injection wells, the production of the extracted oil would occur. Figure 28 shows the steps involved to process the oil, water, and gas produced from the wells in Phase 4. The processing of the oil, water, and gas during Phase 4 is discussed in detail in Attachment D to this Project Description. The permanent production equipment on the project site would be used to process the oil and to a standard that would be suitable for sale. The produced water would be processed and reinjected into the oil-producing reservoir below the oil water contact line. The oil and gas produced would be transported offsite via pipelines constructed in Phase 3.

Noise abatement would be incorporated into the operational practices and the design of the drill rig and permanent production equipment. The Noise Impact Study provided in Appendix J to the Planning Application provides a detailed analysis of the potential noise and vibration that could occur during drilling and production activities in Phase 4. In addition, the Noise Impact Study provides a detailed discussion of the operational practices and design features that would be incorporated into the drilling and production operations, the drill rig and associated equipment, and the permanent production equipment used in Phase 4.

The Air Quality Impact Study provided in Appendix C to the Planning Application provides a detailed analysis of the potential air emissions and odors that could occur during the drilling and production activities in Phase 4 and describes the operational practices and design features that would address the potential for odors.

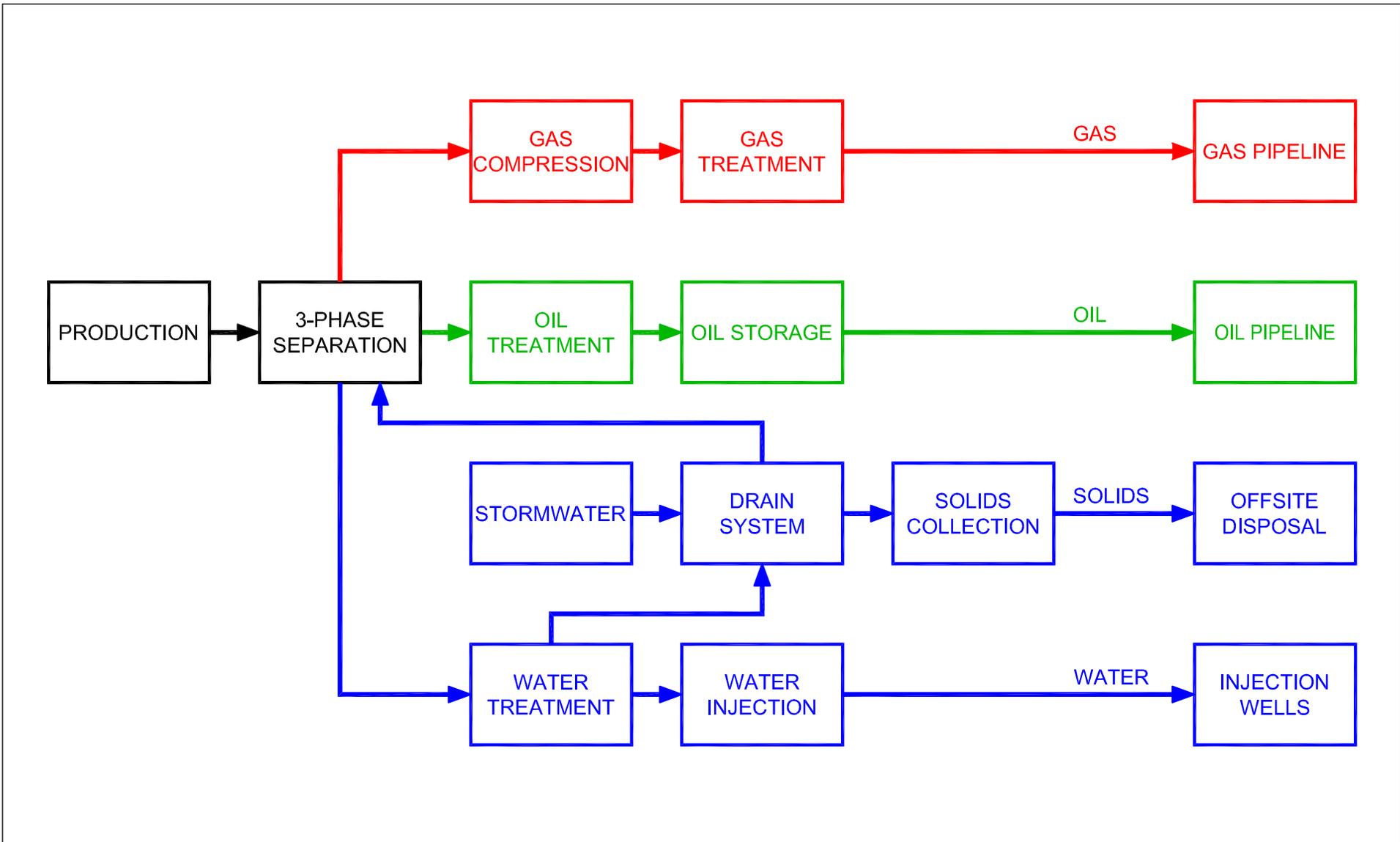
### **Remove 32-Foot Sound Attenuation Wall**

After the drilling of the wells are completed, the 32-foot sound attenuation wall would be removed from the project site.

### **Ongoing Operations and Maintenance**

The ongoing maintenance and operation of the proposed project would occur in compliance with the applicable federal, state, and local rules, regulations, ordinances, and applicable permit conditions. The Applicant would employ experienced oil field staff that would monitor activities on a 24-hour basis in order to check the safety and security of the ongoing operation and maintenance of the proposed project.

During the ongoing operation of the proposed project, the active wells would require periodic routine service. These activities could include the replacement of down-hole pumps, piping, and cleaning. These maintenance activities would typically be accomplished by utilizing a service rig or “workover” rig. The maximum number of days that the workover rig would be operated on the project site would be 90 days per year. The use of the workover rig would occur between the hours of 8:00 A.M. and 6:00 P.M. on weekdays only (excluding holidays).



Source: E&B Natural Resources Management Corp.

In addition, there would be an occasional need for other services such as facilities repair and solid and liquid waste pick-up. Preventative maintenance would be performed on a routine basis to ensure the integrity of the operating equipment. The pipelines would be periodically inspected to ensure their continued integrity.

### **6.0 PERMITS AND APPROVALS REQUIRED FOR PROPOSED PROJECT IMPLEMENTATION**

#### **6.1 Discretionary Permits and Approvals**

The proposed project requires the following discretionary permits and approvals prior to implementation:

- Certification or approval of environmental documentation pursuant to the California Environmental Quality Act (CEQA)
- Approval of the Development Agreement by Ballot Measure
- Approval of the Text Amendment to the City of Hermosa Beach Municipal Code Chapter 5.56 Oil Wells by Ballot Measure
- Approval of an Amendment to the Land Use Plan consistent with the requirements of the California Coastal Act
- Approval of a Coastal Development Permit by the California Coastal Commission
- Approval of Permits to Construct by the South Coast Air Quality Management District
- Other ancillary approvals if determined to be required in the entitlement process based on the refined project design in order to achieve the objectives of the proposed project

#### **6.2 Other Agencies with Permit Authority**

The following agencies will have discretionary or other permit authority over all or portions of the proposed project:

- City of Hermosa Beach
- City of Redondo Beach
- City of Torrance
- U.S. Environmental Protection Agency (EPA)
- U.S. Department of Transportation, Pipeline Hazardous Materials Safety Administration (PHMSA)
- California Department of Conservation, Division of Oil Gas & Geothermal Resources (DOGGR)
- California Department of Fish & Game, Office of Spill Prevention & Response (OSPR)
- California Department of Forestry and Fire Protection, Office of the State Fire Marshall (CSFM)

- California Department of Toxic Substances Control (DTSC)
- California Department of Transportation (Caltrans)
- California Highway Patrol
- California Occupation Safety & Health Administration (Cal-OSHA)
- California State Lands Commission (CSLC)
- South Coast Air Quality Management District (SCAQMD)
- Los Angeles County Fire Department (LAFD)
- Los Angeles Regional Water Quality Control Board (LARWQCB)
- West Basin Municipal Water District
- Southern California Edison Company
- Southern California Gas Company

### **7.0 TECHNICAL DOCUMENTATION PREPARED FOR THE PROPOSED PROJECT**

The Applicant's technical consultants prepared analyses that addressed the potential environmental effects of the proposed project. These analyses were used by the Applicant's project team to develop appropriate operational practices and select vehicles, construction equipment, and production equipment that were incorporated into the proposed project in order to lessen the identified potential environmental effects of the construction activities and the ongoing operations of the oil and gas development. This technical process review resulted in reduced environmental effects in comparison to the environmental effects identified for the previously processed Hermosa Beach Oil Development Project. This would be accomplished through the utilization of the latest technology in oil and gas production and processing as well as analysis methodologies that have occurred since the previous project approval in 1993.

The technical documentation provided in the Appendices to the Planning Application consists of the following studies:

- Visual Simulations
- *The E&B Oil Development, Project Plant Safety and Control Systems*, dated November 2012
- *E&B Oil Development Project, Air Quality Impact Analysis*, dated November 12, 2012
- *E&B Oil Development Project, Geotechnical Exploration and Design Report*, dated October 19, 2012
- *Phase I Environmental Site Assessment, City of Hermosa Beach Maintenance Yard*, dated June 15, 2012

- *Phase II Environmental Site Assessment, City of Hermosa Beach Maintenance Yard*, dated August 30, 2012
- *City of Hermosa Beach Maintenance Yard, Proposed Remedial Action Plan*, dated October 30, 2012
- *Subsidence and Induced Seismicity Technical Report*, November 9, 2012
- *Preliminary Summary Report, E&B Oil Development Project, Quantitative Risk Analysis*, November 7, 2012
- *E&B Oil Development Project, Noise Impact Study*, dated November 9, 2012
- *E&B Oil Development Project, Greenhouse Gas Emissions Analysis*, dated November 12, 2012
- *E&B Oil Development Project, Hydrology and Water Quality Study*, November 2012
- *E&B Oil Development Project, Traffic Impact Analysis*, dated November 12, 2012