2.0 Project Description

Chevron Land and Development Company (the Applicant), on behalf of the land owner, the Union Oil Company of California (Union Oil), is proposing a remediation and development Project on the 332-acre former San Luis Obispo Tank Farm property (Project Site), located south of the City of San Luis Obispo (City), in San Luis Obispo County (County), California. The location of the property is shown in Figure 2-1. The remainder of this section provides background on the Project, and a detailed description of the proposed Project activities.

2.1 Background

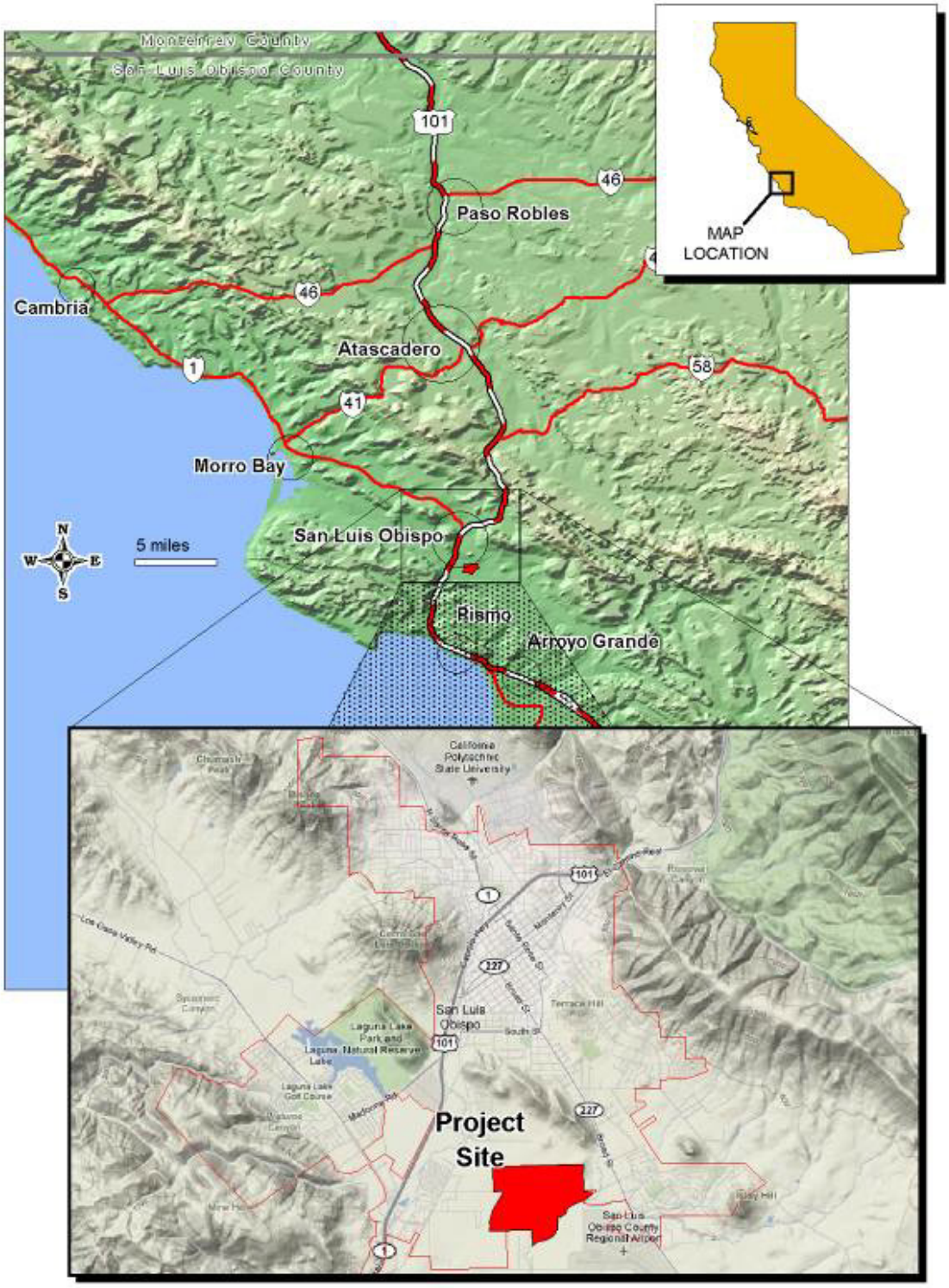
The Project Site was originally owned and operated by Union Oil. Chevron purchased Union Oil, including the Project Site, in August 2005. The San Luis Obispo Tank Farm was constructed on the property in 1910 to serve as the accumulation point for the petroleum pipeline from the San Joaquin Valley. In 1926, many of the tanks on the Project Site were destroyed in a fire created by a lightning strike. The Tank Farm was slowly withdrawn from operation during the later decades of the twentieth century, and by the late 1990s it was formally decommissioned. The Project Site now exists as primarily vacant land that is surrounded by the expanding footprint of urban development of the City, and the San Luis Obispo County Regional Airport (SLOCRA). The Applicant intends to remediate the Project Site to address site contamination issues, restore habitat, and develop portions of the Project Site consistent with a proposed land use plan.

The Project consists of two principal components: remediation and development. The remediation component includes several remediation and restoration activities that are proposed to occur over a three- year period: demolition of existing buildings, excavation of soil, site re-contouring, capping, and increasing the quantity of wetland and rare plant habitats. Re-contouring would be done mostly using on-site materials. The remediation portion of the Project is based on an extensive collaborative process with resource agencies that have concurred with the Applicant's proposed remediation approach, while taking into consideration the proposed future uses at the Project Site. The Applicant has also proposed a number of design and operational features as part of the Project in order to address various issues. These design and operational features are included as part of this Project Description, as appropriate.

The second component of the Project involves development of approximately 17 percent of the Project Site with approximately 800,000 square feet (floor area) of business park and service commercial uses. Development would be implemented in five phases over a period of approximately 25 years; each phase would create approximately 160,000 square feet of leasable floor area and take approximately five years to construct. To achieve the development, the Applicant requested amendments to the City's Airport Area Specific Plan (AASP) and the County's General Plan.

The proposal also includes designation of approximately 15 acres for recreational use (may include up to two acres of public land) to be developed by a subsequent Project Site/individual lot owner.

Figure 2-1 Project Location



The Project Site is included in the City's AASP that anticipates future annexation of this and other properties in the area given its proximity to existing City boundaries, existing industrial uses, and the SLOCRA. In addition, the City's AASP encourages the environmentally sensitive portions of the Project Site – comprised of approximately 250 acres – be kept in open space. The Applicant has submitted an application to the City for the proposed development including amendments to the AASP. The Applicant is proposing a Development Agreement (DA) for consideration by the City Council in association with a potential annexation of the Project Site.

Although the Applicant prefers annexation to the City and developing the Project Site as part of the AASP, it recognizes the uncertain nature of this process. Therefore, the Applicant has also filed for a General Plan Amendment (LRP2008-00001) and Tentative Tract/Conditional Use Permit (SUB2008-00004) application with the County, which the Applicant will pursue in the event that the City review and approval process for annexation and development is unsuccessful. Approved development would either be under County or City jurisdiction, and such approvals would follow approval of required amendments to the County General Plan and/or the City's AASP. Both development options are analyzed in an equal level of detail in this environmental impact report (EIR) to allow for full consideration of the environmental impacts of both options, and to allow the County to rely on this document should the Project remain under the jurisdiction of the County.

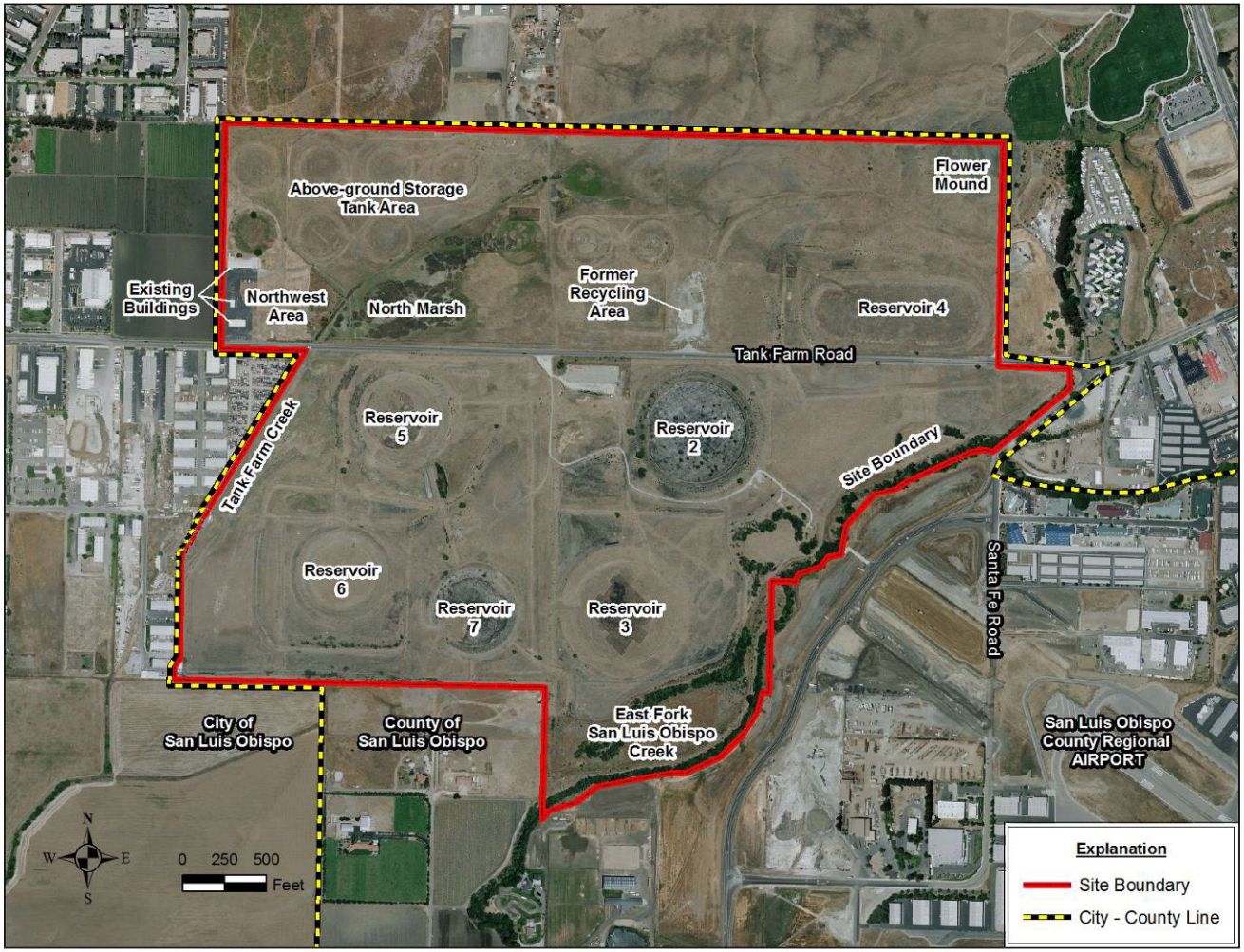
Chevron Environmental Management Company (CEMC) is the Applicant for the remediation and restoration component of the Project. Chevron Land and Development (CL&D) is the Applicant for the proposed land planning and development component. Both companies are located at 276 Tank Farm Road in San Luis Obispo.

This EIR evaluates the remediation component of the Project including the restoration plan, and both the City and County Development Plans. Information for the remediation and development components is based on the Remedial Action Plan (RAP) (AVOCET 2007), the Project Execution Plan (Chevron 2007), and Applicant's responses to the EIR preparer's information requests. The remainder of this Project Description includes a depiction of the existing Project Site and present contamination; a detailed description of the proposed remediation design, including the Applicant-proposed design and operational features; and descriptions of the proposed City and the County Development Plans.

2.2 Existing Setting Information

The Project Site is located at 276 Tank Farm Road, which is immediately south of the City of San Luis Obispo, in San Luis Obispo County, California (see Figure 2-1 and Figure 2-2). The County Assessor's Parcel Numbers for the Project Site are 076-352-061, 076-352-062, 076-381-021, 076-382-005, 076-383-001, and 076-383-002.

Figure 2-2 Project Site



Note: The Flower Mound borrow site extends outside the proposed development site boundary.
Source: RAP AVOCET 2007; MRS

The Project Site is divided into north and south sections by Tank Farm Road (see Figure 2-2). It is bordered by light commercial and industrial development to the east and west, the SLOCRA to the southeast, agricultural and pastoral lands with scattered residences to the south, and a mobile home park to the northeast. Residential development is currently under construction to the north of the Project Site.

The existing buildings in the northwest portion of the Project Site are currently used as the Applicant's local offices for a variety of environmental and remediation operations. These buildings are proposed for demolition as part of the Project.

2.2.1 Historical Use

From 1910 until the early 1980s, the Project Site stored crude oil transported from the San Joaquin Valley via pipeline. Storage facilities at the Project Site included six large earthen reservoirs, ranging in capacity between 775,000 and 1,350,000 barrels (bbl) [32,550,000 and 56,700,000 gallons], and 21 steel aboveground storage tanks, each with a capacity of 55,000 bbl (2,310,000 gallons).

In general, the reservoirs (Reservoirs 2, 3, 4, 5, 6 and 7), were constructed by excavating a circular or elliptical depression, which was then lined with concrete reinforced with wire mesh. The walls were also made with reinforced concrete, but they were constructed either vertically or integrated into the sloping sides of the depression. The walls and floors of the aboveground storage tanks were constructed of heavy plate steel secured with rivets. The roofs of both the reservoirs and aboveground storage tanks were wood and composite. All together, the Project Site had capacity to store more than 6 million bbl of petroleum. During the course of operations through 1926, six of the aboveground storage tanks were taken out of service and dismantled.

On April 7, 1926, a lightning strike ignited a fire at the Project Site. At that time, 933,577 bbl of oil were stored in the aboveground storage tanks, and another 5,374,927 bbl of oil were stored in the reservoirs. The total inventory was 6,308,504 bbl of various grades of oil. Eyewitnesses reported that a lightning strike simultaneously ignited the vapors in Reservoirs 5, 6, and 7. The power of the resulting explosion registered on the Weather Bureau barograph in downtown San Luis Obispo at 7:35 a.m. A second lightning strike ignited Reservoir 3 sometime between 7:50 a.m. and 7:55 a.m.

Despite suppression efforts by the facility staff, over the next four days the fire spread to the other reservoirs and to 12 of the then 15 existing steel aboveground storage tanks with a combination of burning embers and boil-overs; the heated oil flowed out of the reservoirs and onto the ground surrounding the tanks. By April 11, 1926, all but a few thousand bbl of the 6 million bbl inventory had been released. Some of this oil burnt to coke and spread across the Project Site. Petroleum coke is defined as a black solid residue, obtained mainly in refineries by cracking (burning) of residue feedstocks. The burning of the heavy oil during the fire had a similar effect to the refining cracking process, creating the coke. This release is considered responsible for most of the numerous surface occurrences (i.e., expressions) of highly weathered and burned petroleum that cover the ground in topographically low areas of the Project Site.

Subsequently, Union Oil (now owned by Chevron) resumed operations at the Project Site, including the reconstruction of ten of the aboveground steel storage tanks, as well as Reservoirs 3, 4, 5, and 6. Reservoirs 2 and 7 were never used again for petroleum storage. The reconstruction effort also included expanding the firebreaks and enlarging the containment areas surrounding the reservoirs, which created numerous hydraulically closed depressions around the Project Site that subsequently became wetlands. The four reservoirs repaired after the 1926 fire continued in service for several more decades, but were progressively decommissioned from the late 1950s through the mid 1970s.

Reservoir 2, a 600-foot diameter crude oil storage reservoir, was constructed in 1910. The reservoir had concrete walls and a wooden roof and was surrounded by a roughly trapezoidal berm approximately 15 feet high and 150 feet wide at its base for secondary containment. The 1926 fire left portions of the walls and an asphalt layer over the berm slopes and concrete floor. The reservoir was never rebuilt, however, in the mid 1990s, evidence shows that the concrete floor was ripped by the shank of a bulldozer in perpendicular directions in an attempt to prevent water from accumulating in the former reservoir.

Reservoir 3 was similar to Reservoir 2 in size and method of construction, and was also rebuilt after the 1926 fire. Decommissioning of the reservoir concluded in 1961 and involved emptying the reservoir of liquid petroleum and removing the roof and vertical walls. The reinforced concrete covering the sloping sides and bottoms was left in place. Reservoir 3 was largely backfilled by bulldozing the berms into the center of the reservoir. As a result, the floor of the reservoir is estimated to contain between 8 and 11 feet of non-engineered fill material.

Reservoir 4 is located on the eastern side of the property just north of Tank Farm Road. It was constructed in an oblong shape measuring approximately 900 feet in the east-west orientation and approximately 300 feet in the north-south orientation. Reservoir 4 decommissioning was similar to Reservoir 3, and involved removing the roof and vertical walls and leaving the reinforced concrete covering the sloping sides and bottom in place. Residual petroleum was removed and the reservoir was backfilled with approximately 5 to 6 feet of non-engineered fill by bulldozing the berms into the center of the reservoir. Decommissioning of this reservoir was concluded by 1976.

Reservoirs 5, 6, and 7 were all of similar construction. In each reservoir, the floor and sloping berm walls were lined with reinforced concrete. A small vertical wall at the top of the berm supported a wooden roof covering the entire reservoir. Reservoirs 5 and 6 measured approximately 480 feet in diameter, while Reservoir 7 measured approximately 504 feet in diameter. Decommissioning of Reservoir 5 concluded in 1959 while decommissioning of Reservoir 6 concluded in 1961. Reservoir 7 was not rebuilt after the 1926 fire. In the mid 1990's the concrete floors of Reservoirs 5 and 7 were ripped using a single shank on a large bulldozer in an attempt to prevent water from accumulating in the former reservoir. To provide access to the interior of Reservoirs 5, 6, and 7 the surrounding berms were breached and pushed inward to form a ramp. Approximately 1.5 feet of non-engineered fill and debris covers the bottom of each reservoir. The bottoms of Reservoirs 5 and 7 are covered by several inches of interlayered tar and organic debris.

A review of historical aerial photographs shows that the ten aboveground steel storage tanks remaining or rebuilt after the 1926 fire were decommissioned at various times. Aboveground storage tank 522, in the Northwest Operations Area, was removed sometime between 1959 and 1965. Eight of the nine remaining aboveground storage tanks were removed in 1994, and the last aboveground storage tank was reserved for fire water storage. This final aboveground storage tank was removed in August 2000.

In addition to the reservoirs and aboveground storage tanks utilized for petroleum storage, the facility included a series of pipelines to move oil to and from the Project Site and between the on-site tanks and facilities. Regional pipeline operations were also conducted at the Project Site, primarily from the Northwest Operations Area (see Figure 2-2). Facilities to support pipeline operations included a pumphouse, boilers (for heating crude oil to reduce viscosity) and an associated blow-down area (a blow-down area is a normal part of the operation of a steam boiler and a blow-down safely depressurizes the system in the event of an emergency), a petroleum physical properties testing laboratory, and an electrical equipment house. The Northwest Operations Area also included areas for general equipment storage and maintenance, as well as underground storage tanks that contained diesel fuel and gasoline (England, Shahin & Associates 1994). The underground storage tanks were removed in 1987.

Other historical activities at the Project Site include the operation of a fire training school in the unpaved eastern portion of the Northwest Operations Area. The school consisted of several simulated sumps, flares, and tanks where students practiced techniques for extinguishing petroleum-fed fires. Off-specification gasoline and diesel fuel were fed to these fixtures from a set of three aboveground storage tanks via a system of buried metal pipes.

Fire school exercises were suspended at the Project Site in the 1970s. The pumphouse, pipelines, and boilers were taken out of service in the early 1990s and were demolished or decommissioned in the late 1990s. Currently, of the original structures, only three buildings remain.

During operations, arsenic-based herbicides were used for weed control. These herbicides were used extensively in the Northwest Operations Area, but may have been used in other areas of the Project Site as well.

For several years, approximately two acres of land near the center of the Project Site, north of Tank Farm Road, was leased to a recycling company. The area was used as a transfer station and accumulation point for recyclable materials, such as paper, glass, and aluminum. The operation was shut down and removed in mid 2000, when the lease expired and was not renewed (England Geosystem, Inc. 2001). Lastly, the northeast part of the Project Site was used as a quarry mine, known as the Flower Mound. The Applicant intends to use the gravel and rock material from this former quarry as a source of backfill for the Project.

2.2.2 Current Conditions

Aside from the existing office buildings in the northwestern portion of the Project Site, the remains of the petroleum storage facility described above and Tank Farm Road which bisects the site, the Project Site is disturbed, but undeveloped, land that contains native grasslands and both

natural wetlands and wetlands resulting from water accumulation in depressions associated with the former oil storage operations (see Figure 2-2).

At the Project Site, topography, soils, and vegetation have been altered considerably through plowing and disking, catastrophic fire, grazing of domestic livestock, construction and removal of oil storage tanks and their surrounding berms, stream channelization, construction of water and oil management and containment systems, and several other anthropogenic alterations. Currently, most of the Project Site is dominated by non-native species of forbs and grasses. However, some scrub/shrub and forested plant communities occur in wet depressions or within riparian corridors associated with the east fork of San Luis Obispo Creek and its tributaries. *Waters of the United States* (U.S)., including wetlands, in the forms of riverine, depressional, and small slope ecosystems, are prominent throughout the Project Site. Many of the waters/wetlands on the Project Site are associated with natural features such as swales, small riverine channel systems, or depressions. However, some of the depressional and slope wetlands are associated with human-made depressions that remain after decommissioning of oil storage facilities or after various mining or domestic livestock management operations.

The most recent wetlands study (WSP, Padre 2008) determined that there are 49 acres of federal wetlands, and 3.9 acres falling under the category of *Other Waters of the U.S.* present on the Project Site, for a total of 52.9 acres. There are an additional 3.4 acres of "one-parameter" wetlands which are *Waters of the State*.

The disturbed rock outcrop (i.e., former quarry site known as the "Flower Mound") exists in the northeastern corner of the Project Site and extends off-site to the north and east. It contains a mixture of rock outcrops along the upper slopes and clay-loam soils along the lower slopes.

Several areas of the Project Site where surface expressions of petroleum exist have been enclosed with netting to protect birds and other animals from becoming mired in the residual hydrocarbon material[1].

Groundwater was also impacted by the previous operations at the Project Site. Petroleum leaked to the subsurface beneath the reservoirs and tanks. The viscosity (i.e., its syrup-like consistency) and the affinity for microbes to use it as a food (also called biodegradation) renders the subsurface petroleum immobile. This condition, sometimes referred to as monitored natural attenuation (MNA), is verified on a semi-annual basis by sampling the groundwater monitoring wells.

The Project Site is best characterized as open space, with cattle grazing for fire prevention and weed control. Some modifications and improvements have been made to the Northwest Operations Area since the last petroleum-dedicated aboveground storage tanks were decommissioned in 1994. These included upgrades to the front gate, the addition of a modular office building adjacent to the northernmost original building, a new fire-water tank to replace

[1] The residual hydrocarbon material found at portions of the Project Site is a plastic ("sticky") material, that when exposed on the surface can entrap wildlife. For the remainder of this Chapter this material is referred to as "plastic" hydrocarbons.

the aboveground water storage tank decommissioned in 2000, and various upgrades to the electrical and telecommunication systems.

Utility companies provide natural gas, electricity, and telecommunication service to the Project Site or have lines that cross the Project Site. In 2009, the City installed new sewer infrastructure adjacent to the Project Site. This included a new gravity sewer line along Tank Farm Road, a new lift station adjacent to the Northwest Operations Area and a force main along the west property line connecting the lift station to the City's wastewater treatment plant. The new pump station replaced two aging stations. Additional new sewer lines were installed along Broad Street between Rockview Place and Tank Farm Road, and on Tank Farm Road at Broad Street.

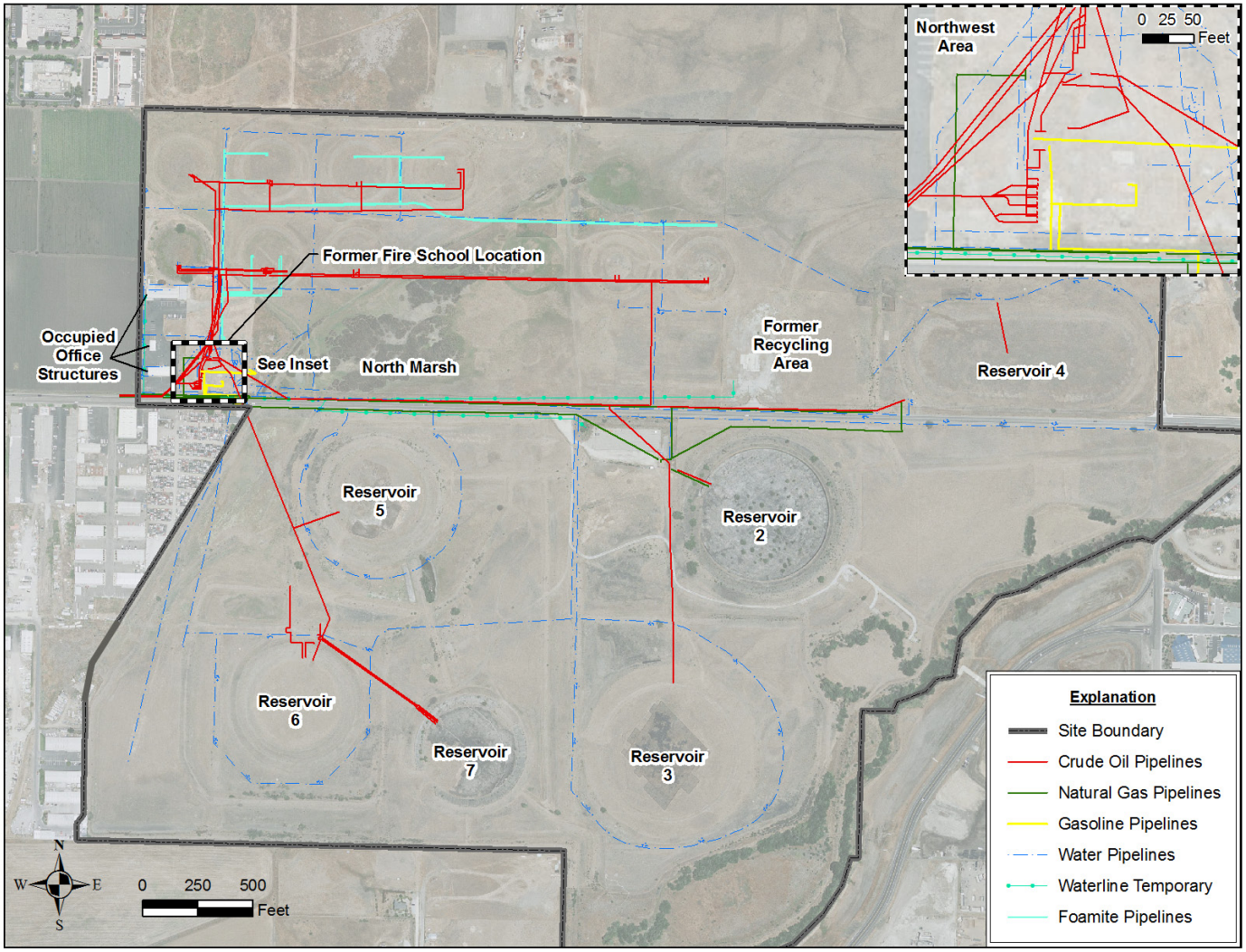
Historical operations at the Project Site were served by approximately 25,125 feet of crude oil pipeline, 47,340 feet of water supply line, and 1,172 feet of other pipeline. Figure 2-3 shows the approximate locations of these lines. It is believed that most of the lines were abandoned in place, although anecdotal reports suggest that much of the pipeline serving the aboveground storage tanks was removed when the tanks were removed. Since there is no record of final cleaning or abandonment procedures, it is presumed that at least some of the lines still contain crude oil. However, the amount of crude oil in the pipelines is unknown. The crude oil pipelines vary in diameter from 8 to 16 inches. Many of the lines are clearly empty where they are exposed on the surface. Nevertheless, any fluid found in the pipelines would be drained prior to removal of the pipelines. Any recovered material would be disposed of consistent with state and federal regulations.

Much of the piping remaining from historical operations is found in the Northwest Operations Area, as shown in Figure 2-3. This includes nearly 20 percent of the total crude oil pipe network (approximately 4,300 linear feet). This configuration allowed the operators to direct oil in and out of the facility and to transfer oil between the various storage locations as needed. There are also 4,900 feet of water line, 1,120 feet of dedicated Foamite fire-fighting lines, and leach and drain lines totaling slightly less than 1,200 feet. The estimated volume of the crude oil lines in the Northwest Operations Area is approximately 3,260 cubic feet.

Over the decades, the SLOCRA was constructed to the southeast of the Project Site. Portions of the Project Site are located beneath the departure pattern for Runway 11-29 of the SLOCRA, which extended Runway 29 by approximately 500 feet in 2001. This modified the airport safety zones beyond those originally considered in the City's AASP. The current safety zones are shown in Figure 2-4. Additional discussion of the Airport Safety Zones is provided in Section 4.11, Hazards and Hazardous Materials.

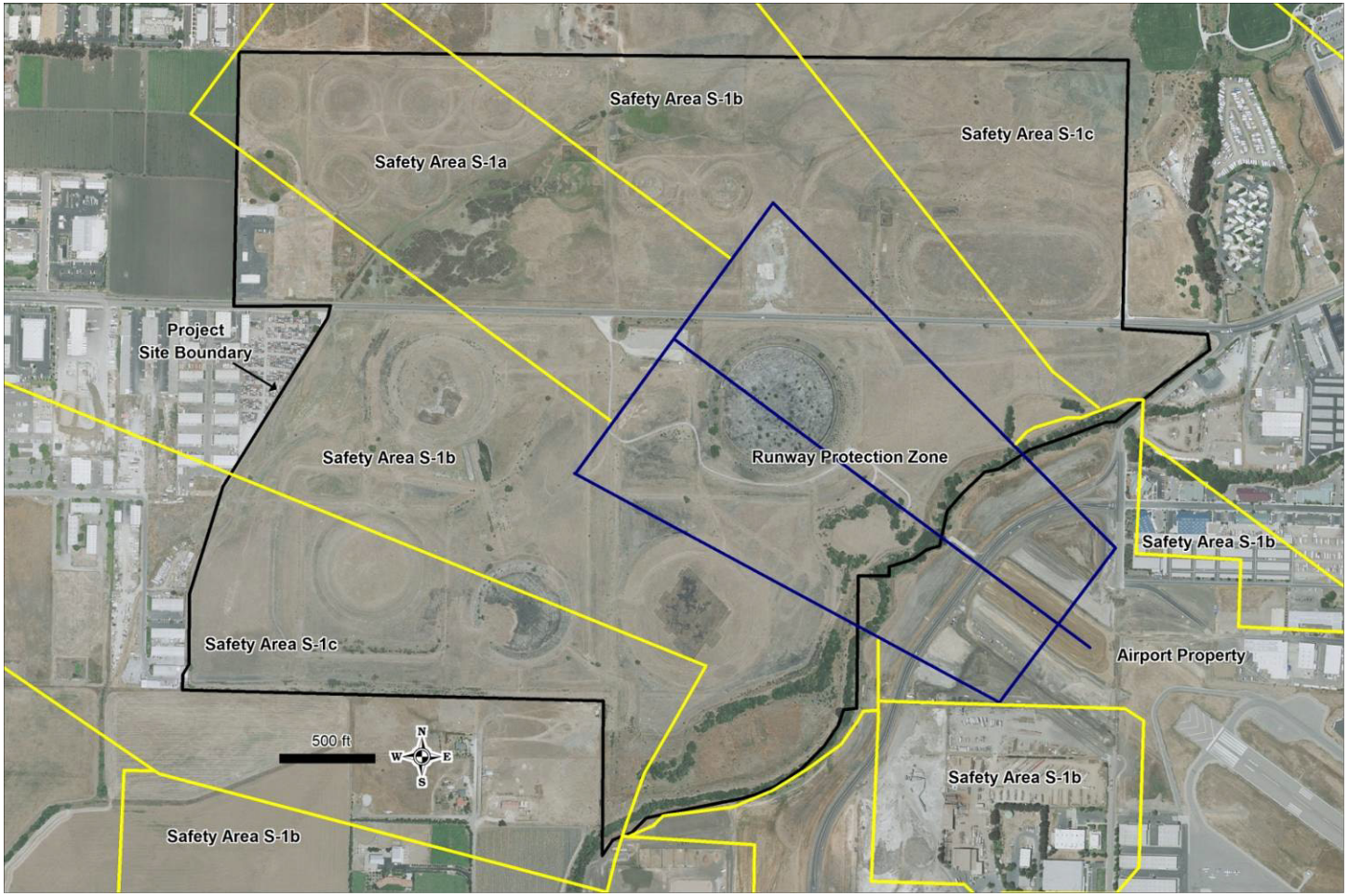
Some airport facilities are located on the Project Site, including an existing unpaved road that provides access to a system of runway lights. The main runway alignment intersects Reservoir 2, which is now a significant feature within the runway protection zone (RPZ). In this same area, there also is an existing paved pad that is accessed from Tank Farm Road through a secured gate.

Figure 2-3 Project Site Existing Pipelines



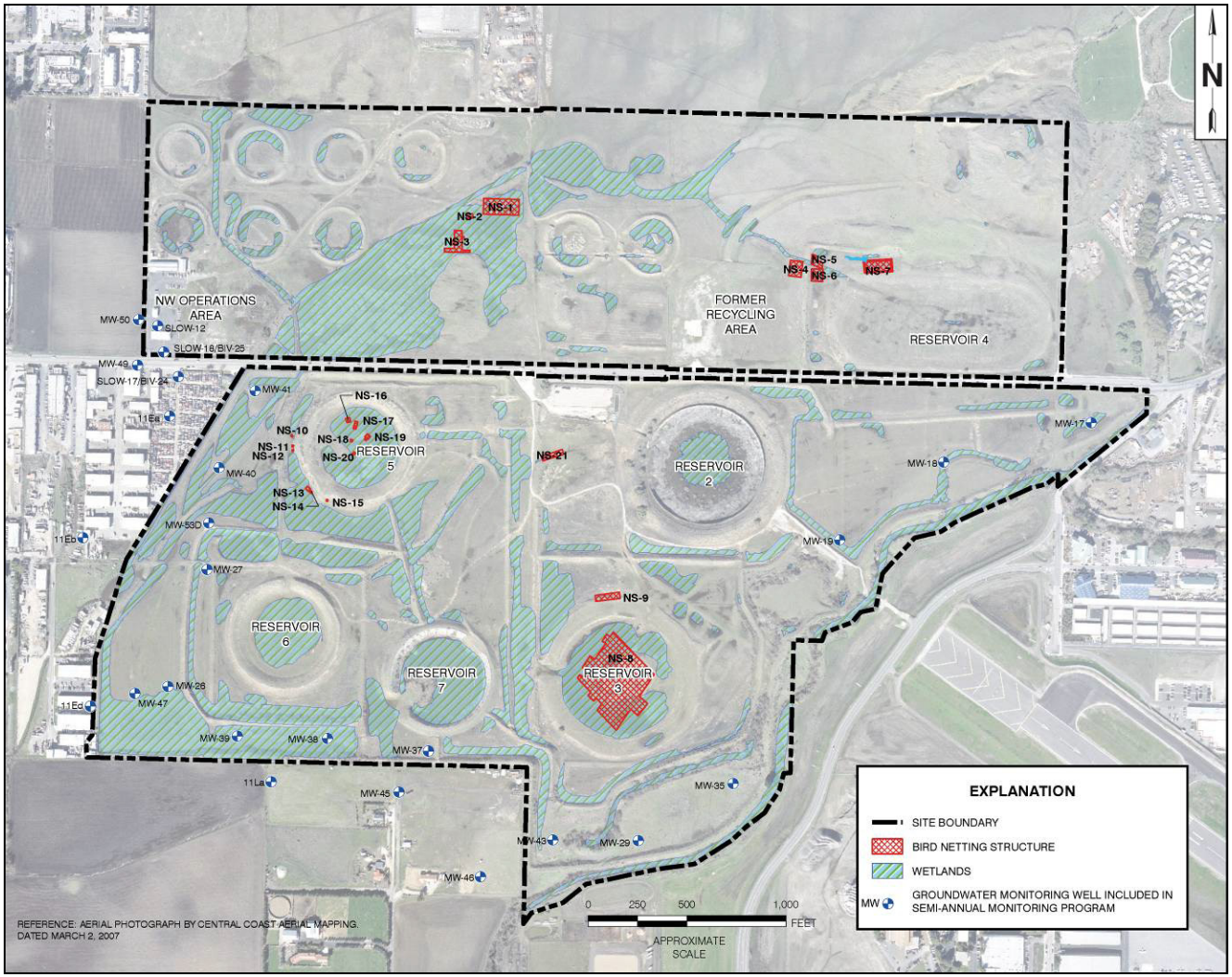
Source: PEP Padre 2007; MRS

Figure 2-4 Airport Safety Zones



Source: Modifications to the Airport Land Use Plan for San Luis Obispo County 2005 by the City.

Figure 2-5 Water Monitoring Wells and Netted Areas



Source: LRP Padre 2009; MRS

Environmental studies prepared subsequent to the City's AASP provide more detailed information regarding location of contamination and sensitive and endangered species on the Project Site. For example, habitat for the federally-listed vernal pool fairy shrimp (*Brachinecta lynchi* [VPFS]) was identified in several of the former tank rings to the north of the Northwest Operations Area. To accommodate the various environmental constraints, the Applicant has proposed revisions to the existing AASP that are consistent with these post-AASP studies.

The Project Site is accessed from Tank Farm Road. Current deliveries and visits to the Project Site occur sporadically, with an average of one truck per quarter-year to haul debris, visits by contractors two to four times per month to inspect netting enclosures and complete routine maintenance activities, and two persons visiting the Project Site approximately 20 days per year for groundwater, stormwater, and surface water monitoring. Additionally, from 15 to 20 Chevron employees and contractors occupy the offices located in the Northwest Operations Area on a daily basis.

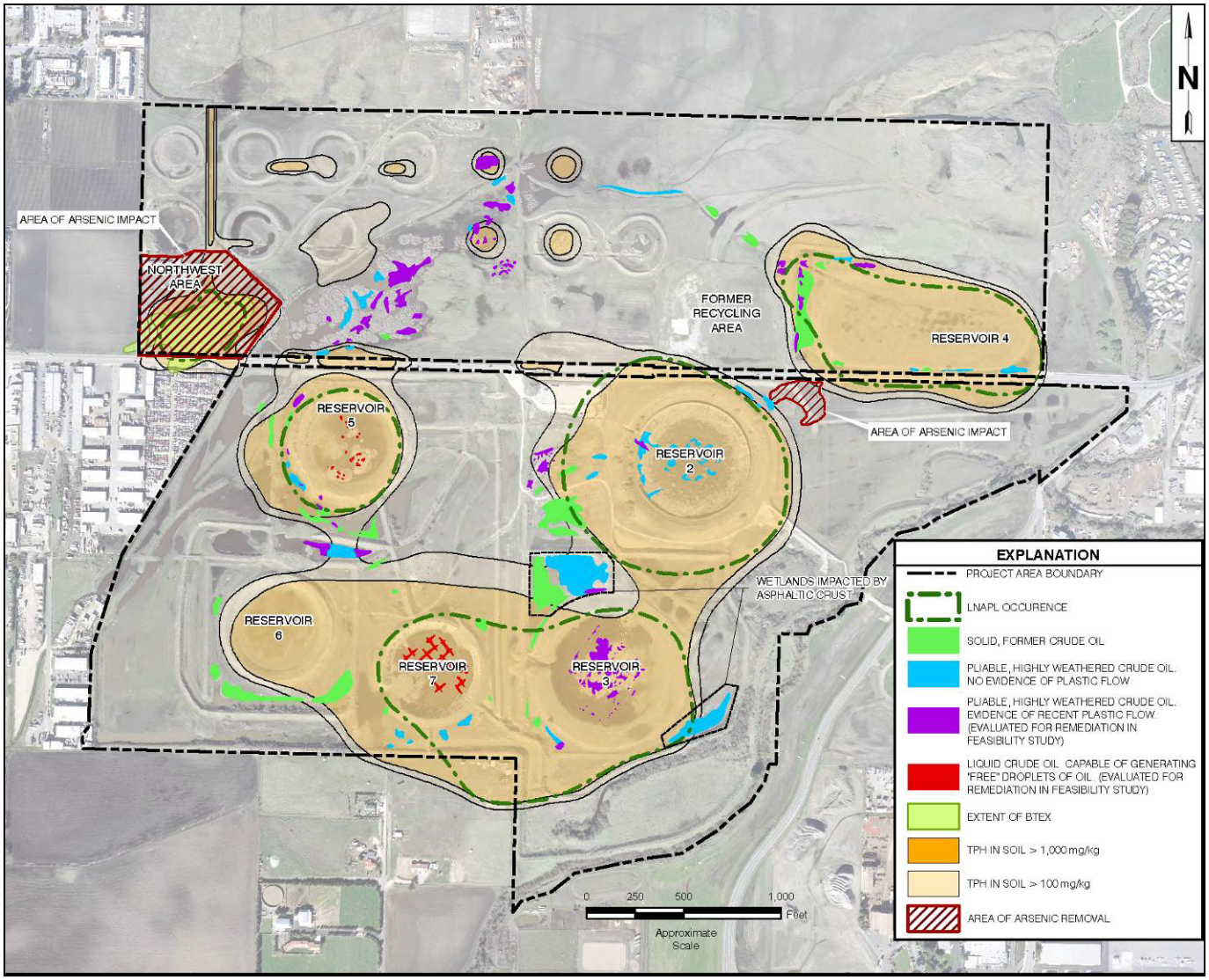
Current site activities include environmental monitoring. These activities include an ongoing program to monitor surface water and groundwater. Monitoring activities also include biweekly inspection of the protective netting installed over areas of petroleum surface expressions and maintenance of the netting as needed. Figure 2-5 shows the groundwater monitoring wells and the areas with netting.

2.3 Proposed Remediation Activities

The remediation portion of the Project addresses soil and groundwater contamination identified as potential human health or ecological risks as agreed by the resources agencies participating in the Surface Evaluation, Remediation, and Restoration Team (SERRT) process and reviewing the proposed remedial actions for the Project Site. (The SERRT process is discussed further in Section 2.3.1, Regulatory Agency Involvement/Collaborative Process below.) The Project includes restoration of wetland and rare plant habitats affected by the contamination, and those that could be potentially affected by implementing the remedial actions. The petroleum-related material affecting the Project Site includes oil found in the vicinity of the former reservoirs in the subsurface at an average depth of 25 to 40 feet below ground surface (bgs) but as deep as 60 feet. At the surface, crude oil expressions range from solid asphalt-like coke to a low-density (light) non-aqueous phase liquid (LNAPL). Figure 2-6 shows the locations and nature of the contamination within the Project Site.

The following sections describe the elements of the remediation component of the Project, including the involvement of the regulatory agencies in the remediation design; a description of remedial actions to be taken in specific areas of the Project Site; a description of the demolition activities; a depiction of how pipelines would be decommissioned; a description of miscellaneous clean-up; details of the construction methods; a discussion of the schedule; and, a description of the long-term monitoring activities.

Figure 2-6 Project Site Existing Affected Areas



Source: RAP AVOCET 2007; MRS

2.3.1 Regulatory Agency Involvement/Collaborative Process

Petroleum released as a result of the 1926 fire, and prior and subsequent Project Site operations have affected the soil and groundwater underlying the Project Site. The Applicant, along with its predecessors, conducted several investigations over the course of nearly two decades to study the soil, groundwater, and surface water conditions at the Project Site to assess the nature and distribution of hydrocarbons in the soil and groundwater. These investigations include multiple events of soil, soil gas, surface water, and groundwater sampling; well installation activities; and non-aqueous phase liquid (NAPL) evaluation.

The Applicant has performed analytical testing for total petroleum hydrocarbons (TPH); benzene, toluene, ethyl benzene, and total xylenes (BTEX); volatile organic compounds (VOC); fuel oxygenates; polynuclear aromatic hydrocarbons (PAH); polychlorinated biphenyls (PCB); pesticides and herbicides; dioxins and furans, metals; arsenic; and, general minerals. In addition to soil and groundwater investigations, the Applicant has conducted field studies focusing on soil gas profiling, natural attenuation, aquifer and product recovery testing, and hydrocarbon seep studies. Specifically, the Applicant's investigations focused on the nature and occurrence of surface petroleum hydrocarbons present throughout the Project Site, primarily those that are either liquid or display evidence of recent plastic flow. Figure 2-6 shows the petroleum hydrocarbon-containing soil and groundwater and metals-containing soil areas at the Project Site.

The Applicant's characterization of the contamination has included, in addition to their identification and delineation, an evaluation of their importance relative to human and ecological health and the need for their remediation. In order to validate the characterization process, the Applicant entered into two cooperative programs resulting in regulatory agency participation and third-party expert review: the Remediation Technology Panel (RTP) and the SERRT.

The first of these collaborative processes, the RTP, was established through a cooperative agreement between the Applicant and the Central Coast Regional Water Quality Control Board (RWQCB). The RTP consisted of three experts drawn from academia with expertise in the characterization and remediation of petroleum-affected sites, whose purview focused on soil- and groundwater-related issues. They identified data gaps within the existing site characterization, guided and reviewed subsequent characterization activities, and published a report summarizing their consensus understanding of subsurface issues at the Project Site (RTP 2006).

A key finding of that report was that petroleum in the subsurface was effectively immobile and that the migration of dissolved-phase constituents was controlled by natural biodegradation processes. This finding, which was supported by a specific evaluation of natural attenuation processes, formed the basis of evaluating MNA as an appropriate remedial technology for impacted groundwater.

The second of the cooperative efforts, the SERRT, was established in 2002 at the suggestion of staff at the RWQCB. This action was suggested in recognition of findings of studies which detailed the extent of sensitive resources on the Project Site, and the subsequent desire to consider a risk-based remediation program for the property. As part of the SERRT process the Applicant, regulatory agencies, and local municipalities have reviewed data, evaluated

assessments, identified data gaps, established the risk associated with a given contamination source, and determined the extent of the remediation required for the Project Site.

The SERRT formed two subgroups, the Human Health Risk Working Group (HHRWG) and the Ecological Risk Working Group (ERWG). Both groups included the Applicant, its representatives and consultants, and the RWQCB. In addition, the HHRWG included representatives from the California Office of Environmental Health Hazard Assessment, the San Luis Obispo County Environmental Health Division, and the San Luis Obispo County Air Pollution Control District (SLOAPCD). The ERWG in addition included representatives from the City, the County Planning Department, California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and the U.S. Army Corps of Engineers (USACE).

In addition to preparing reports documenting the human health risk assessment (HHRA) and predictive ecological risk assessment (pERA), the SERRT prepared a consensus summary document listing its recommendations for risk management at the Project Site, the Risk Management Summary (BBL 2005). In order to focus risk assessment efforts, certain areas of the Project Site, mainly those affected by liquid or plastic hydrocarbon surface expressions, were excluded from the risk assessments on the understanding that remediation of those areas was a "must", and the Applicant would undertake remediation there without the need for further detailed characterization or assessment.

The culmination of the Applicant's characterization efforts was the Risk Management Summary, which identified the contamination at the Project Site requires remediation. The SERRT ratified the Risk Management Summary on December 12, 2005. The Risk Management Summary also provided recommendations on treatment strategies based on levels and types of contamination, the potential ecological risks, and the potential impacts of clean-up. Contamination requiring remediation included surface liquid hydrocarbons impacting seasonal wetlands in Reservoirs 5 and 7, plastic surface hydrocarbons found across the Project Site (mostly in low-lying areas), groundwater affected by LNAPL and benzene, arsenic in soil, asphalt affecting wetlands, and the potential for vapor intrusion to affect buildings.

Based upon the Risk Management Summary, a Feasibility Study (FS) was conducted that considered remedial activities that supported development consistent with the land use plans available at that time. The FS evaluated various remedial alternatives that addressed site contamination issues and selected a preferred remedy. The study was ratified by the SERRT on March 15, 2007.

The RAP provides regulatory agencies, the municipalities with jurisdiction over the site, and other stakeholders detailed information on how the Applicant plans to implement the preferred remedial alternative from the FS. In addition, a Project Execution Plan was prepared to further describe the Applicant's proposed implementation of remediation, restoration, development, and permitting for this Project.

The following sections describe the contamination areas and the proposed remediation treatment for specific sites.

The EIR preparer has conducted a peer review of all documents submitted by the Applicant to the SERRT in support of its RAP (e.g., pERA, HHRA). The impact analysis sections of this document evaluate the impacts of implementation of the remediation and the potential impacts of leaving some contamination in place under caps as proposed by the Applicant.

More recently, as a result of the peer review conducted as part of the preparation of this document, it was determined that additional site assessment was necessary to address concerns that the 1926 fire potentially produced dioxins, which had not been quantitatively characterized previously. Consequently, the Applicant prepared a work plan under the oversight of the SERRT to evaluate the on-site concentrations of dioxins and furans in shallow soils, and to compare those results to off-site ambient sample concentrations to identify whether dioxins generated by the 1926 fire are present in surface soils at the site at concentrations greater than ambient soil conditions. The results of the sampling indicated that dioxin soil concentrations at the Project Site are similar to local ambient concentrations. In addition, the dioxin concentrations of on-site and local ambient samples were determined to be at similar or lower concentrations to benchmark soils at other locations in California.

An update to the HHRA report identified data showing two small areas with arsenic analytical results above site background levels. The Applicant conducted additional sampling at the request of the agencies reviewing the HHRA to better define these arsenic exceedances. The sampling results indicated that the top two feet of soil in these small study areas should be removed.

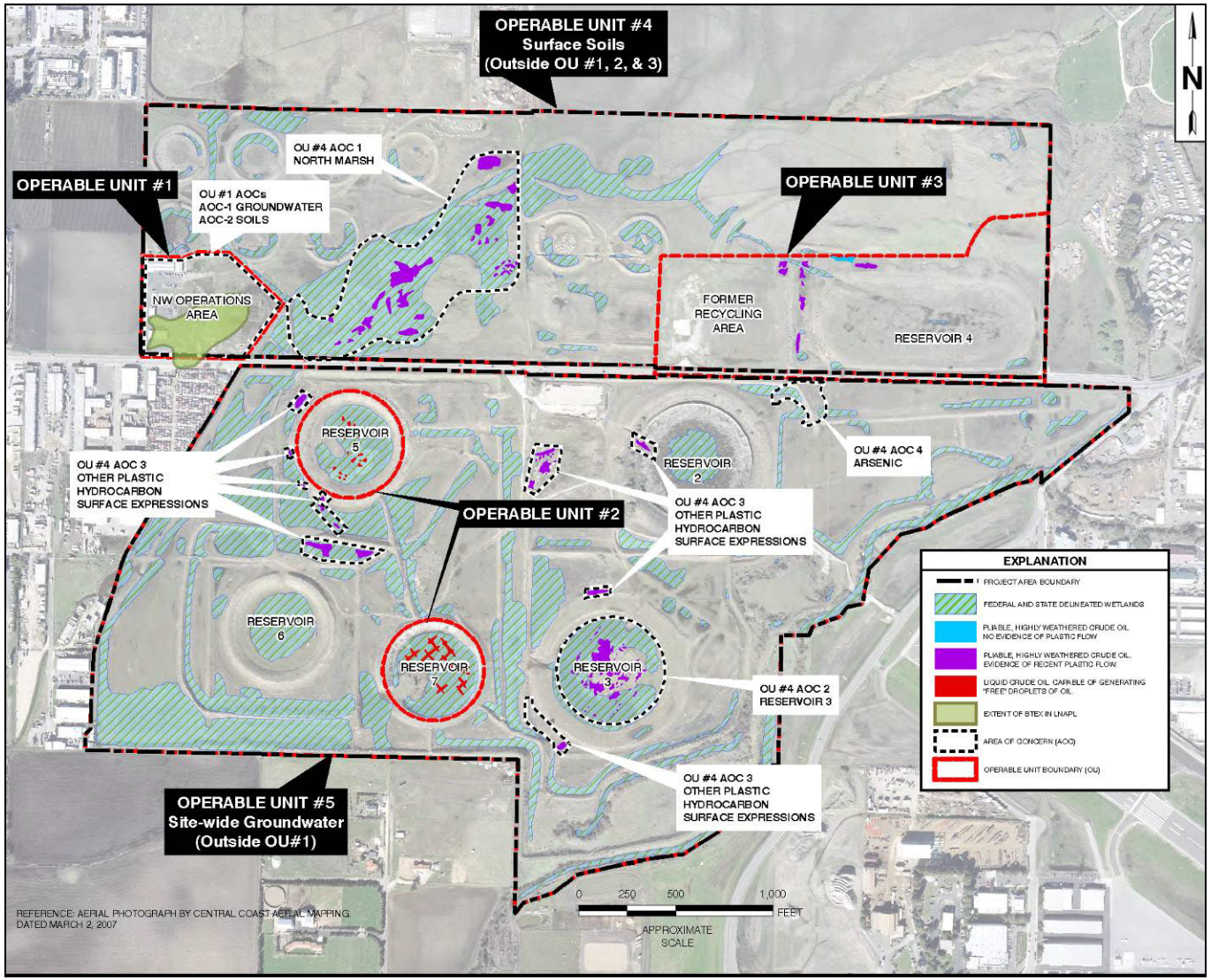
2.3.2 Proposed Remediation Actions Overview

Figure 2-7 shows the areas to be addressed as part of the remediation component of the Project. General remedial actions proposed by the Applicant as part of the remediation component of the Project include excavation and off-site transport, capping, long-term monitoring, and institutional controls. Brief descriptions of these general types of actions are detailed below. Detailed descriptions of their application to specific environmental issues are found in Section 2.3.3.

2.3.2.1 Excavation

Some affected near-surface soils, mostly those affected by petroleum with the risk of wildlife entrapment, are proposed to be excavated. The excavation would remove material to RAP-specified excavation depths (e.g., two feet) or down to the exposure of some existing feature (e.g., a former reservoir bottom). Field investigations conducted for the Applicant have shown that the isolated pockets of plastic hydrocarbon identified for removal are residual oil from the fire or operational spills and appear to be localized to within three to four feet of the ground surface. In the event that these impacts are determined to extend locally to depths greater than five feet, it is proposed that removal excavations would be limited to a depth of five feet bgs. Four issues were evaluated by the Applicant in defining this limitation: worker safety, the potential to encounter groundwater, mitigating risk to burrowing animals, and ensuring that plastic hydrocarbon does not resurface at some later date. The Applicant's proposal is primarily based on the excavation of surface expressions to a sufficient depth so that the petroleum would not resurface in the future.

Figure 2-7 Proposed Remediation Areas



Source: RAP, AVOCET 2007; MRS

The Applicant's proposed remediation is designed to ensure that future open space uses of the Project Site do not pose an unacceptable risk to potential ecological receptors, which include birds and burrowing animals. The proposed limit for excavation is below the burrowing depths of most animals that will likely be encountered at the Project Site (DTSC 1996). In some cases, a 0.75-inch gravel layer for the first six inches of backfill would be used to act as a barrier to burrowing animals, if deemed necessary. The Applicant is proposing, based on studies they conducted, that five feet of compacted backfill would prevent resurfacing of the plastic hydrocarbons and that the material is viscous and generally appears to mobilize when exposed to the warming effects of direct sunlight (England Geosystem, Inc. 2001).

Soil used for backfill would be compacted to 90 percent of its relative maximum density as determined by American Society for Testing Materials, now ASTM International (ASTM), Method D1557 or as otherwise required for restoration or other uses. Areas that are not excavated as part of the Applicant-proposed remediation would include long-term monitoring and maintenance that would encompass the Project Site. The Applicant proposes that, in the event that plastic hydrocarbons were to resurface, they would be detected by the long-term monitoring program included within the Project Site, and further remedial steps would be taken as part of Project Site maintenance.

As proposed by the Applicant, clean materials (those not affected by plastic hydrocarbon) would be segregated during excavation, stockpiled at the Project Site, and re-used as common earth backfill. Common earth may include solid asphaltic hydrocarbon. Materials affected by plastic hydrocarbon would be temporarily stockpiled on-site and then loaded onto trucks, or if site conditions allow, directly-loaded into trucks, and disposed of at an appropriate off-site landfill.

2.3.2.2 Caps

Caps are remediation design features that are proposed to serve as covers over affected materials and barriers to separate them from potential human and ecological receptors. They would be constructed from earthen materials, but may also include various geosynthetic materials for additional strength or material separation. Two types of caps are proposed, one to cover contaminated materials in open space areas and another to both cover contaminated materials and to serve as a base within areas proposed for development.

The key distinction between the open space and development caps is that the former would include a topsoil layer that would support revegetation. The development caps may be vegetated to minimize erosion, but that would be done directly on the structural fill. In the case of development caps, the revegetation would be of a temporary nature, and it would be maintained in place only long enough to minimize potential soil loss in the interim prior to development. The development caps would be constructed of structural fill with a minimum thickness of four feet. Conversely, the open space caps would be more varied in terms of thickness and composition due to their differing design objectives and individual site constraints. Different cap types are proposed to be used at different locations and are detailed in each one of the corresponding remediation areas. Refer to Figure 2-8 through 2-10 for typical cap design cross-sections.

2.3.2.3 Monitoring

As noted previously, the consensus among the regulatory agencies was that petroleum in the subsurface is immobile and natural biodegradation prevents migration of dissolved-phase constituents. Consequently, MNA was identified in the FS as the most appropriate approach to addressing impacted groundwater.

The principal monitoring activity proposed by the Applicant is MNA. This will be a continuation of the current groundwater sampling and reporting program to verify the stability of the subsurface hydrocarbons and ensure that dissolved-phase constituents are not migrating. The monitoring program currently requires sampling of on-site and off-site wells (see Figure 2-5 for a map of monitoring wells).

The Applicant currently samples the monitoring well network on a semi-annual basis, as required by Monitoring and Reporting Program 93-120 (as amended). This monitoring program was required by the RWQCB. Samples are tested for extractable range hydrocarbons, and some samples from well monitoring are also tested for purgeable range hydrocarbons and BTEX. A few samples are analyzed for all three constituent types.

Following remediation, the Applicant proposes monitoring including periodic inspections of the caps and excavation areas. This would be done to ensure those remedies continue to function properly. The Applicant proposes that inspections initially occur on a semi-annual basis, just prior to the rainy season, and during or just after the rainy season. Based on inspection results over time, the Applicant will propose adjustments to the inspection procedures and frequencies for the RWQCB's approval. The Applicant also proposes post-restoration monitoring to ensure that the habitat restoration and replacement efforts are successful.

2.3.2.4 Institutional Controls

The Applicant is also proposing a number of institutional controls to be implemented after remediation activities are completed. Those institutional controls would include deed restrictions limiting land use to recreational, commercial and industrial purposes, a soil management plan implemented in the event contaminated soils are disturbed subsequent to development, and prohibition on water wells within affected areas. Specific institutional controls will depend partially on the degree of public access, but are expected to include fencing, signs, awareness programs, and similar active measures to manage the site. Other institutional controls could include deed restrictions and other covenants as needed to manage the Project Site following the completion of the remediation portion of the Project. Long-term monitoring will include periodic inspections and maintenance as needed to ensure that the institutional controls and caps remain effective. Institutional controls are more specifically described for each area to be remediated in Sections 2.3.3.1 through 2.3.3.5 below.

2.3.3 Project Areas Specific Remediation Plans

The Project Site is divided into Operable Units (OU's) and subordinate Areas of Concern (AOCs) as shown in Figure 2-7. The OU's are used in the FS and RAP to organize the site into

areas of common physical, chemical, or geographical characteristics. The OU's are subdivided into AOC's that address particular environmental issues. This approach facilitates evaluation of remedial technologies and provides a common nomenclature for discussing remedial actions.

Based on the different types of contamination at the Project Site (e.g., BTEX in groundwater, arsenic in soil, LNAPL, and Pliable Petroleum Surface Hydrocarbons [PPSH]) and the proposed remediation efforts, five OUs were developed for the Project Site, shown in Figure 2-7. A brief description of each OU and the AOC within each one of the OUs as appropriate is provided in the sections below, accompanied by a discussion of the associated Applicant-proposed remediation (Avocet 2007). Table 2-1 lists the OUs, AOC, and the proposed remedies.

Table 2-1 Proposed Remediation by Operable Unit

Operable Unit	Area of Concern	Proposed Remedy
#1 – Northwest Operations Area	#1 – LNAPL/BTEX-Affected Groundwater	Natural Attenuation + IC + LTM
	#2 – Surface Soils	Capping + IC + LTM +Excavation
#2 – Reservoirs 5 & 7	NA	Capping + IC + LTM
#3 – Reservoir 4	NA	Capping/Excavation + IC + LTM
#4 – Remaining Site-wide Surface and Subsurface Soils	#1 – North Marsh Area	Excavation + IC + LTM
	#2 – Reservoir 3	Capping + IC + LTM
	#3 – PPSH Areas	Excavation + IC + LTM
	#4 - Arsenic	Excavation + IC + LTM
#5 – Site-Wide Groundwater	-	Natural Attenuation + IC + LTM

Notes: LNAPL = Light Non-Aqueous Phase Liquid; BTEX = Benzene, Toluene, Ethylbenzene, Xylene; IC = Institutional Controls; LTM = Long-Term Monitoring; PPSH= Pliable Petroleum Surface Hydrocarbons; NA = Not Applicable.
Source: AVOCET 2007

2.3.3.1 Operable Unit #1 – Northwest Operations Area

OU #1 encompasses approximately 5 acres in the northwest corner of the Project Site designated as service/manufacturing land use (see Figure 2-7). Historically, this area was used to support tank farm and pipeline operations and included equipment and processes not found across the remainder of the Project Site. Consequently, this Northwest Operations Area is affected, by a different set of contaminants than the remainder of the site, namely arsenic in shallow soil and LNAPL with a lighter fraction, including BTEX, in the saturated zone.

In addition, a portion of this area of the Project Site is designated in both the City and County General Plans for future commercial development. Although the area zoned for commercial development in either the City or County Development Plan includes all or portions of the northwest corner of the Project Site, including the former aboveground storage tanks secondary containment berms, the area of OU #1 excludes the aboveground storage tank berms due to the identified value of the VPFS habitat that they support. The Northwest Operations Area also lies within the 100-year floodplain.

OU #1 includes two AOC: groundwater (AOC #1) and soil (AOC #2). Due to a set of conditions unique to the Northwest Operations Area, the LNAPL in the saturated zone also contains a light fraction (lighter hydrocarbon in the C5-C20 range), including benzene. This light fraction is

responsible for the Northwest Operations Area being the only area of the Project Site identified by the RTP where groundwater containing dissolved contaminants (TPH and benzene) at concentrations greater than maximum contaminant levels (or frequently applied action levels) has migrated offsite. The LNAPL impact in the Northwest Operations Area covers an area approximately 600 feet long by 300 feet wide and ranges in depth from four to 28 feet bgs (see Figure 2-6). The light fraction co-occurs with, and is dissolved in, the heavier oil. Light-end hydrocarbons, including BTEX, are hundreds of times more soluble in oil than in water. Therefore, this light fraction would be difficult to remove without also removing the heavier residual oil. In the Northwest Operations Area, groundwater typically occurs at depths ranging from five to 15 feet bgs.

AOC #2 includes shallow soil in OU #1, which is affected by arsenic and, to a more limited extent, by TPH and polynuclear aromatic hydrocarbons (PAH), and deeper (four to 28 feet bgs) soil affected by the above-described LNAPL. Within OU #1, the arsenic is relatively widespread and limited to shallow (less than two feet) soil, which is consistent with its likely use on the Project Site as an herbicide ingredient. The arsenic was identified as a potential human health risk for both Open Space and Commercial development land uses. The Applicant assumes that the entirety of OU #1 is affected with arsenic, subject to remediation given the available spatial distribution of data. A detailed description of the two AOCs under OU #1 is provided below.

Area of Concern #1 – Groundwater

The remedial action objectives for OU #1 and AOC #1, established in the FS are intend to prevent human contact with TPH- or benzene-affected groundwater and ensure that groundwater resources down-gradient of existing impacts are not affected. The FS concluded that petroleum constituents are immobile in the environment, migration of dissolved-phase constituents is controlled by natural biodegradation and that MNA with institutional controls will achieve the remedial action objectives.

Therefore, the Applicant-proposed remedial method for AOC #1 is MNA with institutional controls and long-term monitoring on-site and off-site. MNA includes regular sampling of the existing groundwater monitoring network on and surrounding AOC #1; chemical analyses on collected samples; and reporting findings to the RWQCB in accordance with an approved monitoring and reporting program.

The Applicant is also proposing institutional controls that would include deed restrictions limiting on-site land use to recreational, commercial, or industrial purposes, a soil management plan implemented in the event contaminated soils are disturbed, and prohibition on water wells within affected areas of OU #1 (Northwest Operations Area).

Area of Concern #2 – Soil

AOC #2 includes shallow soil, which is contaminated with arsenic and, to a more limited extent, by TPH and PAH, and deeper (four to 28 feet bgs) soil affected by LNAPL containing a light fraction. The arsenic is relatively widespread and limited to shallow (less than two feet) soil, which is consistent with its probable former use at the Project Site as an herbicide. The arsenic and PAH have been identified as potential threats to human and ecological receptors (if the area were converted to Open Space). With regard to the deeper soil, the LNAPL was not considered by the Applicant to be a direct-contact risk, but vapor intrusion by the volatile fraction may pose

a risk to future on-site commercial workers. Remedial action objectives were primarily focused on preventing human and ecological receptor contact with arsenic, TPH, PAH, and volatile hydrocarbons. Since the area is proposed to be developed, it is not proposed to support suitable ecological habitat.

The Applicant-proposed remedy for AOC #2 within OU #1 includes constructing a soil cap, a minimum of four feet in thickness. The cap would provide a barrier between the affected soil and potential receptors and also provide a soil layer of sufficient thickness to facilitate foundation construction and utility installation. A geotextile, placed between the cap and the existing ground surface, is intended by the Applicant to act as an identifying marker to reduce the likelihood of inadvertently excavating into the affected soils. The cap would extend west off the Project Site, approximately 20 feet, and approximately 500 feet north to south.

The cap would require long-term monitoring and maintenance. Institutional controls would include deed restrictions limiting land use to commercial and industrial purposes; excavation notification requirements; a soil management plan; groundwater use restrictions in affected areas of OU #1; and a vapor barrier requirement for any new buildings constructed in OU #1, which would protect the building occupants from possible vapors from the underlying hydrocarbons.

2.3.3.2 Operable Unit #2 – Reservoirs 5 and 7

OU #2 includes the former Reservoirs 5 and 7 located in the southwest quadrant of the site (see Figure 2-7). Measured from the outside toe of the reservoir containment berms, the reservoirs cover a total area of 9.8 acres. The reservoirs contain approximately 8.5 acres of wetland, none of which are identified VPFS habitat. Reservoir 5 contains local communities of Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*). Both reservoirs contain ponded water from rising groundwater elevations during the winter. In years of heavy rainfall, it is not unusual for 2 to 3 feet of water to accumulate in the reservoirs. The reinforced concrete bottoms are still present in both of the reservoirs but they are ripped and covered by 1 to 2 feet of tar, non-engineered fill, and construction debris. In both the proposed City and County Development Plans, Reservoirs 5 and 7 are proposed to be designated as Open Space.

Reservoirs 5 and 7 are unique because they are the only areas of the Project Site affected by liquid-type hydrocarbon surface expressions, and these are the only surface expressions hydraulically connected to subsurface LNAPL sources. Therefore, removing the shallow hydrocarbon-affected soils would not effectively remediate the sheen that seasonally develops on surface water in the reservoirs. The source of the hydrocarbon sheen is hydrocarbon materials that extend to depths of up to 25 feet below the bottom of the reservoirs. During periods of rain, the water table rises coming in contact with the hydrocarbons and creating the sheen, and pushing hydrocarbon to the surface. Elimination of the sheen would require either removal of the mobile hydrocarbon below ground, making that hydrocarbon immobile, or filling the bottom of the reservoirs to elevations above the seasonal water table highs (RTP 2006).

The Applicant-proposed remedy involves capping Reservoirs 5 and 7, institutional controls, and long-term monitoring. Cap construction would involve removing existing, potentially contaminated non-engineered fill down to the existing concrete floor in each reservoir. Gravel

would then be placed directly on top of the existing concrete floor in each reservoir 1.5 feet above each reservoir's historic (1990 to 2005) high water-table elevation. The gravel would be covered with a layer of geotextile and a combination of common earth fill and topsoil to create the finished surface. The cap would be graded to encourage runoff, thereby minimizing water infiltration. A cap cross-section is shown in Figure 2-8.

The Applicant is not proposing to replace in OU #2 wetlands that exist in reservoirs but, rather, will mitigate the wetland impacts in other suitable areas of the Project Site by creating additional wetlands. Consequently, it would be necessary to create additional wetlands elsewhere on site. Institutional controls would depend on the level of public access, but are expected to include fencing, signs, awareness programs, and similar active measures to control access to the Project Site. Other institutional controls would include deed restrictions and other covenants as needed to preserve the land as Open Space in perpetuity.

Long-term monitoring would include periodic inspections and maintenance as needed to ensure that the institutional controls and cap remain effective.

2.3.3.3 Operable Unit #3 – Reservoir 4

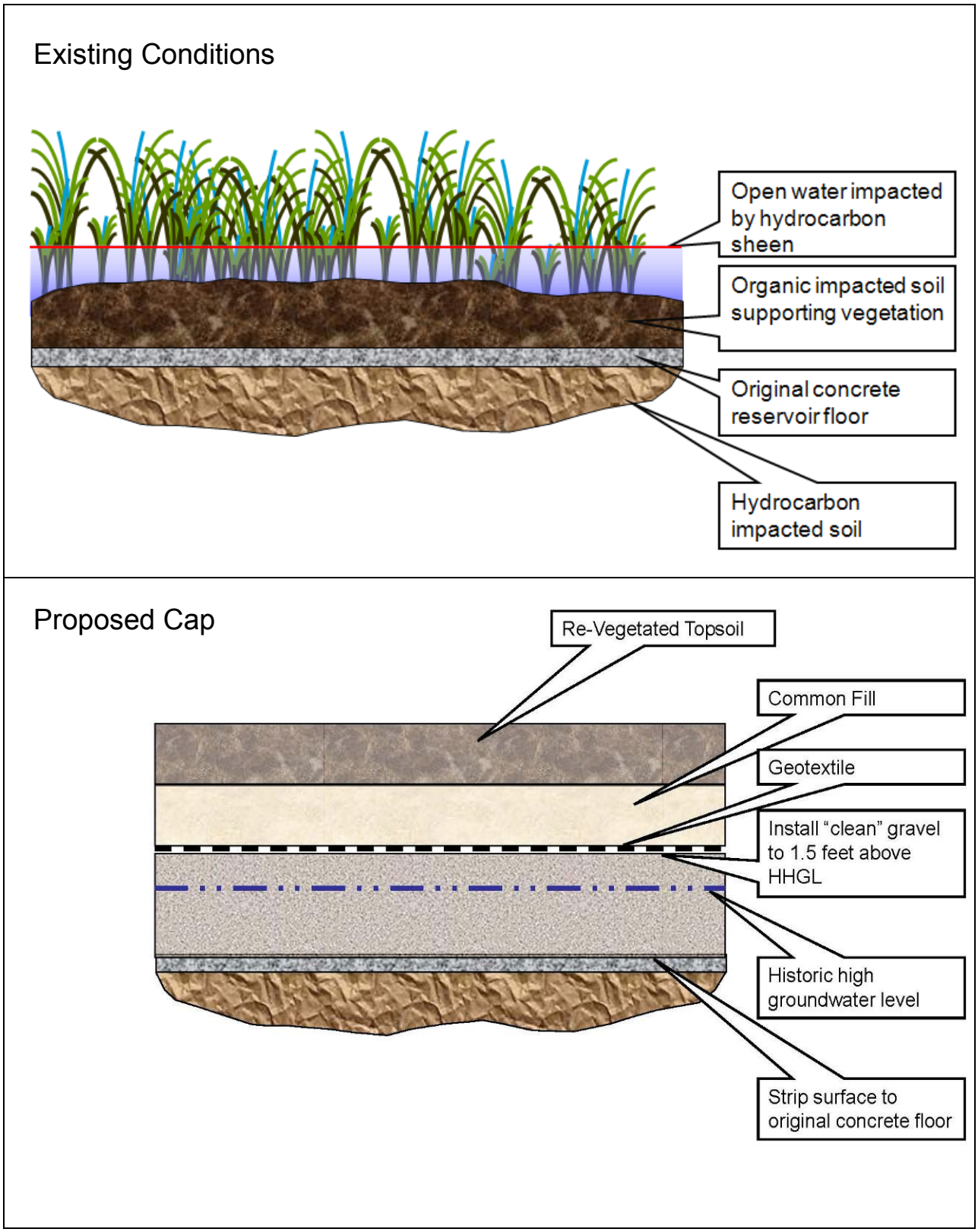
OU #3 includes approximately 30 acres in the eastern part of the Project Site (see Figure 2-7). This area is proposed for future commercial development under both the City and County Development Plans. OU #3 includes Reservoir 4, several surface expressions of hydrocarbon that collectively cover an area of approximately 2.3 acres, the area of the former quarry site, and the area of the former recycling center. The floor of Reservoir 4 is covered with five to six feet of non-engineered, hydrocarbon-affected soil and construction debris.

Due to the entrapment hazard posed by the hydrocarbon surface expressions, the ERWG identified these areas, together with some proximal expressions that are not physical hazards, for remediation. OU #3 contains several small areas of wetlands, none of which are VPFS habitat, and at least two special status plants: Congdon's tarplant and Cambria morning glory (*Calystegia subacaulis* ssp. *episcopalis*).

For OU #3 the Applicant proposes remedial alternatives that would support commercial building foundation loads by removing and replacing the non-engineered, hydrocarbon-affected fill within Reservoir 4, as well as development alternatives that would require minimal structural support, such as a parking lot.

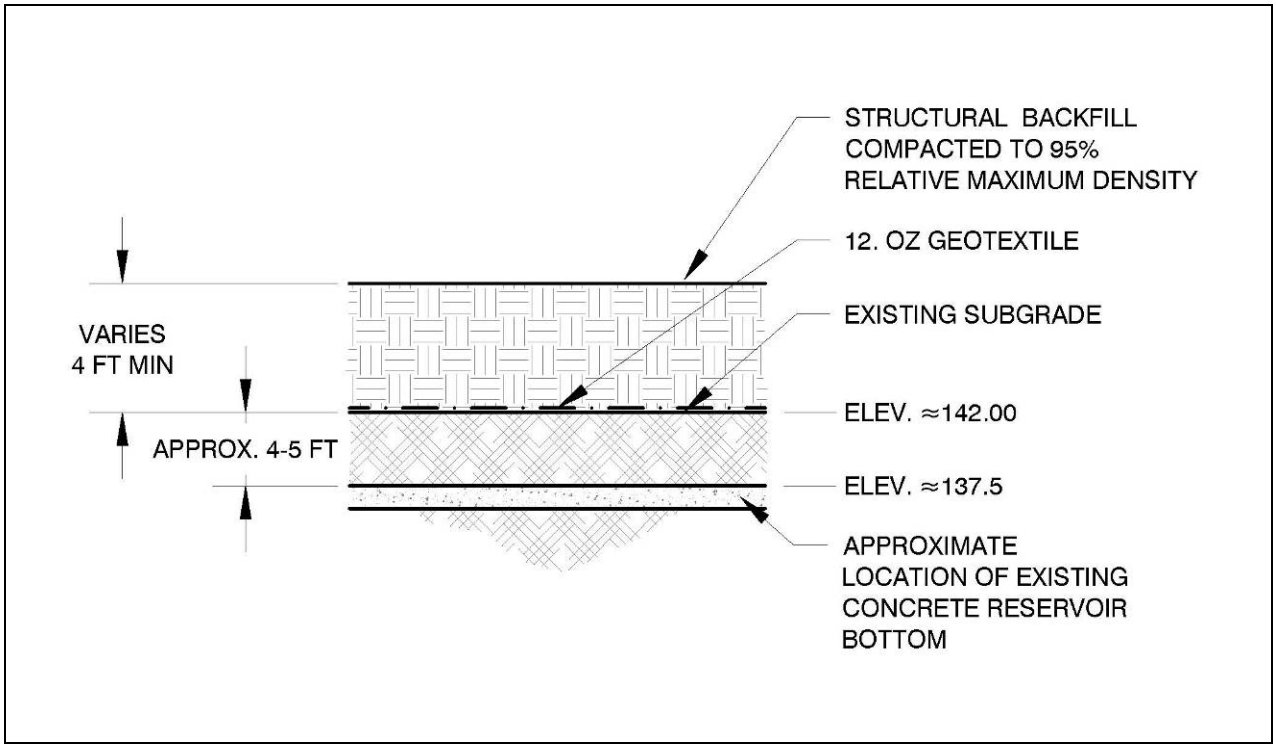
Weathered, high-molecular weight TPH-affected soil extends to depths of up to 50 feet below Reservoir 4. The SERRT determined that capping was the preferred remedial alternative for OU #3. The Applicant does not propose remedial measures targeting this material beyond the capping discussed below.

Figure 2-8 Reservoir 5 and 7 Remediation - Proposed Cap Cross Section



The proposed remediation for OU #3 provides a soil cover over Reservoir 4 that is between 4 and 11 feet thick. The cover would provide a barrier between the affected soil and potential receptors, as well as sufficient structural support for future onsite construction. A geotextile identifying layer, placed between the cap and the existing ground surface, is proposed to reduce the likelihood of inadvertently excavating into the affected soils. See Figure 2-9 for a cross-section of the cap proposed for Reservoir 4.

Figure 2-9 Reservoir 4 Remediation - Proposed Cap Cross Section



Source: Chevron 2007

Landscaped areas of the cover would be planted with appropriate shallow-rooted vegetation to prevent erosion without penetrating the cover. Development would include the installation of vapor barriers below any future foundations or slabs to protect against potential vapor intrusion.

Since residual contamination would remain at depth, the Applicant proposes institutional controls and long-term monitoring that would assess compliance and effectiveness. Institutional controls would include deed restrictions limiting land use to commercial and industrial purposes, a soil management plan implemented in the event contaminated soils are disturbed, maintenance, and monitoring.

2.3.3.4 Operable Unit #4 – Remaining Site-Wide Terrestrial and Wetland Areas

OU #4 includes all the remaining terrestrial and wetland areas of the Project Site not considered in the first three OUs. OU #4 covers approximately 270 acres and all but 24 acres is planned as Open Space. Three AOC were defined in OU #4 corresponding to “must-do” areas identified by the SERRT (see Figure 2-7):

- AOC#1 – the North Marsh;
- AOC#2 – Reservoir 3,
- AOC#3 – Other hydrocarbon surface expressions, and;.
- AOC#4 – Arsenic.

Over 57 acres of wetland in Federal, State and County jurisdiction occur in OU #4, including more than 30 acres identified as VPFS habitat. OU #4 also includes substantial coverage by a variety of special status plants.

The Risk Management Summary also recommended two areas of surface hydrocarbon expressions surrounding Reservoir 3, which were not identified as ecological risks, for ripping to facilitate re-vegetation. These areas would be ripped to depths of not less than 15 inches. However, ripping will not be conducted in VPFS habitat or other ecologically sensitive areas. A detailed description of the remedies proposed for these AOC is provided below.

Area of Concern #1 – North Marsh

AOC # 1, the North Marsh, is approximately 11.9 acres of wetlands, identified by the Applicant's surveys to not contain VPFS habitat, east of the Northwest Operations Area. The wetlands include the most extensive coverage of pliable plastic hydrocarbon surface expressions at the Project Site. When grouped into areas based on proximity, these expressions cover about seven acres. The extent of contamination in the shallow subsurface, however, may be significantly greater. Based on the 1926 topography of the North Marsh, these surface expressions may cover as much as 13 acres. The thickness of the expressions varies, but has been estimated to be two to three feet on average.

The Applicant-proposed remedy for this area is to excavate the plastic hydrocarbon surface expressions from the North Marsh, and dispose of the affected material off-site. The area of excavation is estimated between seven and 13 acres, with an average assumed excavation depth of 3.5 feet. Given the areas and thickness, the excavation may generate anywhere from 40,000 to 73,000 cubic yards of material. Any material identified as clean would be stockpiled separately on site and used later as backfill.

It is anticipated that the petroleum hydrocarbon-containing soil excavated from the North Marsh area would be disposed of as non-hazardous hydrocarbon-impacted soil (NHIS) at an appropriate landfill. It is proposed by the Applicant that the upper one foot of soil would be replaced with suitable topsoil, consisting either of clean soil from on site or imported to the Project Site from a commercial supplier.

Once the excavation and backfill operations are complete, the marsh would be replanted to restore and enhance wetland function. The Applicant is proposing to implement institutional controls that may include fencing, signs, awareness programs, and similar active measures to manage use of the area for wildlife habitat. Other institutional controls proposed by the Applicant would include deed restrictions or other covenants that would maintain the wetlands in perpetuity. Long-term monitoring as proposed by the Applicant would include a monitoring and maintenance program to ensure that those controls remain effective.

Area of Concern #2 – Reservoir 3

AOC #2 includes 8.4 acres within the footprint of former Reservoir 3 in the southern-most area of the Project Site. Much of the ground surface within the former reservoir area is covered by pliable hydrocarbon surface expressions with wildlife entrapment hazard potential. The reservoir is filled with 8 to 11 feet of non-engineered fill, including berm soils, construction debris, and tar. Approximately four acres of precipitation and runoff-supported wetlands hosting VPFS habitat form seasonally along the inside edges of the former reservoir.

The Applicant-proposed remediation activities consist of constructing a geo-synthetic and soil cap that would establish a permanent barrier between contaminated soil and potential human and eco-receptors. The cap is proposed to isolate the contamination from the surface and attempt to re-establish wetlands in the same area. As proposed, the cap would be constructed by removing hydrocarbon-impacted soil so that the cap can be installed without significantly changing the existing grades. Approximately 27,000 cubic yards of impacted soil may be removed as part of the cap construction. NHIS would be disposed of at an appropriate landfill.

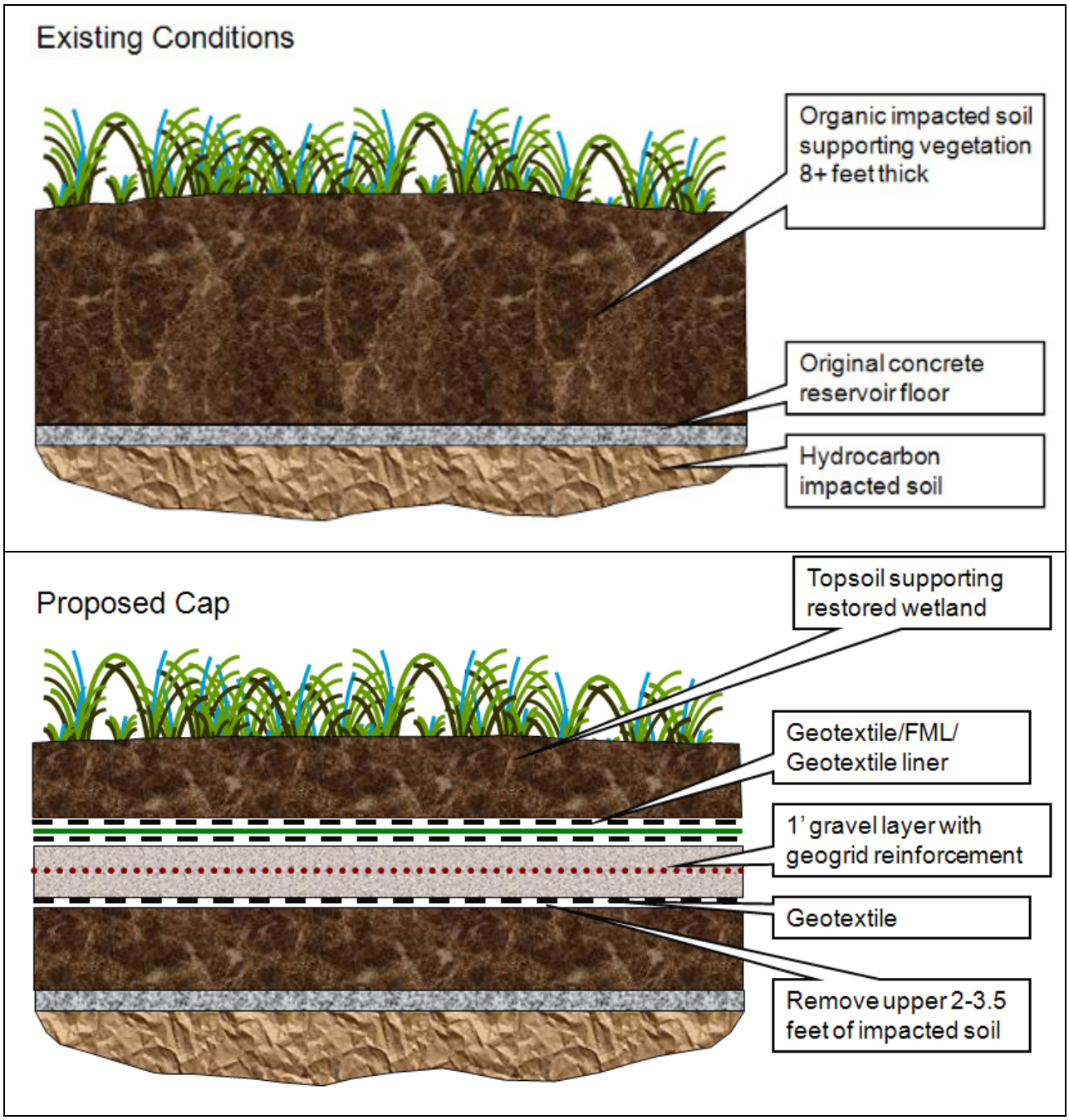
Since the remaining reservoir fill material is non-engineered and has poor bearing capacity, it would be necessary to support the cap with various soil and geo-synthetic materials. A geo-textile would be laid over the exposed work surface and anchored in a trench excavated around the perimeter of the work area. A tri-directional geo-grid anchored in a 1-foot thick gravel layer would distribute loads as evenly as possible and limit settlement to the cap center. A flexible membrane liner, protected above and below by geo-textiles, would create the impermeable barrier. The primary function of the flexible membrane would prevent downward migration of water, which it is anticipated to help support wetland habitat in a manner similar to the current condition. The final component of the cap would be an overlying thickness of common fill and suitable topsoil, which would be contoured to mimic the existing topography and wetland hydrology. See Figure 2-10 for a cross-section of the cap proposed for Reservoir 3.

The Applicant estimates these remediation activities would impact as much as 3.9 acres of VPFS habitat. The Applicant-proposed institutional controls would include fencing, signs, awareness programs, and similar active measures to manage use of the area. Other institutional controls would include deed restrictions or other covenants that would maintain the habitat in perpetuity. Long-term monitoring would include periodic inspections and maintenance as needed to ensure that the institutional controls and cap remain effective.

Area of Concern #3 – Pliable Surface Expressions of Petroleum

AOC #3 includes approximately three acres of hydrocarbon surface expressions in six general areas on the southern portion of the Project Site. One of these areas is within the construction boundary for the Reservoir 2 grading work requested by the San Luis Obispo County Airport Land Use Commission (ALUC) (See Section 2.3.6, Reconfiguration of Reservoir 2). These surface expressions occur in topographically low areas that accumulated petroleum during the 1926 fire. These expressions are limited in extent by surrounding berms and are 2 to 3 feet thick on average. Because these expressions are in topographically low spots, many occur within wetlands, some of which include VPFS habitat.

Figure 2-10 Reservoir 3 Remediation - Proposed Cap Cross Section



The remediation of AOC #3 would consist of excavating the plastic hydrocarbon surface expressions, (approximately 29,000 cubic yards in total), transporting the NHIS off site, and restoring the original grade. The remediation activities are proposed as a method by the Applicant to restore the existing wetland function, create additional wetlands on site as required, establish institutional controls, and provide long-term monitoring. The wetlands affected by the remediation are proposed by the Applicant to be restored.

Institutional controls would include fencing, signs, awareness programs, and similar active measures to control access to the Project Site. Other institutional controls would include deed restrictions or other covenants that would protect the wetlands in perpetuity. Long-term monitoring would include periodic inspections to ensure that those controls remain effective.

Area of Concern #4 – Arsenic

Two areas on the Project Site have elevated levels of arsenic and other metals. The Applicant is proposing to excavate these areas and place the material under the proposed cap for OU #1. Excavations would be limited to a depth of about two feet. A total of approximately 2,700 cubic yards of material would be excavated and placed under the OU #1 cap.

The first area is located next to the north side of the Northwest Operations Area. Excavation of this area is anticipated to involve approximately 0.21 acres, including an approximate 0.0048 acre portion where a population of Congdon's tarplant, a sensitive plant species, has been mapped. There are no wetlands or VPFS habitat in the proposed work area.

The second area is located south of Tank Farm Road between Reservoir 2 and the future southeastern development area (Phase 5). Excavation of this area is anticipated to involve approximately 0.81 acres, including an approximate 0.24 acre portion where a population of Congdon's tarplant has been mapped. It is anticipated that 0.16 acres of federal wetlands, 0.041 acres of state wetlands and two areas with VPFS habitat (FS-77 and FS-82) would be involved in the proposed work area.

Prior to the start of work, permits from appropriate agencies will be obtained for the anticipated disturbance to the wetlands and VPFS habitat. After the arsenic is removed, confirmation sampling will be conducted to ensure that the elevated arsenic and other metals have been sufficiently removed. The areas will then be backfilled to blend with surrounding topography. The Site Restoration Plan guidelines will be followed to determine final grading contours and revegetation in these work areas, and as needed to restore the wetlands, VPFS, and Congdon's tarplant impacted by these activities.

2.3.3.5 Operable Unit #5 – Site-Wide Groundwater

OU #5 includes site-wide groundwater, exclusive of the Northwest Operations Area (see Figure 2-7). Groundwater flows toward the southwest at an average rate of about 100 feet per year and primarily within subsurface sandy interbeds in the largely fine-grained valley fill. The major potential source areas for petroleum impacts to water quality in OU #5 are the LNAPL areas underlying the former reservoirs (reservoirs 2, 3, 4, 5, 6 and 7).

As noted previously, the consensus of the regulatory agencies based on technical studies was that petroleum in the subsurface is immobile and natural biodegradation prevents migration of dissolved-phase constituents. Consequently, MNA was identified in the FS as the most appropriate approach to address impacted groundwater.

Groundwater monitoring of OU #5 has been conducted continuously since 1990, both on and off the Project Site, through a network of monitoring wells (see Figure 2-5). For the most part, these samples were tested for TPH and BTEX, although a significant number were also tested for PAH.

The Applicant's proposal for OU #5 would be MNA with additional institutional controls and continued long-term monitoring. MNA includes regularly sampling the existing groundwater monitoring network on and surrounding OU #5, testing those samples for TPH and natural attenuation parameters, and reporting these findings to the RWQCB in accordance with an approved monitoring and reporting program.

Institutional controls would include deed restrictions limiting land use to open space and commercial and industrial purposes and groundwater use restrictions in and adjacent to petroleum-impacted areas. Land use restrictions could also be required by the RWQCB on the adjacent Betita Property (see Figure 2-6), south of the Project Site, due to the localized presence of petroleum in the subsurface.

2.3.4 Building and Structure Demolition

Four buildings located in the Northwest Operations Area are proposed to be demolished during remediation. Three of these buildings were constructed to support former operations at the Project Site, but now exist as office space. The fourth, a modular building adjacent to the northernmost original building, was constructed within the last eight years to provide additional office space.

Given the age of the three older buildings, the Applicant surveyed these buildings for lead-containing and asbestos-containing materials and found that they are present. Therefore, abatement would precede physical demolition of the buildings.

Prior to abatement, a National Emissions Standard for Hazardous Air Pollutants (NESHAP) demolition notification form, asbestos survey report, and an asbestos abatement work plan would be submitted to the SLOAPCD. Asbestos-containing materials would be abated in accordance with local, state, and federal regulations. Any suspect material found during abatement and not previously identified would be presumed asbestos-containing materials unless contradicted by specific laboratory data. Asbestos-containing materials would be properly wrapped, placed in covered roll-off bins, and disposed of at a licensed disposal facility (e.g., Kettleman Hills).

Once abatement activities are completed, recyclable or potentially re-usable materials would be removed. The building structure would be demolished using excavators. Some of the buildings have metal structural elements or siding, which would be segregated for recycling, if economical. Other materials would be loaded into haul trucks for disposal. Concrete foundations would be

broken apart using a hydraulic hammer. It is possible that concrete would be crushed and used as gravel elsewhere on the Project Site or hauled off site for recycling or disposal.

Utility lines would be disconnected and abandoned. Where lines are aboveground, they would be removed. Where utility service is brought to a building underground, the line is proposed to be cut at a point at least two feet below grade and capped. Service lines that use pipes or conduits greater than four inches in diameter (e.g., water, septic) would be filled with cement grout. Voids created in the existing grade by demolition would be backfilled with structural fill or gravel.

Demolition activities would also occur in other locations throughout the Project Site. These include the removal of existing infrastructure, such as concrete walls, barb-wire fencing, and concrete foundations. Demolition activities would occur at the following locations:

- Reservoirs 2, 3, 4, 5, and 7 (fencing, concrete foundations, concrete walls, etc.);
- The Flower Mound (fencing, concrete debris, etc.);
- The North Marsh (i.e., protective fencing and netting); and
- Other Areas (e.g., debris piles, concrete vault).

2.3.5 Pipeline Decommissioning

Historical operations at the Project Site were served by approximately 25,000 feet of crude oil pipeline, about 47,000 feet of water supply line, and about 1,200 feet of other pipeline. Figure 2-3 shows the approximate locations of these lines.

When operational, the Project Site required numerous pipelines to move oil between the pump house, boilers, tanks, and reservoirs. Water, natural gas, and septic lines also served the Project Site. Figure 2-3 shows pipeline locations based on historical facility drawings. The Applicant estimates that of the approximately 25,000 feet of oil pipeline installed onsite about 4,500 feet are found in the Northwest Operations Area.

The Applicant has prepared a pipeline abandonment strategy for either the removal or in-place decommissioning of pipelines at the Project Site. Portions of lines that are within work areas and any pipelines located above ground would be removed for disposal. Subsurface pipelines outside the work areas may be closed in place by the most appropriate method, such as pressure-grouting or drained and filled with another suitable material such as light-weight concrete or sand slurry, including those crossing an environmentally sensitive area (e.g., wetland).

All pipelines would be flushed and, may be pigged to remove residual hydrocarbon and vapors prior to abandonment. Pigging in pipeline maintenance refers to the practice of using pipeline inspection gauges or 'pigs' to perform various operations on a pipeline, including the use of devices to remove solid or semi-solid deposits or debris from the pipeline. The devices are inserted into the pipeline and pushed through and received at the other end where the debris collected from the pipeline would accumulate. If a section of pipeline is in such poor condition that it cannot be adequately cleaned, it would be excavated and removed in its entirety. These procedures of pipeline draining and decommissioning could be modified based upon field conditions or improved methods.

Pipeline Inventory

The locations of the pipelines shown in Figure 2-3 have not been field-verified. While these figures are reasonable approximations of their locations, final remediation would require more accurate information. Prior to abandonment, the Applicant would conduct a detailed field survey to locate the lines and characterize their contents. Potholes would be dug at key locations (e.g., ends, transitions, junctions, and valves) to expose the pipe and determine its diameter and materials of construction. Line tracing may be performed using an appropriate geophysical instrument operated by a trained technician. The alignment of the pipeline would be flagged. Pothole and flag locations would be recorded using a high-precision Global Positioning System (GPS). A detailed pipeline inventory, noting information such as location, depth, size, materials of construction, and condition, would be created to guide abandonment activities.

Given the interconnected, and possibly deteriorated, web of pipelines within the Northwest Area, the Applicant may elect to cut the lines at the operable unit boundary and completely remove them from its interior. In this case, the lines would be removed in accordance with the procedures presented below after their locations have been confirmed.

Pipeline Cleaning

Water trucks attached to portable pumps would be connected via hose to each petroleum pipeline segment within the facility. Additionally, several portable storage tanks or vacuum trucks would be stationed and attached to the pipelines to receive and collect the flush water. Each pipeline segment would be flushed with an adequate volume of water to remove residual oil from the pipelines. Pipeline flushing operations would continue until flush water containing total petroleum hydrocarbons of less than 100 parts per million is achieved.

The pipeline segments where pigging may be done would be identified by the Applicant during the initial potholing activities or other field activities. The pigging operations would be basically the same for each pigging run segment. The maintenance tool or pipeline pig is introduced into the line via a pig trap, which includes a launcher and receiver. Without interrupting flow, the pig is then forced through it by fluid flow, or it can be towed by another device or cable. Usually cylindrical or spherical, pigs sweep the line by scraping the sides of the pipeline and pushing debris ahead. Each segment would have a beginning location where the pig is “launched” and an end section where the pig is “received.”

First, the launching and receiving locations would be prepared for the procedure. Buried ends of the pipeline would be excavated. The excavations would vary depending on the depth of the pipe, but would not typically exceed an area larger than 7 feet wide by 12 feet long (84 square feet) and no more than five feet deep. A trench box could be used to minimize the area affected by the excavation.

The pipeline fluids would be drained from the pipe and the pipe would then be cold-cut to gain access to the pipe. The pig launcher and receiver would then be attached to the exposed pipe ends.

Once the pig launcher and receiver are attached to the pipeline, the subject pipe segment would be pigged. The pigging operation would involve the use of scraper-type or foam pigs. The scraper pig is constructed to help remove any remaining hydrocarbons from the inside walls of

the pipeline as it moves down the pipe. Liquefied nitrogen gas or compressed air would push the pigs through the piping segment.

At the receiving end, vacuum trucks would remove any liquids from the pipe as the liquids are pushed ahead of the pigs. Carbon filtration canisters would treat any vapor emissions generated during pipeline purging operations, in accordance with SLOAPCD requirements. The Applicant would obtain approval from SLOAPCD for the proposed activities. Recovered hydrocarbons and water from the pigging operation would be properly disposed of or recycled.

There is the possibility that a pig may become lodged in the pipe by an obstruction. If the pig becomes obstructed along a pipe segment, the field crews would identify these locations. Excavation activities may be required to remove the pig and the damaged or obstructed section of pipe.

Pipeline Grouting

Pipelines that are scheduled for abandonment in place with diameters greater than four inches would be grouted with a cement-slurry to prevent any future ground subsidence from pipe wall collapse. A portable grout pump would pump grout into the pipeline segments. Following grouting, the pipeline segment ends would be backfilled with soil and the soil compacted.

Pipeline Segment Removal

The Applicant proposes to remove piping within the Project Site that is located within remediation work areas or is determined to be in poor condition. If practical, the pipeline segments would be flushed or pigged prior to removal. The pipeline segment endpoints would be isolated and cut. The pipeline segment would then be uncovered by excavating a trench to the existing pipeline depth. As the pipeline is removed from the trench, a spill containment device would be placed under the pipeline end to catch any residual fluids in the containment. All liquids drained from the piping into the containment device would be removed using a vacuum truck and hauled to an approved facility for disposal or recycling. The pipe segments would then be cut into manageable pieces, the pipe ends wrapped in plastic to prevent spillage, the segments removed from the trench, and the trench backfilled. Scrap pipe would be temporarily stored in bins and transported off site for recycling.

It is estimated that approximately 1,700 linear feet of pipeline will be removed and transported to a recycling facility.

2.3.6 Reconfiguration of Reservoir 2

The Applicant proposes to make a number of modifications to Reservoir 2 to improve airport safety by addressing concerns raised by the ALUC. The location of Reservoir 2 is shown in Figure 2-2. Detailed drawing of the proposed modifications to Reservoir 2 are provide in Appendix A.3, pages A.3-14 though A.3-17.

Reservoir 2 was a 600-foot diameter crude oil storage reservoir constructed by Union Oil of California in 1910. The reservoir had concrete walls and a wooden roof and was surrounded by a roughly trapezoidal berm approximately 15 feet high and 150 feet wide at its base for secondary

containment. The 1926 fire damaged the reservoir and left an asphalt layer over the berm slopes and concrete floor. The reservoir was never rebuilt.

In later decades the SLOCRA was constructed to the southeast of the Project Site. The main runway alignment intersects the reservoir, which is now a significant feature within the RPZ. The ALUC identified this feature as a safety concern if an aircraft had to make an emergency landing within the RPZ.

As part of site work activities, the Applicant is proposing to cut the wall and grade the berm to a more gentle topography. The standing portions of wall, approximately 12 feet high, would be cut approximately two feet above the ground and laid flat on the adjacent concrete floor. The asphaltic material, which may impede plant growth if left on the surface, would be scraped from the berm surface and placed against the outer side of the wall. The berm material would be graded to flatten the slopes while providing at least two feet of soil cover above the concrete wall. Figure 2 in Appendix A.3 provides detailed drawings of the proposed modifications to Reservoir 2.

The limit of grading would be 11.9 acres. The net disturbance would be 10.9 acres, since the proposed grading overlaps approximately one acre of other remediation related disturbances. A setback as determine in consultation with USFWS would be established within the reservoir around the VPFS habitat. Outside the reservoir, a setback from adjacent VPFS habitat would be maintained.

Grading would include approximately 38,000 cubic yards of berm material, with the anticipation that no or minimal materials would be imported or exported relative to this activity. Compaction would meet the requirements in the grading permit from the County. The finished surface would be scarified, except at the access roads, to promote re-vegetation and would be restored as part of the restoration program.

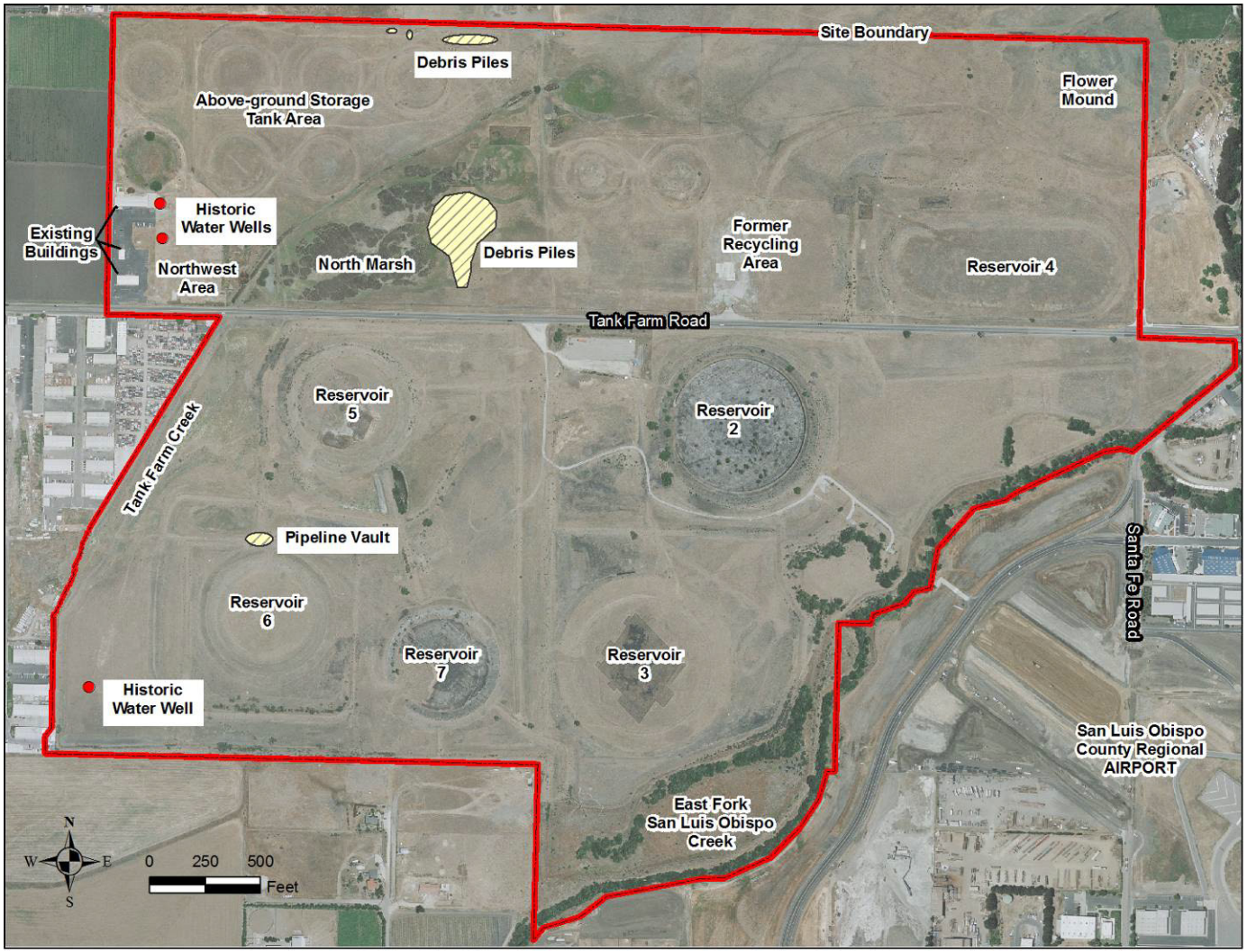
The berm height would be lowered between four and eight feet, depending upon the surrounding topography. This would reduce slope grades from approximately 50 percent to between 5 and 12 percent. The direction of slope and slope breaks would be positioned to ensure that the interior wetlands capture at least the same amount of rainwater as the existing condition.

The broad flat slope created on the west side of the reservoir would facilitate access by large emergency vehicles. In addition, compacted gravel all-weather roads designed per applicable CALFIRE requirements would provide permanent access to the interior of the former reservoir and to existing trails serving the runway light system. The existing paved pad would be retained for future use as an emergency staging area. Any gates to this area would be set back from Tank Farm Road to allow emergency vehicles to pull off of the road while gaining access to the site. Appendix A.3 provides detailed drawings on the proposed modifications to Reservoir 2.

2.3.7 Miscellaneous Clean-up

Four locations on site have been designated by the Applicant as requiring clean-up or demolition, not parts of an OU or an AOC. They are not generally “contaminated” or affected areas, although they could have some affected soil associated with them. These areas are comprised of debris or abandoned structures that are unattractive or possible physical hazards (see Figure 2-11).

Figure 2-11 Miscellaneous Clean-up Areas



Source: RAP AVOCET 2007; MRS

Three of the locations are in the area north of Tank Farm Road. There are two debris piles along the north property line. They appear to contain mostly concrete debris. As with other concrete debris, the contractor would crush this material and reuse it for gravel elsewhere on the Project Site. Otherwise, the concrete would be hauled off-site for recycling or disposal.

The third area identified on the parcel north of Tank Farm Road is the historical debris disposal area adjacent to the North Marsh (see Figure 2-11). The material in this area would be excavated and removed for disposal or recycling as appropriate. The limits and characteristics of the waste would be defined prior to excavation and disposal. It is assumed that the debris extends to a depth of five feet and that the excavation volume is 18,000 cubic yards. Material removed from the excavation would be segregated on the basis of how it would be managed. Concrete would be recycled, as described previously. Other construction debris would be sent to a solid waste landfill for disposal. Affected soils would either be sent to the proposed stockpile area for later disposal or directly to the landfill designated for disposal. The excavation adjacent to the North Marsh would not be backfilled in order to accommodate habitat mitigation later in the Project.

The fourth miscellaneous clean-up location is south of Tank Farm Road, adjacent to Reservoir 6 (see Figure 2-11). It is a concrete vault of uncertain purpose, approximately five feet wide, 12 feet long, and eight feet deep. The crude oil supply line serving Reservoirs 6 and 7 is connected to it, but it is not known if it was a separator, a valve box, or served some other purpose. The vault is open and presents a physical hazard to people and animals, and is a possible wildlife entrapment hazard. The steel hand rail would be removed and the upper three feet of the concrete wall would be broken and used to fill the bottom of the vault.

A sand-cement slurry would fill the void spaces. The remaining depth of the vault would be backfilled with common fill until the original grade is re-established. Figure 2-11 also shows the location of three historical water wells. Applicant inspection of these areas has not revealed any surface features associated with the wells. It is likely that the wells were abandoned many years ago and any other record of them has long since been lost.

The Applicant is proposing to conduct a field investigation to verify the location and condition of the wells. It is probable that the wells were constructed with steel casings, and if they are still present, they should be detected by a magnetometer. A backhoe will be used to expose the areas identified by the detections and identify them. If the wells are located, it will be ascertained if they were properly abandoned, and if the method of abandonment does not meet modern standards, the wells will be abandoned according to the requirements of California Department of Water Resources Bulletin 74-81.

2.3.8 Construction Methods

Construction methods address issues such as mobilization, staging areas, site access, transport of contaminated material, utilities, borrow areas, site grading, and chemical usage.

2.3.8.1 Mobilization, Staging Areas, Truck Transport and Access

Mobilization

Mobilization activities include moving equipment and construction support facilities/trailers onsite, improving site access, installing storm water and dust control best management practices, and creating habitat protection measures. Figure 2-12 shows the anticipated work areas and the proposed staging areas and access routes.

The work areas are the limits within which remediation activities would be conducted for a given OU or AOC. The work area limit would be generally defined by the extent to which a particular site must be cleared and grubbed to properly perform the work needed, and provide the contractor with sufficient room to move equipment and materials.

Staging Areas

The Applicant has identified three main and four auxiliary staging areas at the Project Site (see Figure 2-12). The main staging areas would be at the former recycling area (primary staging area), the Northwest Operations Area, and the Southern Staging Area. Major maintenance (e.g., engine repair, fluid changes) would only be performed at the primary staging areas in specially prepared areas with proper spill control measures in place. Four auxiliary staging areas identified for use during remediation activities are at the four OU areas.

The auxiliary staging areas would be directly adjacent to the work areas and would be used to stage materials, park equipment, nursery area, and other support activities. Vehicles and equipment would be fueled and undergo minor maintenance (e.g., changing tires) at the staging areas.

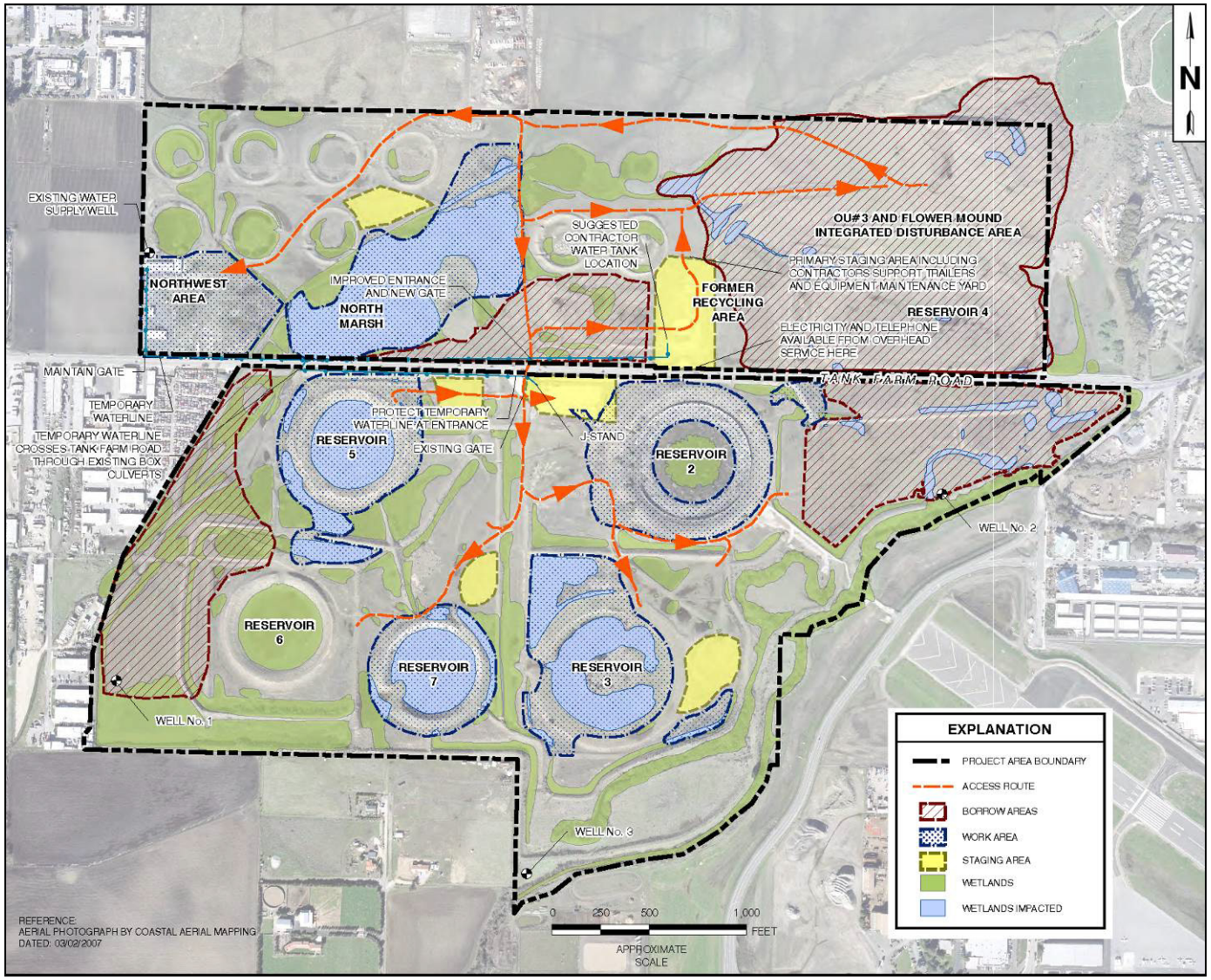
The staging areas could also be used as stockpile areas for clean and impacted soils removed as part of the excavation process. Stockpiled impacted soil would be placed on plastic liners or other impervious surface and would be covered with a SLOAPCD-approved vapor emissions control method when not active for more than 24 hours. Storm water control best management practices (BMPs) would be installed around all soil stockpiles.

Internal access routes have been chosen to use existing roads where feasible and thereby avoid sensitive habitat. These routes may require widening and drainage improvement (see Figure 2-12). A flagman or other means of traffic control would be provided, as necessary, at the proposed Tank Farm Road crossing. The Applicant would provide a temporary signalized intersection at the main access point to the site to provide safe ingress and egress for project-related traffic.

Construction Water Supply

Water of suitable quality is available on site for construction purposes. Existing water wells are located near the Northwest Area, at the southwest corner of the Project Site, at the southernmost tip of the Project Site, and on the eastern edge of the Project Site south of Tank Farm Road. As necessary, the contractor would supply pumps, storage tanks, and stands to fill water trucks for dust control and other construction activities. One storage tank and fill stand would be located next to the existing water well at the Northwest Area, and another would be located south of Tank Farm Road, adjacent to the entrance. The contractor would also supply sanitary facilities at needed locations.

Figure 2-12 Proposed Work Areas, Staging Areas, and Site Access



Source: RAP AVOCET 2007; MRS

Off-site Hauling of Material

It is anticipated that most hydrocarbon-affected soils would be disposed of at the NHIS facility at the City of Santa Maria Landfill. Use of NHIS by the Santa Maria Landfill as cover material is consistent with the requirements included in Title 27 of the California Code of Regulations and has been approved by the California Integrated Waste Management Board (CIWMB) and the RWQCB. NHIS material includes, but is not limited to, soils from oil field sumps, tank farms, pipeline leaks, or petroleum product spills. The Santa Maria Landfill has an NHIS program addressing the types and monitoring of the NHIS received at the landfill that the Project would comply with.

The proposed truck route for transporting petroleum-containing soil and demolition debris from the Project Site is as follows:

- Westbound on Tank Farm Road;
- Southbound on South Higuera Street;
- Either westbound on Los Osos Valley Road to the U.S. Highway 101 on-ramps or continue south to the South Higuera U.S. Highway 101 on-ramps; and
- Southbound U.S. Highway 101, trucks would exit at Betteravia Road in Santa Maria, travel east on Betteravia Road to Philbric Road, then north on Philbric Road to the City of Santa Maria Landfill entrance.

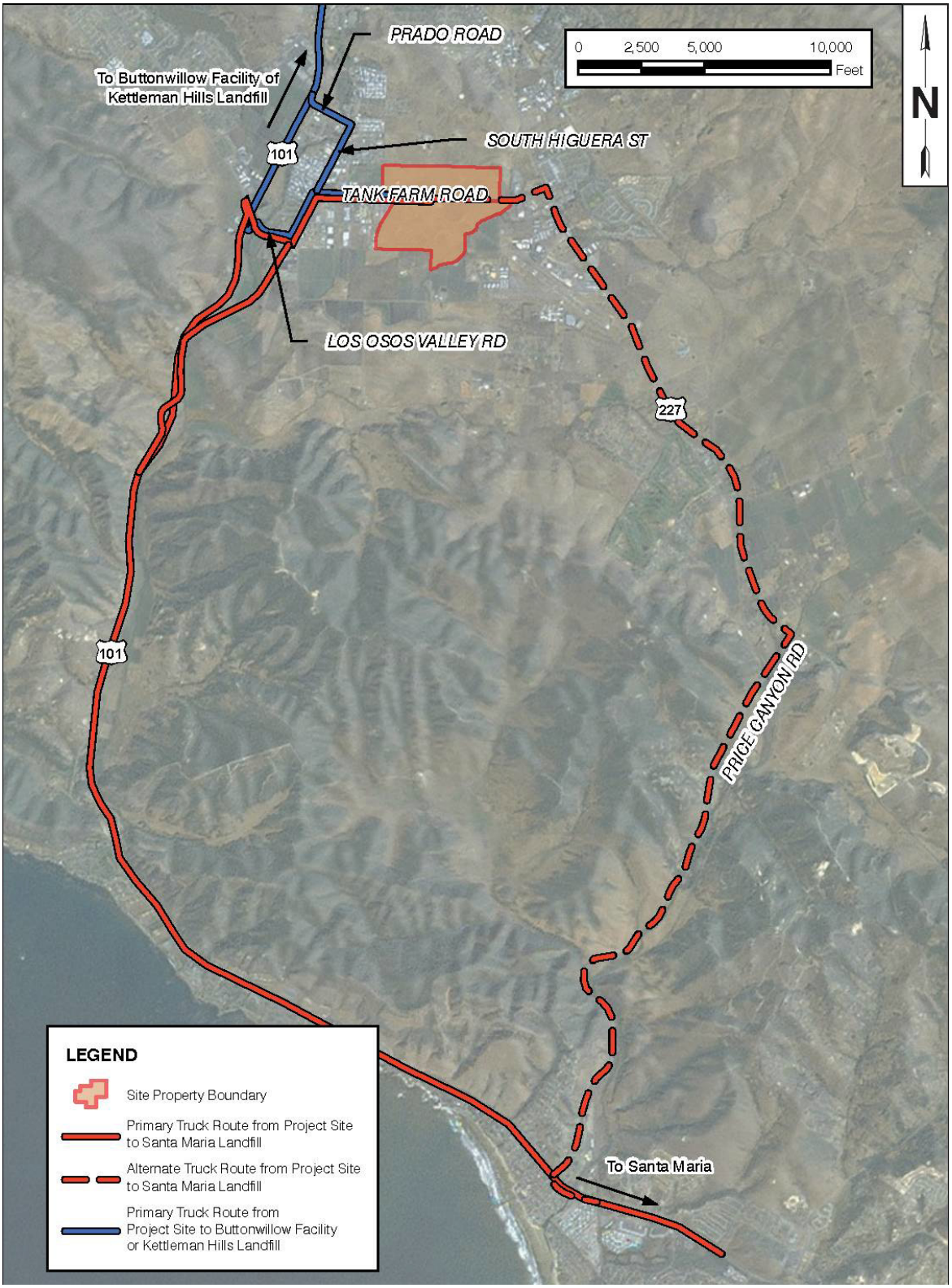
An alternate route would be the following:

- East on Tank Farm Road; Southbound on Highway 227;
- Westbound on Price Canyon Road; and
- South on Price Street to the southbound U.S. Highway 101 on-ramp. The route from U.S. Highway 101 to the City of Santa Maria Landfill would be same.

The route would be the same in reverse for inbound trucks. The Applicant estimates that 10,500 truck trips (round trips) would be necessary to transport the NHIS to the Santa Maria Landfill. Given the uncertainty with estimating the amount of affected soil from remediation project, the Applicant has requested that the EIR include a 25 percent contingency. This contingency would increase the total exported affected material to 196,250 cubic yards, or approximately 13,125 truck trips (round trips), see Table 2-3. Hours of work are planned to occur, as feasible, pre-dawn and during daylight hours, Monday through Friday, all year round. Standard construction work hours will be Monday through Friday between the hours of 7:00 a.m. and 7:00 p.m. However, intermittent truck loading and hauling operations may start at 6:00 a.m. if needed to avoid morning commuter traffic. Figure 2-13 shows the truck routes between the Project Site and U.S. Highway 101.

The material that would be transported to the Santa Maria Landfill would be used as cover for closing landfill cells. The material would be tested to ensure it meets the Santa Maria Landfill's specifications for NHIS.

Figure 2-13 Proposed Truck Routes



Source: RAP AVOCET 2007

Soil that does not meet the Santa Maria Landfill's NHIS criteria would be sent to another licensed facility able to accept hydrocarbon-affected soil, either Clean Harbor's Class I disposal facility in Buttonwillow, California or the Chemical Waste Management Class I disposal facility in Kettleman Hills, California. The truck route to the Buttonwillow facility would be the following:

- Access Northbound U.S. Highway 101 either via Los Osos Valley Road as described above or via the Prado Road on-ramp;
- U.S. Highway 101 northbound; East on Highway 46; South on Highway 33; and,
- East on Lokern Road to the landfill entrance.

The designated highway route to CWM Kettleman Hills Landfill would be the following:

- U.S. Highway 101 northbound;
- East on Highway 46; and,
- Northeast on Highway 41 to the landfill entrance.

The Applicant requested that the EIR evaluate a contingency for disposal of up to one-third of the affected soil to be excavated, or 50,000 cubic yards entailing approximately 3,500 round trips, of the soil at either of these two Class I disposal locations.

Site Access

The principal entrance to the Project Site would be relocated to the primary staging area near the former recycling area. The Applicant is proposing that the entrance gate be moved back 60 to 100 feet from Tank Farm Road and that adequate turn lanes be provided into the Project Site. The greater distance the entrance gate is from the road would allow trucks to park at the gate without blocking traffic along Tank Farm Road. The Applicant would provide a temporary signalized intersection at the main access point to the Project Site to provide safe ingress and egress for Project-related traffic.

Other access points would be provided as needed but controlled by the contractor. At a minimum, it would be necessary for the contractor to move vehicles, personnel, equipment, and materials between the north and south portions of the Project Site across Tank Farm Road. This would occur at the location shown in Figure 2-12, approximately 750 feet west of the primary staging area. The existing gate to the south portion of the Project Site is the current access point and would be maintained for use during remediation. A new, appropriately sized gate would be installed to provide access to the north portion of the Project Site directly across from the south gate so that traffic crosses Tank Farm Road in the minimum distance and time. The existing gate at the Northwest Area would be used as an exit location for right-turning trucks leaving the site.

The internal routes shown in Figure 2-12 are intended to provide the contractor with access to all potential work and borrow areas across the Project Site with as little impact to sensitive habitat as possible. The access routes utilize existing dirt tracks. Those shown as solid lines in Figure 2-12 would be required, while those shown as dashed lines would only be used if the borrow sources shown at the end of those routes are developed.

It is anticipated that most routes must be able to accommodate two-way traffic. Existing dirt tracks would be widened, as necessary, to at least 24 feet in the direction that is least likely to affect adjoining sensitive habitat. Management procedures would be used to minimize impacts from dust and erosion. Where necessary, the contractor would improve the roadway by grooming the sub-grade to provide a reasonably smooth surface. A geo-textile placed over the sub-grade would provide separation between the sub-grade and a minimum 6-inch thick course of compacted crushed miscellaneous base or gravel.

2.3.8.2 Borrow-Area Excavations

Based on initial estimates, the Applicant proposes to use a majority of the soil materials needed for remediation from on-site sources. The following sections discuss the various proposed borrow sources, the types of materials available in each, and the estimated quantity of potential borrow material. Figure 2-14 shows the location of each of the borrow sources, and Table 2-2 summarizes the estimated material quantities available from each location.

Table 2-2 Borrow Site Quantities

Area	Gross Area (acres)	Topsoil (cubic yards)	Common Earth (cubic yards)	Gravel (cubic yards)	Off-Site Cut (cubic yards)
Borrow # 1	8.6	9,000	27,200	0	0
Borrow # 2	8.5	20,700	0	0	0
Borrow # 3	17	19,700	59,250	0	0
Flower Mound	55	0	268,000	82,000	
Off-Site Area	4.1				73,700[a]
Reservoir 5 & 7 Berms	-	0	71,600	0	0
Total	**-**	**49,400**	**420,900**	**82,000**	**73,700**

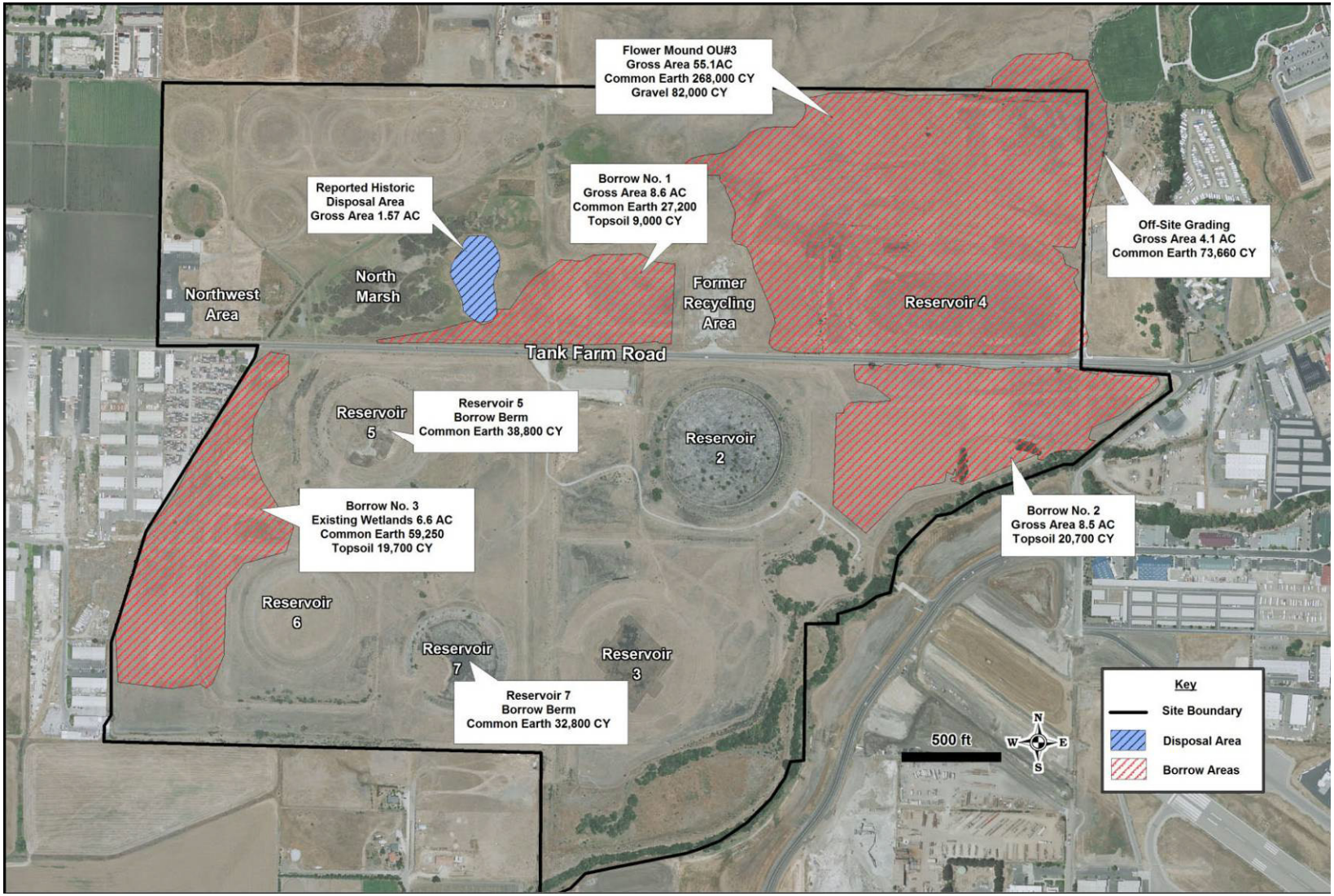
a. While off-site material must be removed, it may not be available for use by the Applicant and is therefore not counted in the borrow quantities.

Source: AVOCET 2007

It is important to note, however, that some borrow materials, especially the tank berms, would contain asphaltic materials that are inseparably embedded into the soil matrix. Only the plastic hydrocarbon has been identified by the Applicant as posing a potential hazard or risk, and where plastic hydrocarbons are expressed at the surface or exposed during other excavations they would be removed.

Conversely, the asphaltic materials are not proposed for removal and, consistent with the findings and recommendations of the FS, this material may be incorporated into the common or structural fills. There is a possibility that the material at the former quarry site will not meet the RAP's gravel specification for backfill. In addition, any topsoil deficit would need to be closed by manufacturing topsoil from other borrow materials or importing topsoil from off-site sources. The total volume of import would be limited to the amount of gravel required for remediation.

Figure 2-14 Proposed Borrow Sites



Source: RAP AVOCET 2007

In the case of having to use off-site material, this material would have to come from a commercially available gravel source in San Luis Obispo County or Santa Barbara County. Possible gravel sources include the Rocky Canyon Quarry in Atascadero, Kaiser Quarry in Santa Margarita, or the Hanson sand and gravel quarry in Sisquoc, near Santa Maria.

Flower Mound

The Flower Mound is a disturbed rock outcrop (i.e., former quarry site) that exists in the northeastern corner of the Project Site and extends off-site to the north and east (see Figure 2-2). It is an outcrop of the basement bedrock complex known as the Franciscan Formation. This area is proposed by the Applicant to be used as a borrow site due to its available rock material for backfill of excavation areas. The Applicant anticipates that the Flower Mound material would be readily suitable for use as common or structural fill. The elevation of the Flower Mound would be lowered to allow for the Santa Fe Road extension to go through the area.

Approximately 4.1 acres of the Flower Mound that extends beyond the Project Site boundary to the north and east and would also be removed as part of the Project. The portion of the Flower Mound area that is located on the Project Site is approximately 55 acres.

The Applicant is proposing to excavate 350,000 cubic yards of material from this location. Due to the composition of the rock, the Applicant is proposing to do so by blasting with directed explosive charges. It is uncertain how much of the Flower Mound excavation will require blasting. Processing the excavated material would include crushing with a rock crushing machine, and may include sorting with loaders, stationary static sorting screens, and possibly washing, depending upon what materials are required by the Project.

Berms

Numerous berms were erected around the Project Site during its operational life. These were principally constructed to contain oil spills and to isolate the reservoirs in the event of fire. The Applicant proposes to use the berms adjacent to Reservoirs 5 and 7 as the common fill required for cap construction.

This material may contain plastic hydrocarbons and, therefore, be unsuitable for structural fill. Borrow activities would be monitored and the materials segregated, as necessary, for various uses and to ensure that contaminated material is not used for fill.

Borrow #1

Borrow #1 is an approximately 8.6-acre site located adjacent to the North Marsh. It includes areas that may have been used as a disposal area for demolition debris from the 1926 fire. The Applicant reports that the disposed materials consist mostly of construction debris, such as concrete and wood. This material would be characterized, removed, and disposed of at an appropriately permitted facility. The Applicant estimates that the disposal area contains a total of approximately 10,325 cubic yards, including debris, assuming an average depth of approximately four feet.

Soil suitable for use as common and structural fill, and possibly as topsoil, would be removed from the borrow area after removal of the debris. The grading contours for this area would begin at the existing floor of the wetland area and slope back to the east at approximately 0.5 percent.

Side slopes would be no greater than 4:1 (horizontal:vertical). This grading approach would generate approximately 36,200 cubic yards of common or structural fill.

This borrow source would be used on an as-needed basis and the remaining depression is proposed to be used to create additional wetlands. The Applicant estimates that approximately 7.48 acres of habitat could be generated in this area.

Borrow #2

Borrow #2 is located on the east portion of the Project Site, south of Tank Farm Road. It covers approximately 8.54 acres but does not include any pre-existing wetlands. This borrow site would generate topsoil suitable for use in revegetating the caps. It is estimated that approximately 20,700 cubic yards of topsoil would be excavated from this location. A portion of the topsoil horizon would be removed for use in remediation. After borrow operations are completed, the borrow site would be re-graded to support future development.

Borrow #3

Borrow #3 is located west of Reservoirs 5 and 6 and would function similarly to Borrow #1. It provides a useful source for common fill and structural fill, and possibly topsoil. It also provides a location that, if utilized, potentially creates additional wetland habitat that can mitigate the habitat that is affected during remediation.

The proposed area is approximately 17.5 acres in area, including approximately 6.59 acres of existing wetland. It is assumed that material would be borrowed from this source starting at the wetland along the south boundary. The existing grade would be lowered to the elevation in the southwest corner and then allowed to slope up at approximately 0.5 percent to the north. This approach would yield approximately 78,950 cubic yards of borrow material.

Gravel Source Contingency

The Applicant has requested that the potential use of commercially available gravel for construction of the proposed reservoir caps instead of on-site gravel sources be analyzed as part of this Project as an alternative gravel source. Up to 82,000 cubic yards of gravel would be required during the construction. There is a possibility that the material at the former quarry site will not meet the RAP's gravel specification. If needed, the Applicant would import this material from a commercially available gravel source in San Luis Obispo County or Santa Barbara County. Possible gravel sources include the Rocky Canyon Quarry in Atascadero, Kaiser Quarry in Santa Margarita, or the Hanson Sand and Gravel Quarry in Sisquoc near Santa Maria.

2.3.8.3 Remediation Excavation Procedures and Quantities

As described above, some affected near-surface soils, mostly those affected by petroleum with wildlife entrapment potential, are proposed to be excavated. Where performed in conjunction with construction of a cap, the excavation would remove a limited amount of material defined by an excavation depth (e.g., two feet) or by exposure of some existing feature (e.g., a former reservoir bottom).

Remedial excavation areas include the North Marsh and other hydrocarbon (liquid and pliable areas, see Figure 2-7) AOCs. The remedial excavation approach would be limited to pliable hydrocarbon material. There may be field determinations as to the need for removal of some hydrocarbon materials, depending on the level of contamination, and these determinations would be made with the concurrence of a regulatory agency representative. The Applicant is proposing to use the material for fill, topsoil, or reuse on site based on the physical characteristics of the soil as encountered during excavation and depending on the final grading for the area in question.

Field investigations have shown that the isolated pockets of plastic hydrocarbon identified for removal are the byproducts of the fire or operational spills and appear to be localized to within three to four feet of the ground surface. In the event that these impacts are determined to extend locally to depths greater than five feet, it is proposed that removal excavations would be limited to a depth of five feet bgs.

One objective of the remedial design is to ensure that future open space uses of the Project Site do not pose an unacceptable risk to potential ecological receptors, which include burrowing animals. The Applicant proposed limit for excavation is below the burrowing depths of most animals that are likely to be encountered at the Project Site (DTSC 1996). Further protection being proposed by the Applicant is to use a 0.75-inch gravel for the first six inches of backfill to act as a barrier to burrowing animals. Soil used for structural backfill in development areas would be compacted to 90 percent of its relative maximum density as determined by ASTM Method D1557.

Clean material from the excavations would be segregated during excavation, stockpiled at the Project Site and re-used as common earth backfill. Affected soils would be temporarily stockpiled at the Northwest Operations Area and then loaded onto trucks. It is possible that if conditions allow trucks could be directly loaded at the excavation sites. Any material trucked offsite would be disposed of at an appropriate off-site landfill. It is estimated that remedial actions could generate up to 157,000 cubic yards of affected soil.

A secondary stockpile area has been identified on the south side of the Project Site as part of a staging area, adjacent to the gate on the existing paved area (see Figure 2-12). It is likely that this area would also be used to store equipment or materials. The paved area is slightly greater than one acre, and the stockpile would be limited in capacity to approximately 15,000 cubic yards. In operating a stockpile for affected soil, the Applicant would cover the stockpile or utilize other means to keep fugitive air emissions within regulatory limits.

2.3.9 Site Grading for Remediation and Pad Development

Table 2-3 shows the grading, cut, and fill from each area that would be part of the remediation and pad development for the Project. Appendix A.1 (Remedial Action Plan, Appendix C) provides the grading plans for the following areas:

Table 2-3 Area Grading and Earthwork Quantities

	Grading Area (acres)	Work Area (acres)	Estimated Affected Soil (cubic yards)	Common Fill (cubic yards)	Structural Fill (cubic yards)	Gravel (cubic yards)[c]	Topsoil (cubic yards)	Geotextile 12oz./ Geomembrane/ Geogrid (acres)
OU #1- Northwest Area	6.4	6.4	-	-	53,400	-	-	6.4/0/0
OU #2 -Reservoir 5	7.8	10.4	15,300	12,500	-	20,100	12,600	7.8/0/0
OU #2 -Reservoir 7	6.8	8.0	11,000	24,500	-	39,000	11,000	3.7/0/0
OU #3- Reservoir #4	52.6	52.6	-	-	262,800	-	-	7.9/0/0
OU #4- North Marsh Area	13.3	15.6	75,300	53,800	-	-	21,500	-
OU #4- Reservoir 3	6.9	13.3	26,700	5,100	-	10,500	11,100	20.0/6.7/6.7
OU #4 -Remaining Petroleum Expressions	5.9	3.6	28,700	19,200	-	-	9,500	-
OU #4 - Arsenic	1.0	1.3	2,675	3,300		-	1,650	-
Reservoir 2 [a]	11.9	11.9	-	-	-	-	-	-
Phase 5 Development Area	12.1	12.1	-	-	57,900	-	-	-
Access Roads	4.7	4.7	-	-	-	3,800	-	-
Nursery	2.3	2.3	-	-	-	4,300	-	-
Contactor Staging Area	4.0	4.0	-	-	-	4,300	-	-
Total	**135.7**	**146.2**	**159,675[b]**	**118,400**	**374,100**	**82,000**	**67,350**	**45.8/6.7/6.7**
Offsite Hauling With 25 percent contingency			**196,250**					

a. Grading will involve approximately 38,000 cubic yards of berm material, with the anticipation that no or minimal materials will be imported or exported relative to this activity. Some small areas of petroleum expressions within the grading boundaries will be excavated; volume is included in OU#4.

b. The 2,675 cubic yards from OU #4, Arsenic will be placed under caps onsite, leaving 157,000cubic yards of NHIS to be hauled offsite. The Applicant has requested a 25% contingency be added to this offsite hauling number to account for the uncertainties associated with estimating impacted soil volumes for remediation projects. This would increase the number to 196,250 cubic yards.

c. If needed, gravel would be imported from a commercially available gravel source in San Luis Obispo County or Santa Barbara County. Possible gravel sources include the Rocky Canyon Quarry in Atascadero, Kaiser Quarry in Santa Margarita, or the Hanson Sand and Gravel Quarry in Sisquoc near Santa Maria

Note: Borrow Site grading and earthwork quantities are provided in Table 2-2.

- Northwest Area Cap Grading Plan (OU #1);
- Reservoir 3 Grading Plan (OU #4);
- Reservoir 4 Cap and Flower Mound Grading Plan (OU #3);
- Reservoir 5 Cap Grading Plan (OU #2);
- Reservoir 7 Cap Grading Plan (OU #2); and
- Borrow Area #3.

As described in Section 2.3.8, Remediation Schedule and Section 2.5.1.2, City Development Plan Construction Phase of the Project Description, the Applicant's grading proposal is designed to encompass remediation and pre-development grading.

2.3.10 Remediation Schedule, Employee, and Traffic Details

This section estimates manpower and equipment requirements to complete the remediation activities at the Project Site. Table 2-4 shows the anticipated employees needed to complete the remediation activities. Table 2-5 shows the anticipated equipment requirements for the remediation component of the Project.

Table 2-4 Employee Requirements for Remediation

Number	Job Category
1	Project Manager
1	Construction Manager
1	Foreman
1-2	Safety Officers
6-10	Equipment Operators
10-14	Truck Drivers
4-6	Surveyors/Soils Technicians/Environmental Monitors
5-10	Laborers
29-45	**Total (plus extra truck drivers as needed)**

Table 2-5 Equipment Requirements for Remediation

Number	Equipment Type
2-3	Bulldozers
2-4	Excavators
2-4	Rubber-tired front end loaders
4-6	10-wheeled dump trucks
1-2	Vacuum truck
1	Universal processor
2-4	Sheep's foot Compactors (self-propelled)
2	Motor graders
2-4	Flatbed utility truck
1	Trucking services (as necessary)

These tables are based on working one 10-hour shift per day, Monday through Friday. Typically, construction work will be conducted Monday through Friday between the hours of 7:00 a.m. and 7:00 p.m. Work may occasionally be conducted on Saturdays between 8:00 a.m. and 5:00 p.m. if needed to achieve the remediation schedule. Also, intermittent truck loading and hauling operations may start at 6:00 a.m. if necessary to avoid morning commuter traffic.

It is anticipated that maintenance or other light duty work may be conducted outside of normal construction work hours. This work may include construction equipment maintenance, repair and transport to and from the mechanic's work area, the construction staging area or other designated work area as well as the delivery or removal of construction equipment to and from the project site. Other activities conducted outside of normal construction work hours may include personnel working in the office, botanical management at the growing facility, restoration planting, maintenance of biological protection netting and fencing or erosion control devices, etc. These activities would take place in various areas of the Project Site, and would involve personnel in passenger or all-terrain vehicles and tractors, as well as the use of hand and power tools. Some of the activities near construction areas may need to be done outside normal construction hours for safety reasons.

Truck trips would be generated off-site by the transportation of contaminated and hydrocarbon affected soils and demolition materials. Estimated total round trips and peak day trips for the remediation component of the Project are summarized in Table 2-6 (ATE 2007).

Table 2-6 Remediation Traffic Levels

Phase/Activity	Type of Vehicle	Round Trips Total	Round Trips Peak Day
Remediation			
Retaining wall steel/concrete	Truck	26	2
Reservoir 5 geotextile/gravel	Truck	1,006	20
Reservoir 7 geotextile/gravel	Truck	1,951	20
Reservoir 3 geotextile/gravel	Truck	528	20
Reservoir 4 geotextile	Truck	1	1
Demolition	Truck	2,775	46
NHIS hauling	Truck	13,125[a]	40
Import of gravel fill materials	Truck	5,467	20
Equipment Delivery	Truck	31	10
Personnel	Auto	23,400	90
Total		**45,685**	**269**
Restoration			
Employees	Auto	5,200	20
Redevelopment Construction			
Equipment Delivery	Truck	24	10
Materials Delivery	Truck	1,600	100
Employees	Auto	39,000	150
Total		**40,624**	**260**

a. The Applicant has requested a 25 percent contingency be added to this number to account for the uncertainties associated with estimating impacted soil volumes for remediation projects. This would increase the number to 13,125 round trips.

Sources: ATE 2007, Padre 2007, Padre 2009, Chevron 2007 & 2008, RAP AVOCET 2007

Total export of affected materials is estimated at 157,000 cubic yards, or approximately 10,500 truck trips (round trips). Given the uncertainty with estimating the amount of affected soil from remediation activities, the Applicant has requested that the EIR include a 25 percent contingency. This contingency would increase the total exported affected material to 196,250 cubic yards, or approximately 13,125 truck trips (round trips). Total import of fill materials is estimated to be 82,000 cubic yards, and 5,467 truck trips (round trips, with an estimated distance of 54 miles round trip). Daily workers are estimated to generate up to 90 one-way trips per day.

The Applicant's schedule indicates that grading and remediation would take 2.5 years until completion. Grading and short-term remediation would occur in advance of the development phases of the Project.

2.3.11 Long-Term Monitoring Activities

The Applicant proposes that once the caps and other short-term remedial actions have been implemented, the long-term monitoring and maintenance phase of Project Site closure would begin. Long-term monitoring is intended to ensure that those actions taken under the Project (e.g., excavations, cap construction) continue to meet their remedial objectives. This is important, in that most of the affected materials onsite would remain after remediation is complete, especially in the former reservoirs. Therefore, periodic inspection and maintenance are necessary components of remediation.

Inspection would primarily cover the engineered caps, habitat restoration and mitigation areas, and the open space caps and development caps. In general, the Applicant is proposing that inspections would occur periodically after a given remedial action is completed. The frequency of inspections is proposed to be quarterly for the first two years after construction and then as required by the RWQCB. The estimated annual round trips and peak day trips for the monitoring activities are provided in Table 2-7.

Table 2-7 Monitoring Traffic Levels

Phase/Activity	Type of Vehicle	Annual Round Trips	Round Trips Peak (Day)
Current Monitoring			
Groundwater monitoring	Auto	104	2
Bird netting	Auto	104	2
Total		**208**	**4**
Long-Term Monitoring			
Inspections	Auto	16	4
Maintenance	Truck	320	8
Total		**336**	**12**

Sources: ATE 2007, Padre 2007, Padre 2009, Chevron 2007 & 2008, RAP AVOCET 2007

Inspections would, at a minimum, focus on the following:

- Signs of erosion or burrowing by animals;
- Recurrence of or new surface expressions of plastic hydrocarbon;
- Successful revegetation;
- Integrity of fencing and other onsite institutional controls; and
- Settlement.

Most of these activities would be visual inspections by trained technicians or subject experts (e.g., wetland restoration specialists). Settlement would be measured by properly trained technicians under the supervision of a surveyor or civil engineer licensed to practice in the state of California. Settlement measurements would monitor movement in the various caps.

Inspections would look for resurfacing of plastic hydrocarbon expressions at the excavation locations, especially if material was left in place at depths greater than five feet. Inspections would also include other areas of the Project Site overlying affected soils and would look for new surface expressions. Further recurrence of a surface expression would prompt evaluation and a focused remedial action.

Over time, the caps would require maintenance. It is expected that this would be minor in nature and would include activities such as repairing drainages and maintaining vegetation. Frequent maintenance, however, would be necessary for the storm water management features in the development areas. These include the surface mulching, cleaning of siltation basins, and periodic cleaning of the culverts located at the Northwest Area.

More significant repairs would be made as needed, and would be based on observations made during the periodic inspections. This would include re-grading if low spots develop in caps for Reservoirs 5 and 7 to maintain drainage flow. Reservoir 3 will be restored as a wetland and settlement is not anticipated to require repair.

The Applicant proposes that land use covenants be prepared for the various potential subdivisions of the Project Site. This would include not only potentially developable parcels, but also the open space areas. A land use covenant is a legal document that would accompany a parcel's deed. It would be signed by representatives of the Applicant and the lead and responsible agencies (e.g., RWQCB), and would be notarized and recorded with the County Clerk/Recorder. It is intended to ensure that future owners of the properties understand what mechanisms are in place at the Project Site to protect human health and the environment, and to identify for future property owners their responsibilities in maintaining those protections.

The specifics of land use covenants for the Project Site would vary depending on which parcel is under consideration. It would, however, identify the allowed land uses and would exclude uses that would be allowed under current or future land use planning but are inappropriate for the Project Site based on the level of remediation proposed by the Applicant and the amount of contamination proposed to be left over at the Project Site. The land use covenant would list the various caps and other containment features that must be maintained. It would be accompanied by various documents, such as guidelines for vapor barriers, Landscape Restoration Plan, and Soil Management Plan that are proposed by the Applicant to be prepared for the Project Site.

The land use covenant would also restrict the use of groundwater in areas of affected soil on the Project Site. The Applicant would work with adjacent landowners to establish covenants regarding soil and groundwater on adjacent properties affected by historical Project Site activities. A draft of the covenant limiting groundwater wells would be prepared by the Applicant for review by the RWQCB. Covenants related to land use will be reviewed and agreed upon by the lead municipality once the RAP has been ratified by the RWQCB. The covenants are proposed to be finalized prior to transfer of ownership.

A conservation easement will transfer surface rights to open space property to the City, the County, or an appropriate land conservancy organization with a restrictive covenant limiting future uses. The conveyance would be made after the remediation of the open space property has been accepted by the appropriate agencies and an endowment or other funding mechanism is in place for future maintenance.

2.4 Restoration

The Applicant proposes to restore areas affected by the proposed remediation activities, improve habitat function and value, improve hydrologic function and conform to Federal Aviation Administration (FAA) guidance.

The Applicant has prepared a conceptual landscape restoration plan for the Project Site. The conceptual restoration plan was documented in the report by Padre and WSP titled "Landscape Restoration for the Chevron San Luis Obispo Tank Farm: 75% Basis of Design Report" (Padre 2009). The report presents a landscape-level design at the 75 percent level of completion for the waters/wetlands, adjacent terrestrial ecosystems (i.e., uplands), and native special status plant and animal populations affected by the proposed remediation, site development, and landscape restoration. The Applicant prepared this document to provide guidance and a foundation in developing the final restoration plan. The general concepts of that document have been used in evaluating the environmental impacts of the Project. The specific details of the final restoration plan will be developed by a working subgroup of the Applicant and agency representatives to reach consensus between conflicting priorities and incorporate mitigation measures established by the environmental analysis. The following section provides a summary of the proposed design.

The Applicant's proposed restoration design is centered on the following major activities:

- Earthwork, including mass and fine grading, installation of microtopographic features (e.g., wood structures, mounds, depressions, habitat logs);
- Planting and seeding;
- Irrigation;
- Weed control; and
- Maintenance, monitoring, and adaptive management.

Restoration construction activities are proposed to be initiated and completed over two to three dry seasons (May to November). Some restoration activities are proposed to occur year-round.

The monitoring proposed by the Applicant would require a crew of two to four people walking the Project Site to identify vegetation growth and the status of caps and various remediation projects. A crew of six to eight people working an average of 10 days per quarter would conduct periodic maintenance (e.g., weed control, plant replacement).

2.4.1 Earthwork

The earthwork includes both mass and fine grading techniques to re-create or mimic where possible natural features and transitions within the landscape. Specifically, grading would restore portions of the Project Site to natural forms and function, targeting the (re)establishment of important hydrologic processes and the partial structure of faunal habitats (e.g., landscape hydrologic connectivity and creation of smooth transitions within and among wetland classes and adjacent upland habitats). During mass grading the soil would be prepared as a planting environment, and weeds and surficial weed seed banks would be removed. Fine grading activities would include the creation of habitats for threatened and endangered plant and animal species.

Figure 2-15 shows the proposed conceptual restoration plan. The conceptual grading plans associated with the restoration are shown in Appendix A.3, pages A.3-1 through A.3-3.

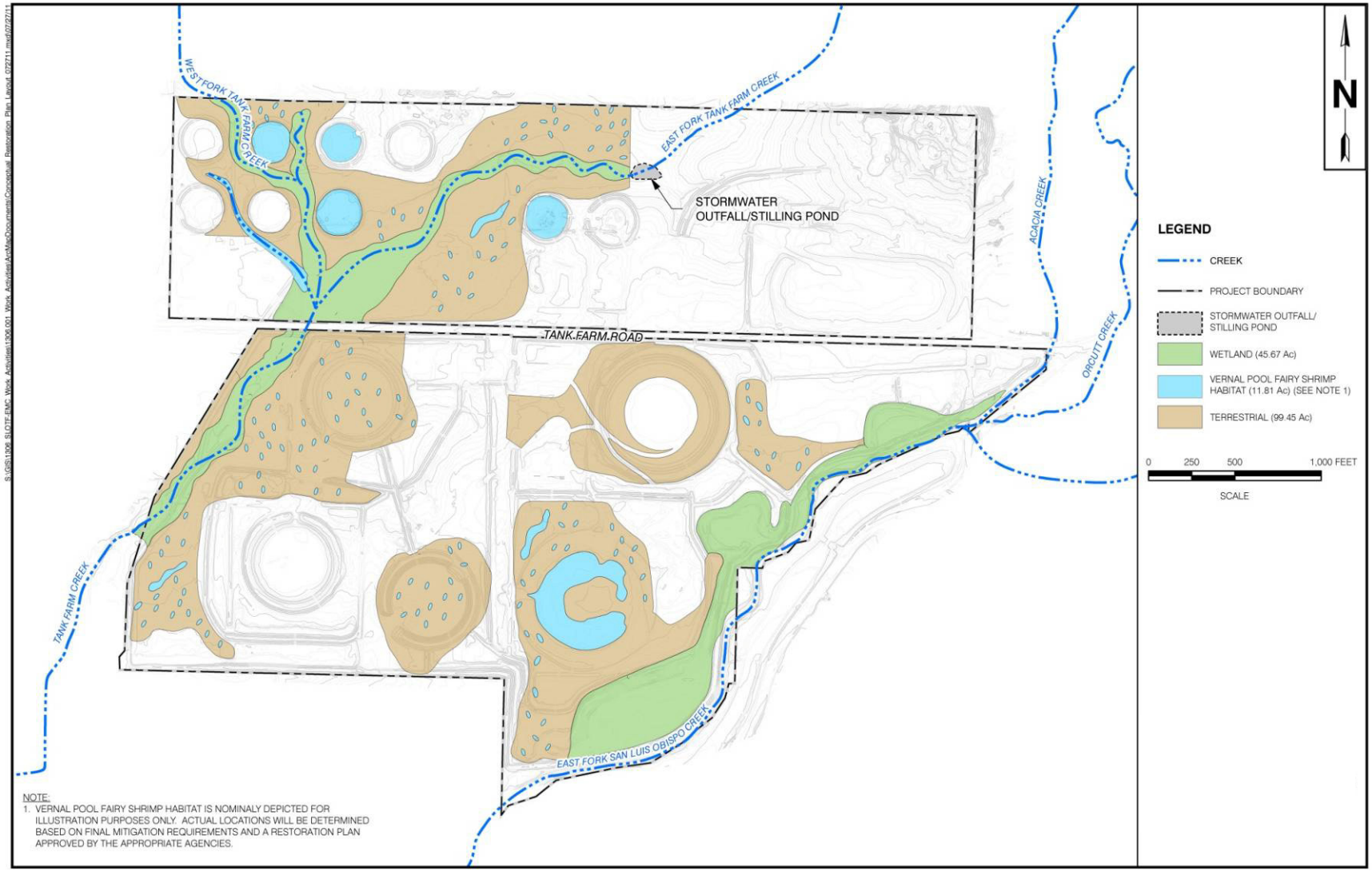
The Applicant is proposing to re-align Tank Farm Creek consistent with the City's *Waterway Management Plan* so as to improve the poor hydrologic function that results from its existing configuration. The east and west forks of Tank Farm Creek would be routed into the North Marsh. The dual round culverts that cross under Tank Farm Road would be abandoned, and a weir installed in box culverts forcing water to pond in the North Marsh, thereby reducing the magnitude of the peak flow for a given precipitation event and delaying its arrival at the site discharge point to the south.

In addition, two 12-inch diameter outlets would be bored near the bottom of the existing headwall for Tank Farm Creek to improve the flow of water south of Tank Farm Road. Boring of these two outlets would require work to occur off-site. Appendix F, Hydrology Study, contains additional information and figures showing the proposed modifications to Tank Farm Creek that would occur with the Project.

Tank Farm Creek would be relocated to follow the course of the former auxiliary channel (away from the western property line), and a low-flow outlet would be installed within the existing culvert so that it releases water in a controlled manner earlier in a storm, further reducing demand on the limited storage capacity south of Tank Farm Road.

In the southeastern portion of the site, specifically in two areas adjacent to San Luis Obispo Creek, two creek meanders have been historically cut-off from the main channel system by levee construction. However, the fundamental geometry of the meanders is intact. The Applicant proposes to remove the upstream and downstream earthen "plugs" that separate the meanders from the east fork of the San Luis Obispo Creek channel system, and thus re-engage them through grading and re-contouring of the channels based on the historical contours of the creek system and hydrological studies.

Figure 2-15 Conceptual Restoration Plan



Source: LRP Padre 2009

To protect civil structures (e.g., bridge abutments, instrument landing strip structures), grading, slope hardening with rip-rap, and installation of some log deflection structures would occur.

After mass and fine grading as discussed, and prior to planting, finish grade soils would be ripped and plowed to a depth of approximately 12 inches. The goal of the ripping and soil aerating (lofting) operation would be to decrease soil compaction, increase soil aeration porosity, and improve conditions for planting. No ripping or lofting would occur on soil surfaces intentionally compacted to encourage ponding of water (e.g., depression bottoms) or amended to encourage colonization of species of conservation concern.

After ripping and lofting of finish grades, interim sediment and erosion control systems would be installed on restoration areas. BMPs would be used including installation of rock aprons to protect high energy storm water outfall locations, degradable geotextile (e.g., coir cloth) covers on high energy or highly erosive slopes or creek meanders, lifts of sterile straw, hydroseeding with native plant mixes and tackifier, coir rolls, and sediment traps. The location of the sediment control features is shown in Appendix A.3, pages A.3-4 though A.3-7.

2.4.2 Planting and Seeding

Restoration planting would be conducted to maintain consistency with native plant community structure and composition at the site. A native plant nursery would be established to provide planting stock suited to the restoration site and to better control planting schedules and logistics. Seed collecting would be conducted on-site, and off-site, as necessary, to assist in re-establishment of locally adapted native plants. Planting may be conducted in phases to allow shade-tolerant species to be installed after initial plantings have been conducted in certain plant communities (e.g., tree and shrub layer development).

2.4.3 Irrigation

Irrigation systems would be installed at the nursery area, once established on-site, to ensure appropriate irrigation of container plants. Planting would be conducted in the fall, as feasible, to allow for, watering, from rainfall. Irrigation systems may be installed in other specific areas to ensure appropriate moisture levels.

2.4.4 Weed Control

Weed control efforts are proposed by the Applicant, to be adapted as needed, using an integrated program that includes initial clearing, grubbing and stripping, mowing, hand weeding, weed-whacking, re-planting or inter-planting additional plants, and use of herbicides, as necessary. Weed control would be conducted within restoration areas as part of the construction, monitoring, maintenance, and adaptive management activities until restoration performance criteria are met.

2.5 Development Options

Subsequent to completion of the remediation component of the Project, the Applicant proposes to develop the Project Site consistent with existing plans and proposed amendments to land use plans for the area (e.g., AASP, Airport Land Use Plan (ALUP), and County General Plan). Two development proposals are being considered concurrently; a City Development Plan and a County Development Plan. One or the other would be implemented depending on whether the Project Site is annexed by the City or if it remains within County jurisdiction. Each of the two development plans are discussed below.

2.5.1 City Development Plan

At present, the Project Site is located within the unincorporated County. It has been proposed, however, that the Project Site be annexed into the City as part of the AASP. As part of the Project, AASP amendments are proposed to relocate some of the anticipated development in order to avoid high value ecological areas.

The City Development Plan proposes development of the Project Site with approximately 803,000 square feet of commercial and industrial floor area with associated parking, landscaping, open space, recreational playing fields, bicycle and pedestrian trails. The City Development Plan could also include land for the City to construct public facilities such as a transit maintenance yard and storage facility or a fire station and training facility.

The development would be phased over a 25-year period, and implemented in five phases, with each phase lasting five years. The Project Site would carry the City Land Use Zoning designations of Business Park (BP-SP), Service-Commercial (C-S-SP) (which includes repair and maintenance services, and light manufacturing), Public Facilities (P-F), and Conservation Open Space (C/OS-SP).

2.5.1.1 City Development Plan Overview

Although the Project Site is presently within the unincorporated County, it also lies within the City's sphere of influence. The Project Site is designated for annexation to the City in accordance with the City's AASP, dated August 2005. The central focus of the City's AASP is to restore and remediate the 332-acre Project Site (approximately one-third of the Airport Area) to include a permanent ecological preserve and facilitate new development, renovation, and redevelopment of existing development in the planning area. The AASP provides additional guidance and planning for the area surrounding and including the Project Site; and complements the adjacent Margarita Area Specific Plan, which addresses the area immediately north of the Project Site.

Figure 2-16 shows the zoning for the Project Site under the current AASP. Figures 2-17 and 2-18 show the proposed City Development Plan and the proposed zoning for the Project Site under the City Development Plan.

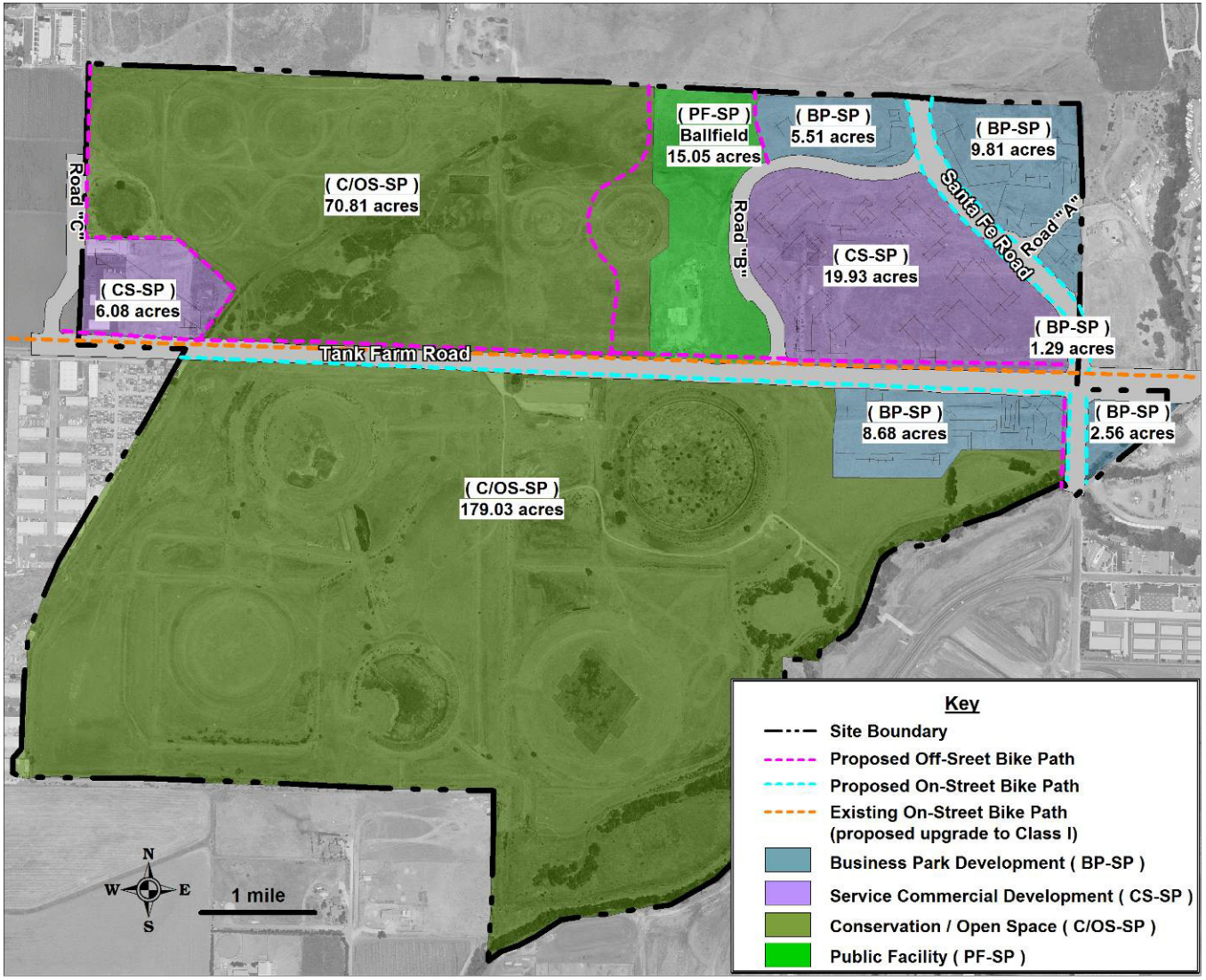
Figure 2-16 Project Site Zoning Designations under the Existing City AASP

Note: Figure reflects zoning and proposed roadways as depicted in the AASP.
Source: PEP Chevron 2007; MRS 2012

Figure 2-17 Proposed City Development Plan

Source: PEP Chevron 2007

Figure 2-18 Project Site Zoning Designations under the City Development Plan - Proposed Zoning Designations and Bike Paths



Source: Modified from Chevron 12/10/2009 Bike path Plan by RRM; MRS 2012

Figure 2-18 shows the proposed zoning for the Project Site under the City Development Plan. The proposed land uses under the City Development Plan include 27.85 acres of Business Park development, 26.01 acres of Service-Commercial development, 15.05 acres of Public Facilities intended for recreational ball fields, 13.62 acres of public Right-of-Way (e.g., streets), and the approximately 250-acre balance as Conservation/Open Space (see Figure 2-17).

The Applicant proposes amendments to the AASP to incorporate changes that have resulted from more recent information uncovered as part of recent studies conducted for the Project since the AASP was adopted, and to accommodate the Project as proposed.

As compared with the AASP, the Applicant-proposed City Development Plan trades approximately nine acres of developable area in the northwest portion of the Project Site and on the west edge of the area south of Tank Farm Road for 16 acres in the northeast portion of the Project Site (refer to Figures 2-16 and 2-18).

The City Development Plan proposes the following zoning designations:

- Business Park (BP-SP): 27.85 acres with approximately 433,000 square feet of floor space for business park land, located at the northeastern portion the Project Site. Access would be from the proposed extension of Santa Fe Road. It is envisioned that this area would be developed with a campus-like business park.

- Service-Commercial (C-S-SP): 26.01 acres with approximately 370,000 square feet for Service-Commercial uses located mostly within the Tank Farm Road Corridor. Access to the western Service and Manufacturing areas would be from Tank Farm Road. Services and Manufacturing uses to the east would be accessed from Tank Farm Road, Santa Fe Road, and a new local road.

- Conservation/Open Space (C/OS-SP): 249.84 acres designated as Conservation/Open Space on both sides of Tank Farm Road that would serve as Airport Reserve Spaces. The Applicant has proposed off-street bike trails in the open space areas (see Figure 2-18). The Applicant has not proposed any public trails within the open space areas south of Tank Farm Road. At some point in the future the Applicant may dedicate the open space land to a municipality or non-governmental organization (NGO).

- Public Facilities (PF-SP): 15.05 acres located immediately west of the 26-acre area proposed for Service-Commercial may be used as active sports fields or other public use.

Approximately 12.5 acres would be used for streets, sidewalks, and other frontage improvements, including about six acres dedicated to the widening of Tank Farm Road. The "Unocal Collector" street is proposed to be eliminated due to environmental constraints. The right-of-way areas would also include bike lanes on both sides of Tank Farm Road and along Santa Fe Road north of Tank Farm Road as well as bike paths within the proposed development some of which are in different locations than called for in the AASP. The road improvements include ingress and egress improvements into the proposed development, widening of Tank Farm Road to a 100-foot right-of-way with a landscaped median restricting left turn movements, and providing sidewalks, curbs, and gutters.

A DA has been proposed by the Applicant to address the applicable fees and development conditions for the life of the Project and to extend tentative map approval out to 25 years based on the Applicant-proposed phasing.

The City would provide water, sewer, and public services such as police and fire. The City recently installed a sewer trunk line in Tank Farm Road along the property's frontage (July 2009). The Applicant would extend the potable and recycled water mains and utilities to the developable areas as well as relocate electrical and telecommunication lines in the area

Table 2-8 summarizes the key aspects of the proposed City Development Plan.

Table 2-8 City Development Plan Summary

Zoning Designation	City Development Plan
Business Park	27.85 acres 10 lots 433,000ft^2 of building space
Service-Commercial	26.01 acres 6 lots 370,000 ft^2 of building space
Conservation/Open Space	249.84 acres for Airport Reserve Space
Public Facilities/Recreation	15.05 acres for recreation and City facilities.
Remaining Acreage	
Right-of-Way	13.62 acres with 6.06 acres for Tank Farm Road widening.

The Applicant has not proposed specific land uses for the various zoning designations since the Project would be built over a 25-year period. Economic and market forces would drive the type of land uses that could be built in each the zoning designations.

The AASP provides a list allowable land uses for each of zoning designations. In addition, the ALUP provides guidance on what types of land uses are allowed within each airport safety zone. As part of the EIR process the City, County, and Applicant developed a possible list of land uses that could be developed on the site taking into account the allowable land uses specified in the AASP and ALUP. Table 2-9 provides the list of possible land uses for each zoning designation.

The land uses were selected to represent a wide range of possible uses that would generate a reasonable worst-case level of traffic and other issue area impacts. Since the tenants have not yet been established, there is potential variation on the types and size of each of these uses. However, the parameters provided in Table 2-9 are anticipated to encompass most development scenarios. The land uses have been selected as conservative estimates and are likely the most intensive uses for the Project Site in order to evaluate a scenario that produces the highest level of impact for analysis in this EIR.

Table 2-9 Possible Development Land Use Mix- City Development Option

Zoning Designation	Possible Land Use	Square Footage
Business Park	Business Park (Offices)	348,000
	Printing and Publishing	10,000
	Hotel (115 rooms)	70,000
	Specialized Education /Training Facility	5,000
Service-Commercial	Light Manufacturing	170,000
	Industrial Research and Development	50,000
	General Retail	15,000
	Vehicle Services Repair and Maintenance -Major	20,000
	Veterinary Clinic/Hospital, Boarding, Large Animals	5,000
	Photo and Film Processing Lab	10,000
	Warehousing, Indoor Storage	50,000
	Wholesaling and Distribution	50,000
Public-Facility	Recreational Fields	15 acres

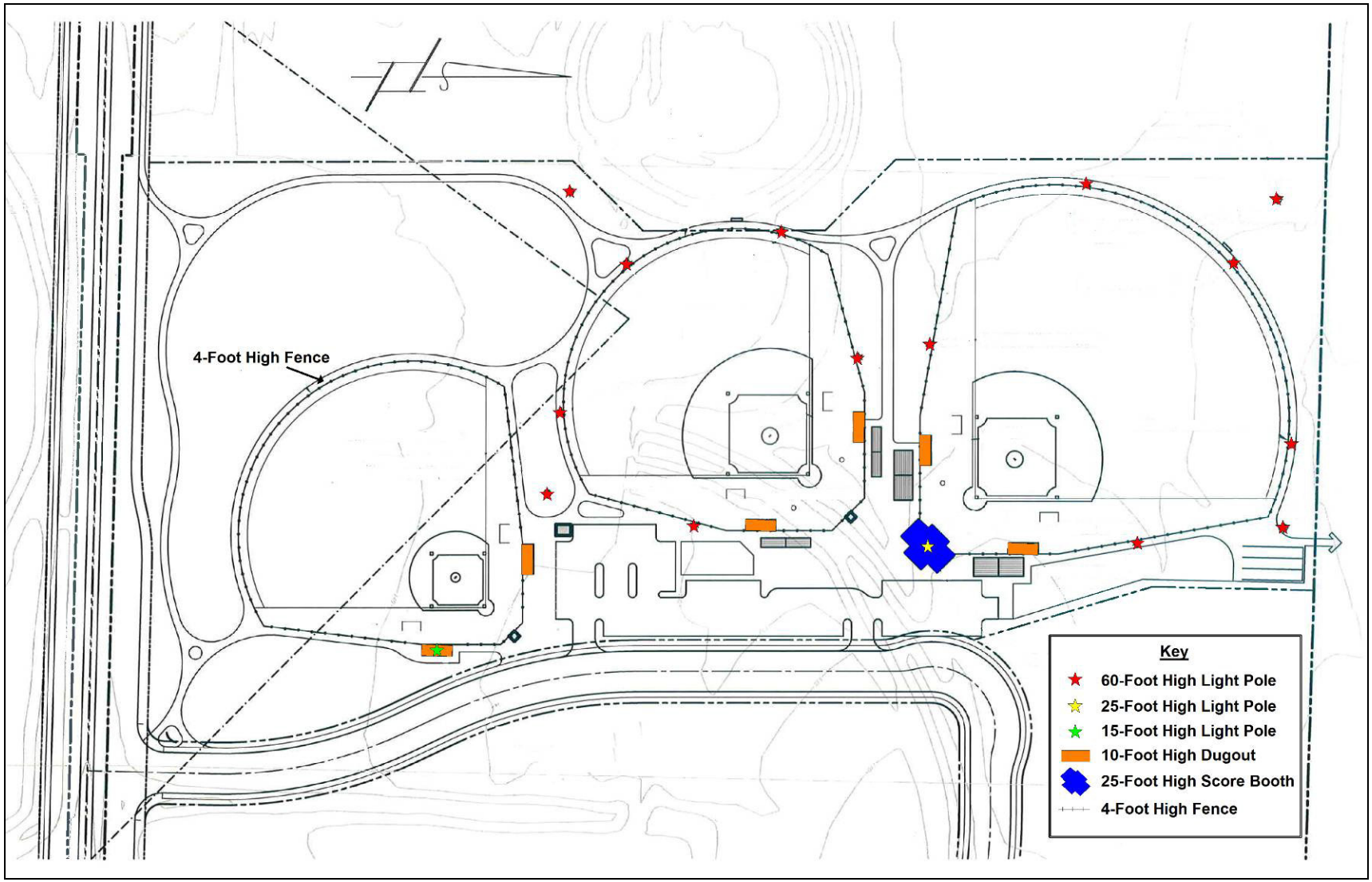
Baseball Fields

A conceptual site plan prepared by the Cal Ripken Baseball Association has been submitted to the Applicant for the development of baseball fields and associated facilities on the Project Site. The fields would be located on the north side of Tank Farm Road (see Figure 2-18). Figure 2-19 shows a possible site plan for the baseball fields. The proposed ballfield project area would be rezoned as a part of the Project with implementation to be completed by the Cal Ripken Baseball Association at a future date.

The Applicant's involvement with the Cal Ripken project is limited to donation of the property. The area would be comprised of up to three baseball fields and amenities that may include the following characteristics:

- A 3.39 acre championship baseball field with sports lighting, scoreboard, built-in terrace seating, and bleachers;
- A 2.40 acre baseball field with lighting, scoreboard, bleachers, and scorekeepers booth;
- A 2.48 acre flexible-use field (Baseball and Softball) with scoreboard, bleachers, and scorekeepers booth;
- Batting cages totaling 3,500 square feet;
- Restrooms, a plaza, and a playground totaling 17,000 square feet;
- Parking area totaling 45,000 square feet; and
- Open grass areas for team warm-up, general use, picnic tables, and benches totaling 5.43 acres.

Figure 2-19 Possible Sports Fields Configuration



Source: Cal Ripken Baseball; MRS

Roadway Improvements

Improvements and modifications would be made to existing roadways in the Project area. Also, new roads would be installed and associated tie-ins to existing roadways infrastructure would occur. Detailed drawings associated with these portions of the Project are provided in Appendix A.3, pages A.3-10 through A.3-12. A summary of the various road improvements are discussed below.

Tank Farm Road is proposed to be reconstructed including the following elements:

- Widen road to four lanes from Acacia Creek in the east to the western boundary of the property;
- Construct a 14-foot wide landscaped median;
- Underground existing power lines adjacent to the project development frontage;
- Installation of on-street bike lanes on both sides of roadway from Santa Fe Road to western Business Park land use area;
- Construct a twelve-foot wide multi-use pathway/bikeway on the north side of the road from Santa Fe Road to the western Business Park land use area; and,
- Install culverts and improvements to drainage systems.

Appendix A.3, pages A.3-10 though A.3-12, provides detailed drawings showing the proposed improvements to Tank Farm Road.

Santa Fe Road south of Tank Farm Road currently is a two-lane road ending at Tank Farm Road with a stop sign. Santa Fe Road, south of Tank Farm Road, would be re-aligned and tied into Tank Farm Road and include the following elements:

- The re-aligned segment of Santa Fe Road from the east fork of San Luis Obispo Creek north to Tank Farm Road would be four lanes wide with sidewalks on both sides;
- A traffic signal would be installed at the intersection of Santa Fe Road and Tank Farm Road;
- An arched culvert would be constructed over the east fork of San Luis Obispo Creek;
- A multi-use off-street bike path would be constructed along the west side of Santa Fe Road realignment; and
- An on-street bike path would be installed on both sides of Santa Fe Road.

Appendix A.3, pages A.3-11 though A.3-12, provides detailed drawings showing the proposed improvements to Santa Fe Road.

New roads would be constructed north of Tank Farm Road, including:

- A one-quarter mile extension of Santa Fe Road continuing north of Tank Farm Road as a four lane road with on-street bike lanes on each side and a 14-foot landscaped median;
- Construction of the two lane “A” Road north of Tank Farm Road off of Santa Fe Road (approximately 300 feet long); and
- Construction of a 0.3-mile two lane “B” Road that intersects with Tank Farm Road west of the Santa Fe intersection curving east to intersect with the new Santa Fe Road.

Appendix A.3, page A.3-11, provides detailed drawings showing the proposed new roads to be constructed north of Tank Farm Road.

2.5.1.2 City Development Plan – Construction Phase

Construction is proposed to take place in five phases, with each phase lasting approximately five years, for a total duration of 25 years. Development phases would begin once the remediation component of the Project is completed. Figure 2-20 shows the location of the preliminary phases; however, the order in which these phases are developed and the timing of their development may be altered as the result of future market conditions and demand.

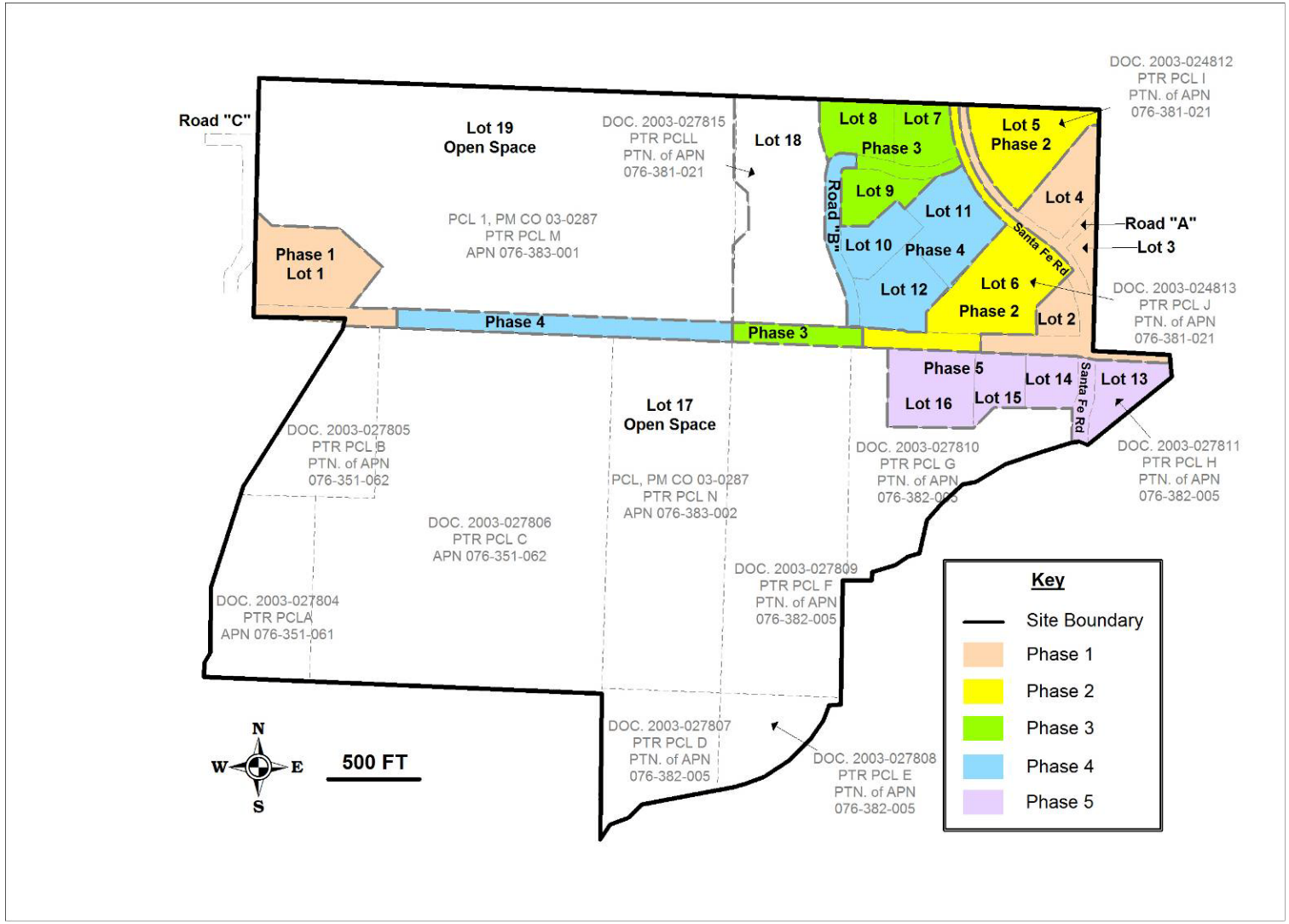
Build-out of the City Development Plan would involve finish grading followed by construction of commercial, industrial, retail and recreational structures. The most intense activity would be generated during the initial phases of site preparation when large areas of soil would be disturbed and many large construction vehicles would be operating.

Site grading would be completed during the remediation phase and minimal site grading would need to be conducted with each phase of development. An estimated 1,600 truck trips (round trips) for each phase would be required to deliver materials and equipment to the Project Site. A total of 150 construction workers would be associated with each phase. Table 2-10 summarizes the necessary construction equipment for the development component of the Project.

Table 2-10 Development Construction Equipment (per phase)

Equipment Type	Number Required
Scrapers	3
Dozers	2
Loader	2
Excavator	1
Grader	1
Water truck	1
Pavers	3
Rollers	2
Forklifts	3
Backhoes	3
Crane	1
Generator set	1
Welder	1

Figure 2-20 City Development Option Phasing



Source: Chevron 2005

2.5.1.3 City Development Plan – Operational Phase

Once the City Development Plan is completely built-out, there would be an increase in traffic associated with the development and an increase in water use. Table 2-11 shows the traffic levels generated by each phase of the Project. Table 2-12 shows the estimated water use and the traffic generated at Project build-out in an estimated 25 years.

The traffic levels in the tables are based on the land uses associated with each phase and corresponding trip generation rates. Traffic levels are estimated based on the Institute of Traffic Engineers Trip Generation Manual, 8th Edition. Water use rates in Table 2-12 are based on water use factors provided by the City Utilities Department.

Table 2-11 City Development Plan Traffic Generation by Phase

Phase	Weekday Average Daily OW Trips per Phase	Weekend Average Daily OW Trips per Phase	Weekday Average Daily OW Trips Cumulative	Weekend Average Daily OW Trips Cumulative
1	1,828	1,859	1,828	1,859
2	1,874	586	3,701	2,446
3	1,268	647	4,969	3,093
4	686	248	5,655	3,341
5	2,302	895	7,957	4,236

Source: Traffic generated by phase is based on the acres developed for each phase shown in the Figure 2-20 phase maps and the use factors shown in Table 2-10. OW refers to one-way trips.

2.5.2 County Development Plan

The County Development Plan is similar to the City Development Plan with the primary difference being that the County Development Plan proposes more rapid (Phase 1) development of the eastern end of the Project Site (south of Tank Farm Road), where approximately one acre of land designated as Industrial, would be used to construct an on-site wastewater treatment facility. Figure 2-21 shows the existing County zoning designations and Figure 2-22 shows the proposed Project's zoning designations for the County Development Plan.

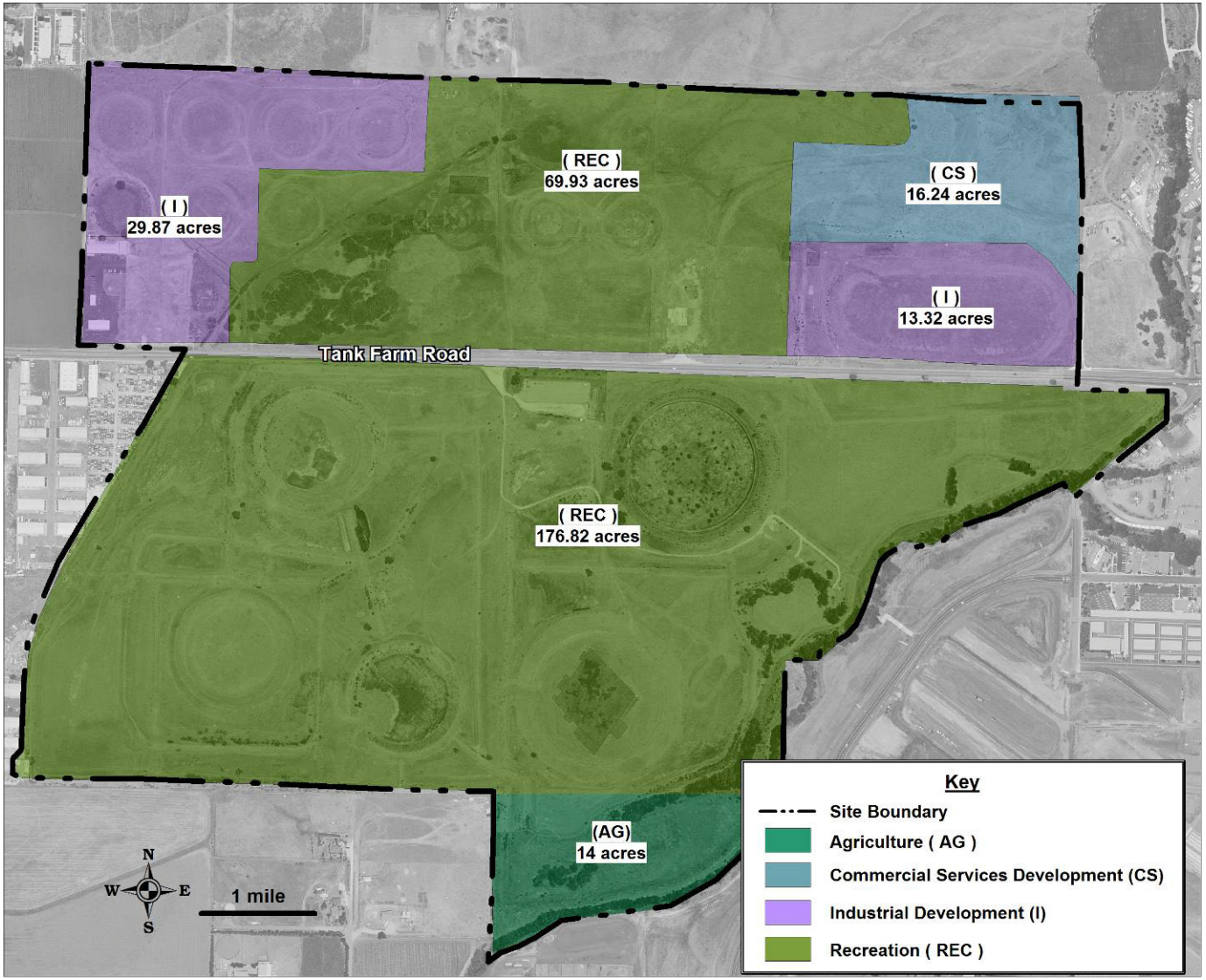
Table 2-12 City Development Plan Possible Build-Out – Water Use and Traffic

Type	Floor Area (square feet)	Water Use Factor (per 1,000 square feet)	Water Use (acre feet/ year)	Weekday Trip Generation (per 1,000 square feet)	Weekend Trip Generation (per 1,000 square feet)	Weekday Average Daily OW Trips	Weekend Average Daily OW Trips
Light Manufacturing	170,000	0.071	12.1	3.82	1.49	649	253
Industrial Research and Development	50,000	0.1	5.0	6.96	2.49	348	125
Business Park (Offices)	348,000	0.066	23.0	11.42	1.64	3,974	571
General Retail	15,000	0.008	0.1	42.94	49.97	644	750
Vehicle Services Repair and Maintenance -Major	20,000	0.03	0.6	31.60	15.86	632	317
Veterinary Clinic/Hospital, Boarding, Large Animals	5,000	0.2	1.0	44.00	88.00	220	440
Photo and Film Processing Lab	10,000	0.071	0.7	6.97	1.32	70	13
Printing and Publishing	10,000	0.071	0.7	6.97	1.32	70	13
Warehousing, Indoor Storage	50,000	0.029	1.5	2.50	2.33	125	117
Wholesaling and Distribution	50,000	0.029	1.5	6.97	1.32	349	66
Hotel (115 rooms)	70,000	0.43	49.5	8.17	8.19	572	573
Specialized Adult Education /Training Facility	5,000	0.066	0.3	24.00	8.00	120	40
Public Transit Maintenance and Storage Facility[a]	10,000	0.023	0.2	4.49	1.13	45	11
Public Fire Station and Training Facility[a]	5,000	0.064	0.3	16.00	16.00	80	80
Recreational Fields (15 acres)	--	1.4 per acre	21.0	4.00	57.80	60	867
Total	**818,000**		**117.4**			**7,957**	**4,236**

a. The Public Transit Maintenance and Storage and Public Fire Station/Training Facilities would be built by the City on land provided by the Applicant. The Applicant's development would be 803,000 square feet.

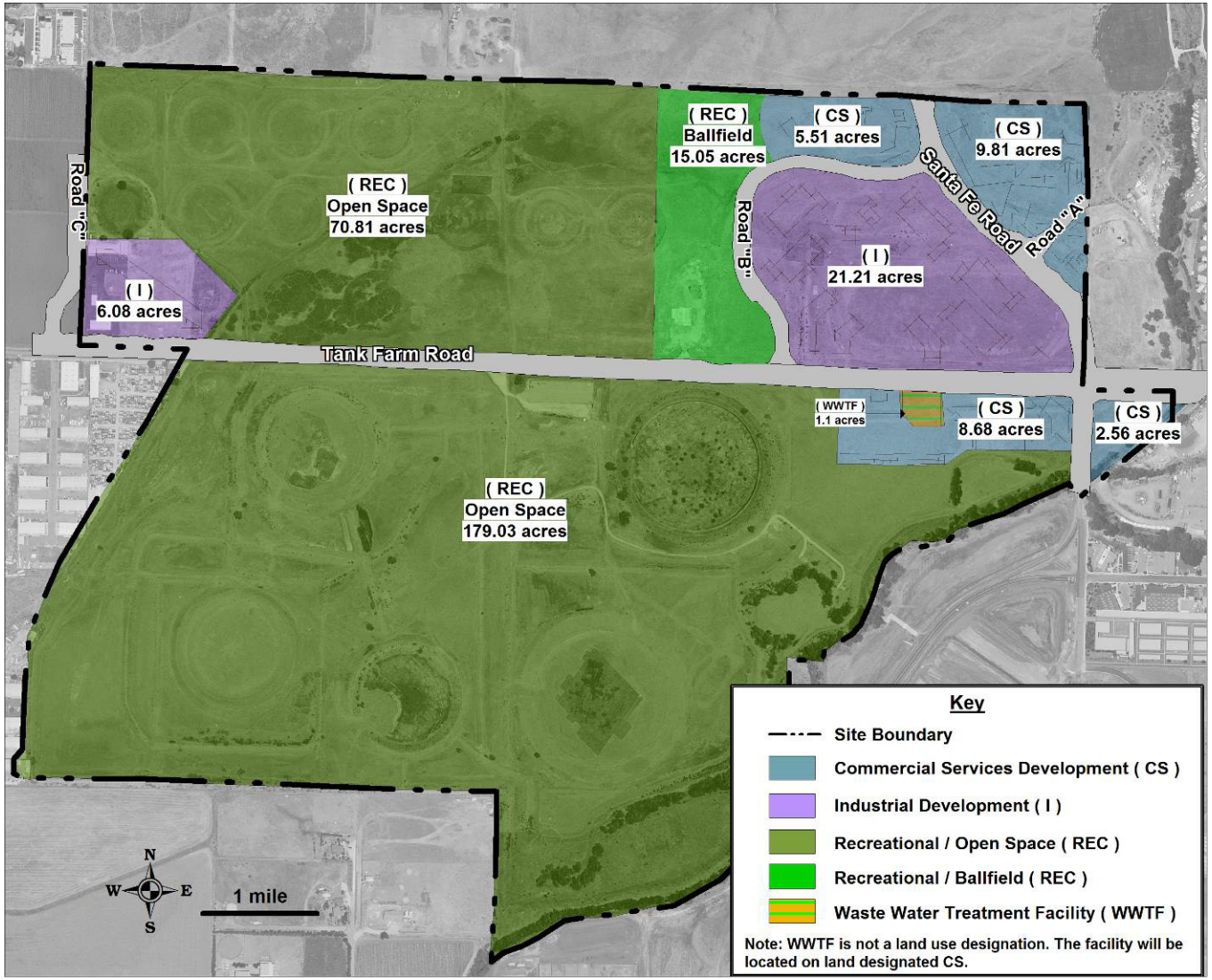
Source: Water Use Factors based on the City Utilities Department.
Trip Generation Rates from ITE 8th Edition except Specialized Education from San Diego Association of Governments Rates (SANDAG), Transit Maintenance & Fire Station.
Public Transit Maintenance based upon LA County Metro Analysis for Division 13, 2008.
Fire Station and Training Facility based upon anticipated high usage day.

Figure 2-21 Existing County Land Use Designations



Source: Chevron 2007; MRS 2012

Figure 2-22 Proposed County Land Use Designations



Source: Chevron 2007; MRS 2012

The Applicant's goal under the County Development Plan would be to develop a portion of the Project Site with an approximate 803,000 square feet (floor area) for commercial and industrial services with associated parking, landscaping, open space, bicycle and pedestrian trails, and amenities (the same amount as the City Plan). Areas of development would be executed in five phases over a period of 25 years with each phase developing approximately 160,000 square feet of leasable floor area and taking five years to build-out.

The County Development Plan would include zoning designations of Commercial Service (CS), Industrial (I), and Recreational (REC). The County Development Plan proposes transferring the development potential of the Industrial-zoned land identified in the County General Plan (north of the Northwest Operations Area) to the northeastern portion of the Project Site.

2.5.2.1 County Development Plan Overview

The County General Plan identifies development on portions of the Project Site. Possible development areas under the County General Plan are situated on the east and west ends of the northern portion of the Project Site, north of Tank Farm Road. Figures 2-21 and 2-22 show the current County land uses for the Project Site and the proposed land uses under the County Development Plan respectively.

The County Development Plan proposes the following land use designations:

- Commercial Service (CS): 26.56 acres with approximately 433,000 square feet of floor space located at the northeastern portion the Project Site. Access would be from the proposed extension of Santa Fe Road. The Waste Water Treatment Facility (WWTF) would be located on property with this land use designation south of Tank Farm Road.

- Industrial (I): 27.29 acres with approximately 370,000 square feet for Industrial uses located mostly within the Tank Farm Road Corridor, and to the north of Tank Farm Road on the eastern side of the Project Site. Access to the western Industrial area would be from Tank Farm Road. Industrial uses to the east would be accessed from Tank Farm Road, Santa Fe Road, and a new local road.

- Recreation (REC): 249.84 acres on both sides of Tank Farm Road that would serve as open space, while 15.05 acres are proposed to be used as active sports fields. The Applicant has proposed off-street bike trails in the open space areas (see Figure 2-18). The Applicant has not proposed any public trails within the open space areas south of Tank Farm Road. At some point in the future the Applicant may dedicate the open space land to a municipality or NGO.

The County Development Plan would require an amendment to the AASP by the City, an amendment of the County General Plan, a subdivision of existing parcels, and a Conditional Use Permit. The road improvements include ingress and egress improvements into the Project Site, improve Tank Farm Road to a 100-foot right-of-way, and provide sidewalks, curbs, and gutters. Details on road improvements are the same as those described under the City Development Plan in Section 2.5.1.1.

The County Development Plan includes the construction of a wastewater treatment facility, and on-site wells to provide sewer and water, respectively, to the development of the Project Site. The location of the proposed wastewater treatment facility is shown in Figure 2-22. The proposed wastewater treatment design considered numerous effluent disposal options, including leach fields, spray fields, constructed wetlands, polishing wetlands and live stream discharge. The wastewater treatment and disposal feasibility assessment (Appendix A.2) analyzed each option and determined that the two viable effluent disposal options were polishing wetlands and live stream discharge to the east fork of San Luis Obispo Creek. With the polishing wetland land option, the wetlands would be placed in a portion of the proposed baseball fields, which would reduce the size of the baseball fields by approximately two acres (from 15 acres to 13 acres) in the County development option. For the purposes of the EIR analysis, it has been assumed the baseball fields would be 15 acres, since this would represent a reasonable worst-case analysis.

The Project would include approximately 14 acres for streets, sidewalks, bike lanes and other frontage improvements. Bike lanes would be the same as shown in the City Development Plan (see Figure 2-18). CALFIRE would provide fire protection services, the County Sheriff would provide police services, and existing area service providers would provide utilities. The Cal Ripken baseball proposal, described with the City Development Plan, would most likely be similar to that proposed for the County Development Plan.

Table 2-13 provides a summary of the key aspects of the County Development Plan.

Table 2-13 County Development Plan Summary

Land Use Designation	County Development Plan
Commercial Service	26.56 acres 8 lots 433,000ft^2 of building space wastewater treatment facility water well
Industrial	27.29 acres 5 lots 370,000 ft^2 of building space
Recreation	249.84 acres of open space. 15.05 acres as active sports fields.
Remaining Acreage	
Right-of-Way	13.63 acres with 6.06 acres for Tank Farm Road widening

Source: Chevron 2007

The Applicant has not proposed specific land uses for the various zoning designations since the Project would be built over a 25-year period. Economic and market forces would drive the type of development that could be built in each of the land use designations. The County Zoning Ordinance provides a list allowable uses for each of the zoning classifications. In addition, the ALUP provides guidance on what types of land uses are allowed within each airport safety zone. As part of the EIR process the City, County, and Applicant developed a possible list of uses that could be developed on the site taking into account the allowable land uses specified in the County Land Use Ordinances and ALUP. Table 2-14 provides the list of possible land uses for each zoning designation.

Table 2-14 Possible Development Land Use Mix- County Development Option

Land Use Designation	Possible Zoning	Square Footage
Commercial Service	Business Park (Offices)	348,000
	General Retail	15,000
	Hotel (115 rooms)	70,000
	Wastewater Treatment Facility	1 acre
Industrial	Light Manufacturing	170,000
	Industrial Research and Development	50,000
	Vehicle Services Repair and Maintenance -Major	20,000
	Veterinary Clinic/Hospital, Boarding, Large Animals	5,000
	Photo and Film Processing Lab	10,000
	Printing and Publishing	10,000
	Warehousing, Indoor Storage	50,000
	Wholesaling and Distribution	50,000
	Specialized Education/Training Facility	5,000
Recreation	Recreational Fields	15 acres

Possible land uses developed as part of the EIR process.

The land uses were selected to represent a wide range of possible uses that would generate a reasonable worst case level of traffic and other issue area impacts. Since the tenants have not yet been established, there is a potential variation on types and size of each of these uses. However, the parameters provided in Table 2-14 are anticipated to encompass most development scenarios. The land uses have been selected as conservative estimates and are likely the most intensive uses for the Project Site in order to evaluate a scenario that produces the highest level of impact for analysis in this EIR.

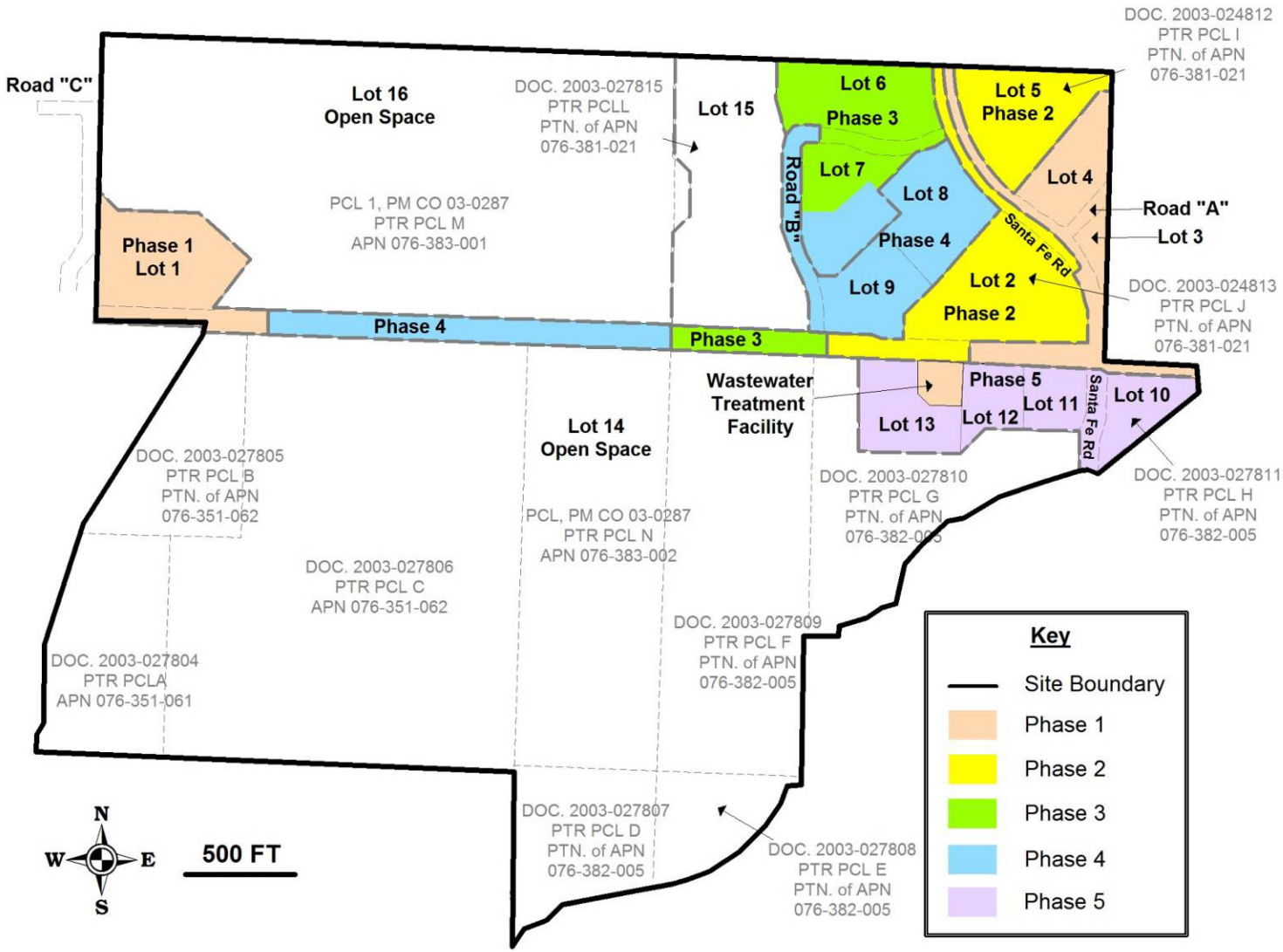
2.5.2.2 County Development Plan – Construction Phase

Project Site construction would require the same level of effort as the City Development Plan with the exception of construction of the WWTF, which would occur within a 1.1 acre area just south of Tank Farm Road. Phasing would be similar to the City Development Plan except that a small section of the eastern area of the Project Site would be developed in Phase 2, rather than in Phase 1. Figure 2-23 shows the County Development Plan phases. An on-site water system is also part of the County Development Plan.

Build-out under the County Development Plan would involve finish grading followed by construction of commercial, industrial, retail, and recreational structures.

The Applicant estimates that construction of each phase would take five years. Site grading would be achieved during the remediation component of the Project and only minimal site grading would need to be conducted with each phase of construction. An estimated 1,600 truck trips (round trips) for each phase would be required to deliver materials and equipment to the Project Site. A total of 150 construction workers would be associated with each phase. A summary of the necessary construction equipment for the development component of the Project is provided in Table 2-10.

Figure 2-23 County Development Option Phasing



Source: Chevron 2005

2.5.2.3 County Development Plan – Operational Phase

The County Development Plan operation phase would be similar to the City option, with some additional traffic due to operation and maintenance of the WWTF. Table 2-15 shows the traffic levels generated by each phase of the Project. The traffic levels are based on the land uses associated with each phase and corresponding trip generation rates.

Table 2-15 County Development Plan Traffic Generation by Phase

Phase	Weekday Average Daily OW[a] Trips per Phase	Weekend Average Daily OW Trips, per Phase	Weekday Average Daily OW Trips Cumulative	Weekend Average Daily OW Trips, Cumulative
1	1,669	1,614	1,669	1,614
2	1,964	611	3,633	2,225
3	1,426	698	5,059	2,923
4	530	189	5,589	3,112
5	2,254	815	7,843	3,927

a. OW refers to one-way trips.

Table 2-16 summarizes the traffic and water requirements associated with build-out under the County Development Plan.

The Applicant indicates that cattle grazing may continue in open space areas of the Project Site. It is expected that cattle grazing would be limited to grassland areas and excluded from upland and wetland restoration areas. Specific requirements for continued cattle grazing would be coordinated with the CDFW, the RWQCB, the County's Agricultural Commissioner's Office, and the USFWS.

2.6 Project Permitting Requirements

2.6.1 City Development Plan

2.6.1.1 Airport Area Specific Plan Amendment

The Project Site is located within the City's AASP, which has been identified for future annexation by the City. In October 2004, the City adopted the AASP and associated Final EIR. The City's AASP establishes the framework for developing these properties and contains goals, policies, and standards for land uses, circulation, public service and facilities, and utilities. The AASP EIR established measures to mitigate impacts.

Approval of the Project would require concurrent or subsequent amendment of the City's AASP for which the City is the lead agency. The proposed land use amendments trade acreage on the west side, for additional acreage on the east that would utilize the infrastructure accompanying extension of Santa Fe Road and widening of Tank Farm Road.

Table 2-16 County Development Plan Possible Build-Out – Water Use and Traffic

Type	Floor Area (square feet)	Water Use Factor (per 1,000 square feet)	Water Use (acre feet/ year)	Weekday Trip Generation (per 1,000 square feet)	Weekend Trip Generation (per 1,000 square feet)	Weekday Average Daily OW Trips	Weekend Average Daily OW Trips
Light Manufacturing	170,000	0.071	12.1	3.82	1.49	649.4	253.3
Industrial Research and Development	50,000	0.1	5.0	6.96	2.49	348.0	124.5
Business Park (Offices)	348,000	0.066	23.0	11.42	1.64	3,974.2	570.7
General Retail	15,000	0.008	0.1	42.94	49.97	644.1	749.6
Vehicle Services Repair and Maintenance –Major	20,000	0.03	0.6	31.60	15.86	632.0	317.2
Veterinary Clinic/Hospital, Boarding, Large Animals	5,000	0.2	1.0	44.00	88.00	220.0	440.0
Photo and Film Processing Lab	10,000	0.071	0.7	6.97	1.32	69.7	13.2
Printing and Publishing	10,000	0.071	0.7	6.97	1.32	69.7	13.2
Warehousing, Indoor Storage	50,000	0.029	1.5	2.50	2.33	125.0	116.5
Wholesaling and Distribution	50,000	0.029	1.5	6.97	1.32	348.5	66.0
Hotel (115 room)	70,000	0.43	49.5	8.17	8.19	571.9	573.3
Specialized Adult Education /Training Facility	5,000	0.066	0.3	24.00	8.00	120.0	40.0
Water Treatment Facility (1 acre)	--	1.4 per acre	2.8	6.75	3.38	27.0	13.5
Recreational Fields (15 acres)	--	1.4 per acre	21.0	4.00	57.80	44.0	635.8
Total	**803,000**		**119.7**			**7,843**	**3,927**

Source: Water Use Factors based on City of SLO Utilities Department.
Trip Generation Rates from ITE 8th Edition except Specialized Education from San Diego Association of Governments Rates (SANDAG), Transit Maintenance & Fire Station.
Public Transit Maintenance based upon LA County Metro Analysis for Division 13, 2008.
Fire Station and Training Facility based upon anticipated high usage day.

The City's AASP, specific to the Project Site, designates 51 acres for Service-Commercial, three acres for Business Park, 278 acres in Conservation/Open Space, and the remaining acreage used for streets or public right-of-way.

The Project includes AASP amendments for the Project Site that would result in 26 acres of Service-Commercial, 27 acres of Business Park, 15 acres of Public Facility, and 250 acres designated as Conservation/Open Space. Remaining acreage would be used for public right-of-way. Table 2-17 compares existing and proposed land uses for the Project Site.

Table 2-17 San Luis Obispo City Development Plan Comparison of Existing AASP and Proposed Land Uses and Acreage for the Project Site

Land Use Designation	Land Area			
	Existing AASP Acres	%	Proposed Acres	%
Business Park	3	1	27	8
Service-Commercial	52	16	26	8
Public Facility/Recreation	0	0	15	5
Conservation/Open Space	265	80	250	75
Streets, Right-of-Way[a]	12	4	14	4
Total	**332**	**100**	**332**	**100**

a. Streets, Right-of-Way, etc. equals Total Project-Total Parcels.

Other AASP amendments include:

- Removing the Service-Commercial designation on approximately 8.6 acres in the northwest corner of the Project Site;
- Eliminating or relocating the collector street (known as the Unocal Collector) along the western and northern edges of the Project Site, which would also include removing underlying planned utilities and realigning the sewer trunk line located within the collector street's right-of-way;
- Providing an additional driveway connection to Tank Farm Road just east of the existing driveway entrance to the Tank Farm offices. The location of the proposed driveway entrance is shown in Appendix A.3, page A.3-10;
- Installation of a signalized intersection at Tank Farm Road and Santa Fe Road (the AASP calls for the use of a roundabout at this intersection); and
- Revisions to appropriate text, tables, and graphics to reflect land use and circulation changes, including:
    - Land Use areas designations amended to reflect the acreages as described for the Project;
    - Plan Area Zoning amended to reflect the acreages as described for the Project;
    - Primary Circulation System and Functional Classifications within AASP Area and Surrounding Community amended to Proposed Primary Circulation System and Functional Classifications;

- Bicycle Plan amendment consisting of eliminating the Class I bikeway on the south side of Tank Farm Road, eliminating the Class I bike path connecting Tank Farm Road to Buckley Road along Tank Farm Creek, The bike lanes along the Unocal Collector Road (this road would not be built as part of the Project), and realignment of some of the bike paths shown in the Bicycle Transportation Plan.
- Modify southern side of Tank Farm Road street section to remove sidewalk and Class I path and include a 12-foot wide Class I multi-use path on the north side of Tank Farm Road;
- Update to the AASP cluster development zone evaluation; and
- Update information and mitigations related to environmental issues.

As part of the AASP amendments, the City is proposing to modify the Cluster Development Zone boundaries. The amendments would involve removing approximately 100 acres of Service-Commercial and approximately 25 acres of Conservation/Open Space land from the southeast corner just east of the SLOCRA. This area would be removed since the County has already approved development in the majority of this area. Figure 2-24 shows the proposed boundaries of the Cluster Development Zone as well as the proposed zoning designations.

The City is also proposing to modify the allowable land uses in the AASP to make them consistent with the ALUP.

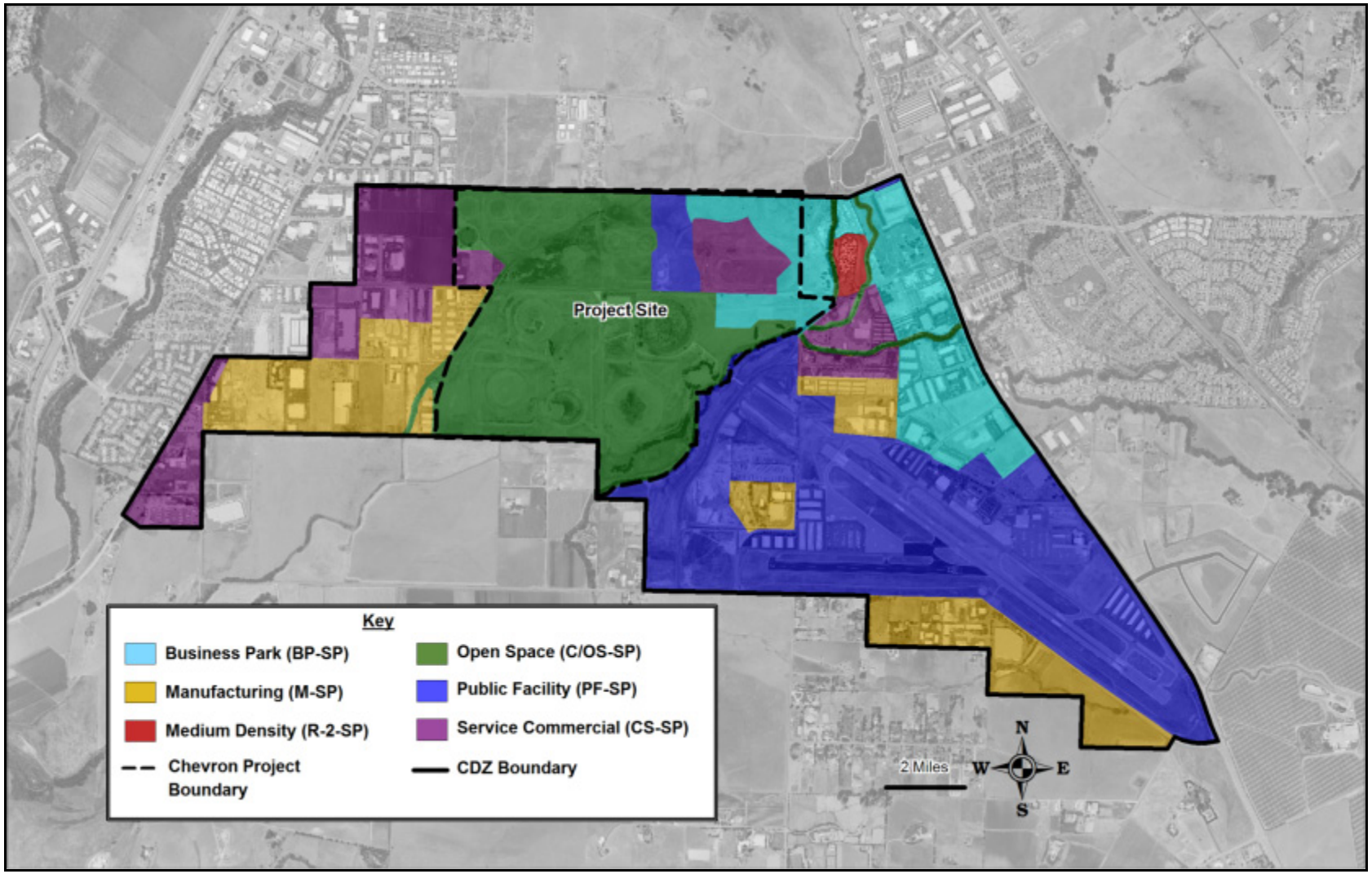
2.6.1.2 General Plan Amendment

Approval of the AASP amendments would require an amendment of the City's General Plan Land Use Policy map to maintain consistency between the two documents. The resulting General Plan Amendment would be processed by the City subsequent to or concurrent with Project approval.

2.6.1.3 Airport Compatibility Open Space Plan (ACOS) Amendments

The Airport Compatibility Open Space Plan (ACOS) establishes open spaces in the areas around the SLOCRA that can serve as reserve spaces. Reserve space improves airport safety by allowing for more intense development of urban areas while keeping certain land adjacent to the airport free and clear from obstruction or from buildings and uses where people congregate. The areas identified as reserve space in the ACOS include land that is close to the airport, in-line with the main airport runway, or along an over-flight area where aircraft typically operate at lower altitudes. Identification of these areas in the ACOS plan simply adds airport safety to the list of reasons why these lands should not be developed.

Figure 2-24 Proposed Modification to the AASP Cluster Development Zone (CDZ) with Proposed Project Zoning



The ACOS identifies two reserve spaces within the Project Site (Airport Area 1 and Airport Area 2). The Airport Area 1 reserve space is connected to Margarita Area reserve space. The City is proposing to change the boundaries of the two reserves spaces on the Project Site to: (1) remove some of the proposed development from the current reserve space, (2) to incorporate all of the proposed Project open space, and (3) to split the Margarita Area and Airport Area 1 reserve spaces. Figure 2-25 shows the proposed changes to the ACOS reserve space boundaries, including the proposed relocation of Reserve Area B and Reserve Area C. The proposed ACOS Amendment would be processed by the City subsequent to or concurrent with Project approval.

Within each reserve space, the ACOS Plan identifies two reserve areas that would comply with more stringent restrictive development standards. Each reserve area designated as Reserve Area B within the ACOS Plan, encompasses an area 1,000 feet long by 60 feet wide where no streets, parking lots, fences, light poles, trees, or fixed athletic equipment would be constructed.

Within each Reserve Area B is a smaller, more restrictive area, designated as Reserve Area C within the ACOS Plan, measuring 800 feet long by 30 feet wide where no staked crops or headstones would be allowed.

In order to conform to the restrictions for land use outlined in the ACOS Plan for the reserve areas, the Final Restoration Plan for the site will omit planting of trees within each designated area. In addition to development restrictions, each reserve area would be required to have a maximum ground slope of five percent to increase safety in the event an aircraft should make an emergency landing within a reserve area. The Applicant has proposed relocating the two Reserve Areas. The proposed new locations for the reserve areas are shown Figure 2-26.

Currently, the 2005 ACOS Plan identifies Reserve Area #1 as an area on the north side of Tank Farm Road passing through an existing tank berm, as well as the proposed location of the onsite nursery, which is expected to be functional and in use through the coming years. Keeping the reserve area in this location would require a moderate amount of grading to remove a portion of the tank berm to meet the five percent slope requirement. In response to this, the Applicant proposes to move Reserve Area #1 to the west while maintaining the original angle of approach parallel to the airport runway so that it falls within the area designated as the North Marsh (Figure 2-26). Designating this area as a reserve area will require no further grading than that which is currently planned for remediation and restoration while allowing the future onsite nursery to remain in its current proposed location.

The Reserve Area #2 identified in the 2005 ACOS Plan is proposed to run north-south between Reservoirs 5 and 2 (see Figure 2-26). With the 2005 ACOS Plan location, a small amount of grading would be required within areas designated as VPFS habitat. In an effort to eliminate grading in VPFS habitat, the Applicant proposes to reorient Reserve Area #2 to be in line with the existing airport runway approach while shifting the location to the northeast. A moderate amount of grading will be required to meet the five percent ground slope requirement in this area.

Figure 2-25 Proposed Modification to ACOS Reserve Spaces

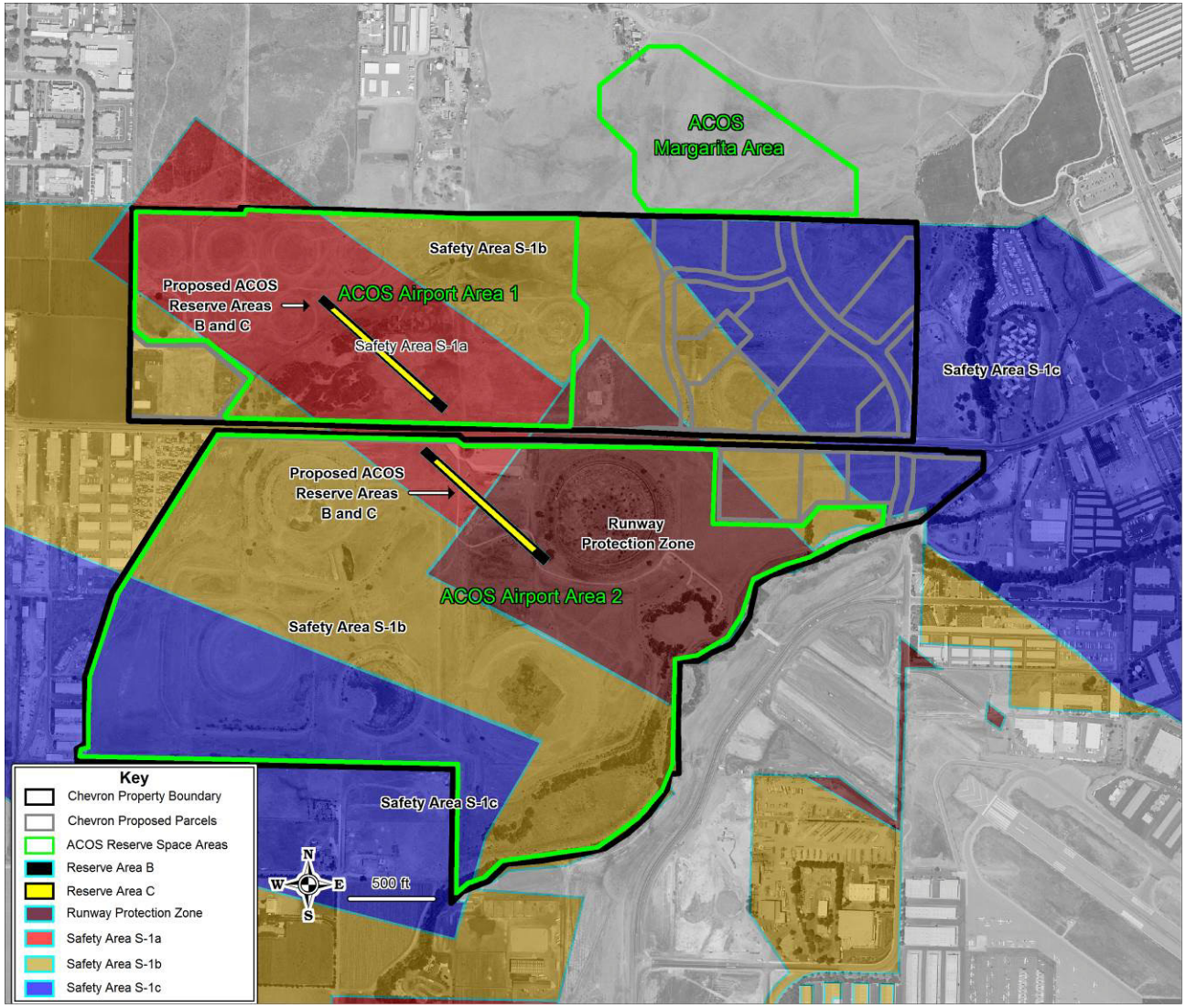
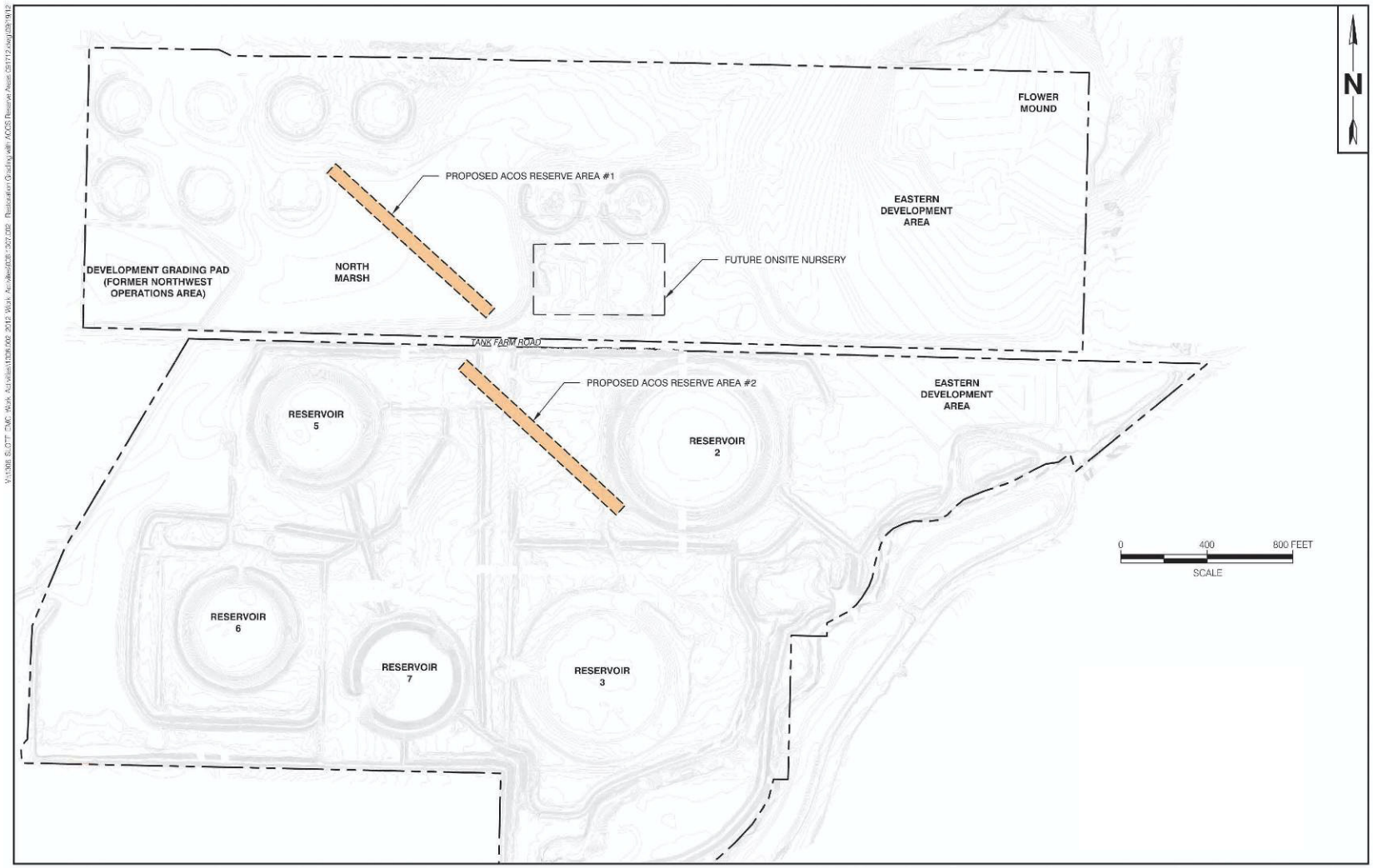


Figure 2-26 Proposed ACOS Reserve Area Location Site Plan



Source: Avocet 2012

The preliminary grading plan for the proposed Reserve Area #2 consists of removing a portion of the existing berm adjacent to Tank Farm Road, removing a small hill along the existing site access road, locally widening an existing drainage swale, and re-grading a portion of the Reservoir 2 berm to meet a five percent maximum slope requirement within the reserve area. The total area of disturbance is approximately 1.9 acres of which approximately 1.1 acres are in addition to disturbance areas associated with work proposed for Reservoir 2, which is discussed in Section 2.3.6.

Grading activities are expected to move approximately 4,400 cubic yards of soil. Approximately 4,400 cubic yards of cut material from the existing berm, hill, and a portion of the Reservoir 2 berm will be removed, from which approximately 1,250 cubic yards will be used as fill material to meet the proposed grade. These quantities are in addition to the grading work proposed for Reservoir 2. The excess 3,150 cubic yards may be used elsewhere onsite as fill material either for remediation, restoration, or development purposes. No materials will be imported or exported from the site relative to this activity.

2.6.1.4 City Vesting Tentative Tract Map (Tract No. 2981)

According to the available title information, the Project Site contains 12 certificate parcels and one parcel created with Parcel Map 03-287. This component of the Project involves subdividing the Project Site into 19 lots: 16 industrial and commercial lots, one lot for recreational facilities, and two open space lots. The proposed lots would range from 4.12 to 178.4 acres in size (see Figure 2-27).

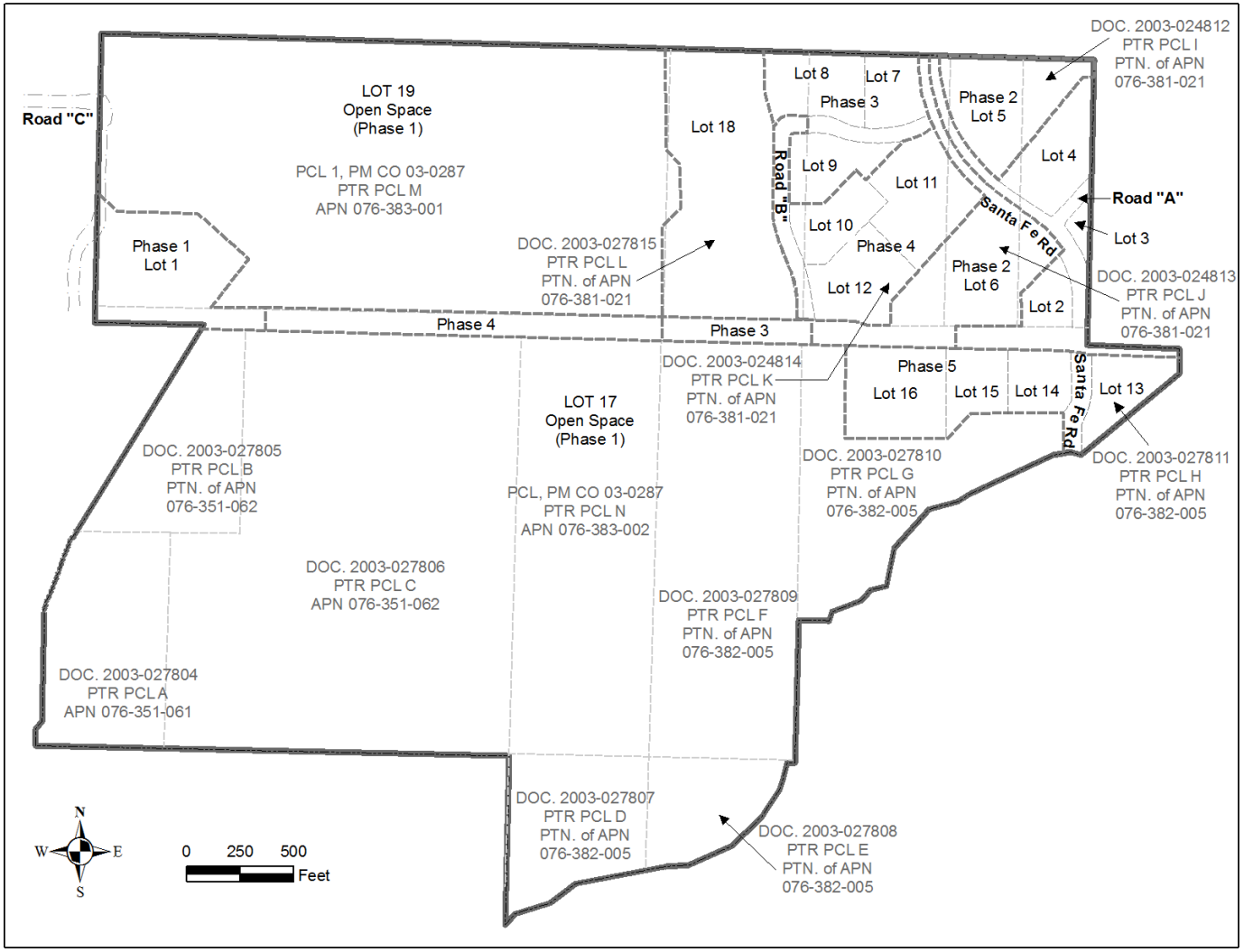
Vehicular access would be from Tank Farm Road, Santa Fe Road, and internal public streets, which would be developed consistent with County and City standards. Four 30-foot wide shared access easements would provide direct access to the industrial lots minimize the number of driveways on Santa Fe Road, Tank Farm Road, and the internal streets. Pedestrian access would be via public sidewalks and recreational trails.

2.6.1.5 Annexation

The entire Project Site currently lies outside of the city limits but within the boundary of the City's Sphere of Influence. The Applicant is proposing to annex approximately 332 acres to the City. The annexation process involves hearings before the City Planning Commission and the City Council to approve a preliminary annexation map. This annexation request is then forwarded to the Local Agency Formation Commission (LAFCO) as part of the Applicant's annexation application. LAFCO will then hold its own public hearings to approve or deny the annexation.

The AASP will have to be amended by the City Council in advance of the annexation. With annexation, the City would provide water, recycled water, sewer, and public services such as police and fire to developed areas. According to City staff, the City has recently installed (July 2009) a sewer trunk line along the Project Site's frontage. The Applicant would be required to extend the water main and utilities to the developable areas.

Figure 2-27 City Development Plan - Lot Configuration and Phasing Map



2.6.1.6 Other City Permits

Other City permits could be required for certain uses. Grading for remediation and habitat restoration including Tank Farm and Santa Fe Roads, public sidewalks, trails, and street trees would be permitted in conjunction with approved construction plans. Separate grading permits may be needed for the development phases of the Project. In addition, entitlements would be necessary from the Architectural Review Commission for private improvements on individual lots.

2.6.1.7 Development Agreement

The Applicant is requesting the City negotiate and enter into a pre-Annexation/ Development Agreement (DA). The DA would address issues relating to AASP cost incurred by the City for infrastructure, development related fees, and the timeframe of the DA. The Applicant is proposing to have an executed DA prior to or concurrent with annexation of the Project Site to the City. The City will use the mitigations identified in this EIR as input in the development of the DA. The mitigation measures included in the EIR will help the City identify the infrastructure improvement that may be needed for the development project.

2.6.2 County Development Plan

2.6.2.1 General Plan Amendment/Zone Change

The County's Land Use Element currently designates approximately 63 acres of the Project Site as Industrial, approximately 20 acres as Commercial Services, approximately 235 acres as Recreation, and the remaining 14 acres are designated as Agriculture. The Applicant proposes amending the Land Use Element of the County General Plan, including the San Luis Obispo Area Plan, to designate approximately 27 acres to Commercial Services, approximately 26 acres to Industrial, 265 acres for Open Space, and the remaining 14 acres used for streets and right-of-ways.

The Project would remove the Industrial designation on 23 acres located in the northwest corner of the Project Site and place it on the east side of the Project Site along Tank Farm and Santa Fe Roads. It would also eliminate the 14 acres of Agriculture zoned land. Development is proposed to be moved from the northwest corner of the Project Site to avoid sensitive habitat.

The County's Land Use Ordinance, Title 22 will also need to be amended to allow the array of uses proposed by the Applicant and to allow parcel sizes smaller than 20 acres. Table 2-18 compares existing and proposed land uses designations under the Applicant's proposed amendments to the County General Plan.

Table 2-18 San Luis Obispo County General Plan Amendment/Zone Change Comparison of Existing and Proposed Land Use and Acres

Land Use Designation	Land Area			
	Existing General Plan Acres	%	Proposed Acres	%
Commercial Services	16	5	27	8
Industrial	43	13	26	8
Recreation	247	74	265	80
Agriculture	14	4	0	0
Streets, Right of Way[a]	12	4	14	4
Total	**332**	**100**	**332**	**100**

a. Streets, Right-of-Way, etc. equals Total Project-Total Parcels.

2.6.2.2 County Vesting Tentative Tract Map (Tract No. 2988)

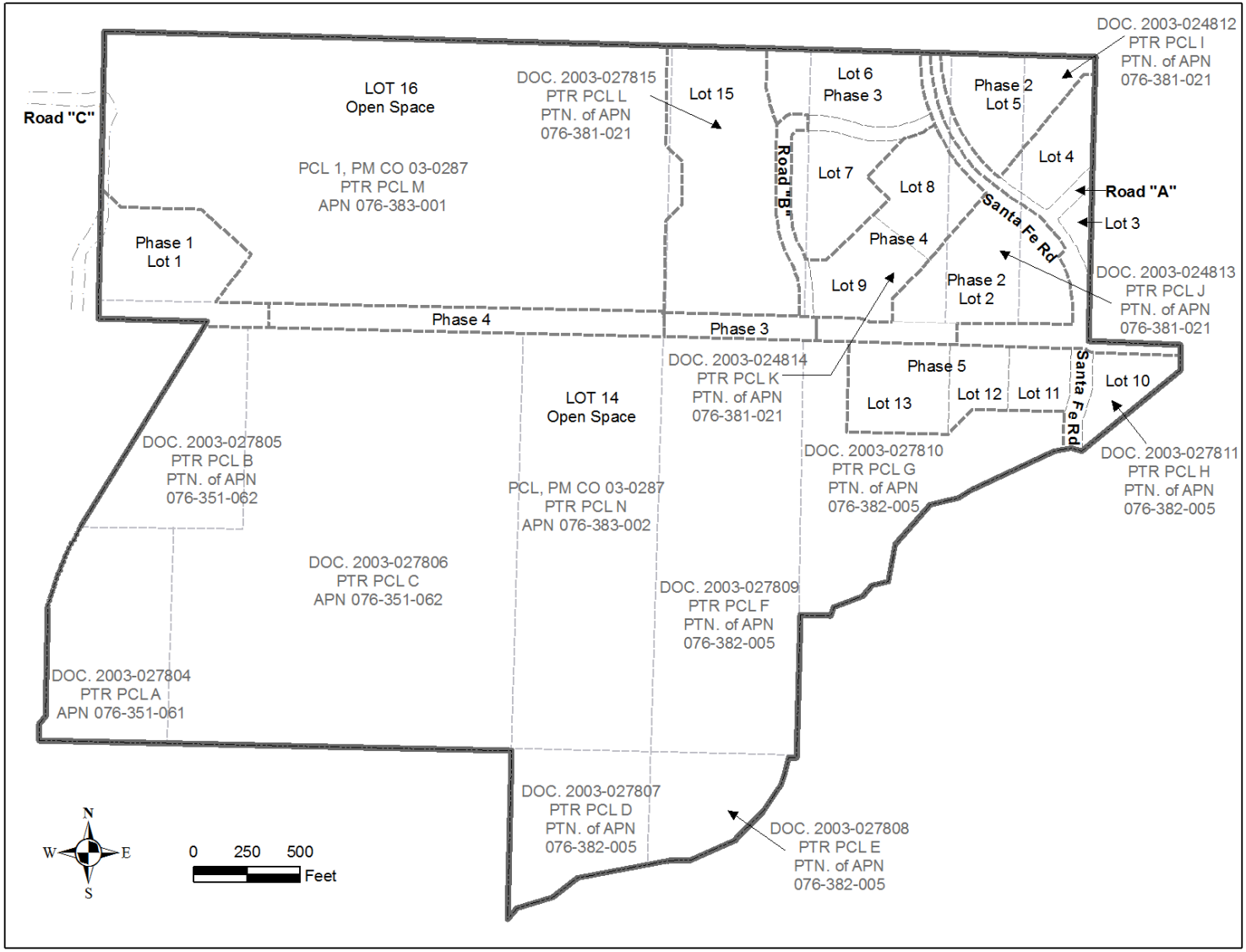
According to available title information, the Project Site contains 12 parcels with certifications of compliance and two larger parcels created with the recording of Parcel Map 03-287. Tract No. 2988 proposes to subdivide the Project Site into 16 lots consisting of 13 industrial and commercial lots (which includes wastewater facilities), one lot for recreation, and two open space lots. The proposed lots would range in size from 4.12 to 178.4 acres (see Figure 2-28).

An application for a Vesting Tentative Tract Map has been submitted by the Applicant for processing as part of the permitting process for this Project. Vesting tentative maps are an alternative form of tentative map for subdivisions authorized under the Subdivision Map Act. California Government Code Section 66498.1, et. seq. Upon approval of a vesting tentative map, the subdivider obtains vested rights, for a limited time, to proceed with the development in substantial compliance with the local ordinances, policies and standards in effect at the time the application for approval of the vesting tentative map is deemed complete.

2.6.2.3 Conditional Use Permit (Grading)

A Conditional Use Permit would be needed to allow grading for remediation and habitat restoration, including Santa Fe Road and interior streets as well as grading of building lots. A separate permit would be needed for the subsequent development phases of the Project.

Figure 2-28 County Development Plan - Lot Configuration and Phasing Map



2.6.3 Other Potential Permits

The Applicant is seeking ratification of the RAP and authorizations under the Clean Water Act and Porter-Cologne Water Quality Control Act from the RWQCB. The remediation and restoration efforts would also require permits and authorizations from the USACE, Los Angeles District; CDFW; SLO County Environmental Health Division; SLO County Public Works Department; and the SLOAPCD. Please see Table 2-19 for a listing of the anticipated project approvals and permits required for the Project for state, federal, and local agencies.

Table 2-19 Anticipated Federal, State, and Local Permits

Agency	Permit	Regulated Activity	Authority
Federal Agencies			
U.S. Army Corps of Engineers (USACE)	Section 404 of the Clean Water Act Permit	Discharge of dredged or fill material into waters/wetlands of the U.S. during construction	Section 404 Clean Water Act
U.S. Fish and Wildlife Service (USFWS) National Marine Fisheries Service	Section 7 Consultation (Endangered Species Act) through consultation with the USACE and Biological Opinion and Incidental Take Permit.	Impacts to Federally listed species.	16 USCA 1513 50 CFR Section 17
Advisory Council on Historic Preservation	Section 106 of the National Historic Preservation Act (NHPA) Review (through USACE process) ***(possible)***	Project activities that will affect register eligible prehistoric or historic resources subject to federal protection requirements.	Review by the ACHP would only be needed if the project affects registered eligible prehistoric or historic resources subject to federal protection requirements.
Federal Emergency Management Agency (FEMA)	Conditional Letter of Map Revision, Letter of Map Revision	Revision to 100-year flood maps for fill placed within 100 year flood zone	Executive Order
State Agencies			
California Department of Fish and Wildlife (CDFW)	Compliance with CA Endangered Species Act	Species disturbance through remediation process.	Sections 1601-1607 of the Fish and Game Code
	Stream Alteration Agreement (1602)	Alteration of the natural state of any stream.	
	Approval of RAP	Enforcement of Oil Pollution Act	
Regional Water Quality Control Board (RWQCB)	Approval of RAP	Remedial Action Plan activities	California Water Code
	Section 401 Water Quality Certification	Discharge of fill that may affect surface and groundwater quality.	California Water Code Clean Water Act
	Authorization under NPDES Waste Discharge Permits ***(possible)***	Discharge of treated groundwater or surface water generated during construction and operation under the County Development Plan (if needed)	Clean Water Act Porter-Cologne Water Quality Act
	Authorization under NPDES Storm Water Construction General Permit	Construction activities that disturb more than 1 acre.	Clean Water Act California Water Code
State Office of Historic Preservation	State Level Review of Section 106 Compliance	Project activities that will affect register eligible prehistoric or	Review by the SOHP would only be needed

Table 2-19 Anticipated Federal, State, and Local Permits

Agency	Permit	Regulated Activity	Authority
	(possible)	historic resources subject to federal protection requirements.	in the project affects registered eligible prehistoric or historic resources subject to federal protection requirements.
CALFIRE	Blasting Permit, Building Permits	Use of explosives, Fire protection systems in buildings	California Fire Code
Local Agencies			
SLO County Planning and Building Department	General Plan and Land Use Ordinance Amendment, Tentative Tract Map Conditional Use Permit, Grading Permits, Demolition Permits, Blasting Permit, Temporary Building Permits, Building Permits	Land use, grading, drainage, and environmental impacts	Title 22 County Code CEQA
SLO County Public Works Department	Encroachment Permit	Any work within public right-of-ways (if needed).	County Code
SLO County Environmental Health Division	Well Construction/ Destruction Permits, CUPA	Approval and inspection of monitoring well and water supply well destruction. Approval and inspection of new monitoring well construction. Review and enforcement of hazardous materials management plans.	Title 22 County Code California Water Code
SLO County Air Pollution Control District (SLOAPCD)	Authority to Construct/ Permit to Operate, NESHAP	Emissions associated with construction and operations may require permits.[a] Demolition will require a NESHAP notification.	Clean Air Act
SLO Airport Land Use Commission (ALUC)	Consistency review, AASP Approval, ACOS Plan Approval	Development within the Airport Land Use Plan area.	Airport Land Use Plan
City of San Luis Obispo	EIR Certification General Plan/Specific Plan Amendment, Annexation approval, Tentative Tract Map, Grading Permits, Blasting Permit, Building Permits, Demolition Permits, Encroachment Permits	Annexation of areas to be developed into City Approval of tentative tract map. Grading, demolition and construction of improvements in City jurisdiction.	City Code Subdivision Map Act
	Acceptance of offer to dedicate road right-of-way	New roadways and roadway improvements associated with new development	City Code
Local Agency Formation	Annexation approval	Annexation of re-development areas into City.	Cortese-Knox-Hertzberg Act of

Table 2-19 Anticipated Federal, State, and Local Permits

Agency	Permit	Regulated Activity	Authority
Commission (LAFCO)			2000, LAFCO policies
Santa Barbara County	Haul Permit	Hauling of contaminated soil over Santa Barbara County Roads to the Santa Maria Landfill.	Santa Barbara Public Works requirement.

a. Chevron maintains a Permit to Operate (PTO) with the SLOAPCD for the de-gassing and pipeline decommissioning activities in the County (Reference PTO No. 735).

2.7 References

The Airport Land Use Commission for San Luis Obispo County. 2005. Airport Land Use Plan for the San Luis Obispo Regional Airport. San Luis Obispo, CA: The Airport Land Use Commission for San Luis Obispo County; May 18, 2005.

Associated Transportation Engineers (ATE). 2007. Chevron San Luis Obispo Traffic and Circulation Study. November 9, 2007.

AVOCET. 2007. Remedial Action Plan. December 18, 2007.

____. 2007. Feasibility Study, Former San Luis Obispo Tank Farm. March 15, 2007.

BBL. 2005. Risk Management Summary. December 12, 2005.

Chevron. 2005. Presentation on Project as Part of Application.

____. 2007. Final Project Execution Plan for the Chevron San Luis Obispo Tank Farm Restoration and Re-development Project. San Luis Obispo, CA: December 20, 2007.

____. 2008. Restoration and Redevelopment Project Application.

____. 2012. Letter to Mr. Bill Henry. San Luis Obispo Tank Farm Restoration and Redevelopment Project: Request to Add Modification to Proposed Project Description to Address Elevated Arsenic Concentrations in Surface Soil at Two Locations. December 21, 2012.

____. 2012. Letter to Mr. Bill Henry. San Luis Tank Farm Remediation Project: Request to Add Reservoir 2 to the Project Description. July 27, 2011.

Department of Toxic Substances Control (DTSC). 1996. Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities Part A: Overview. Draft. Sacramento, CA: Office of Scientific Affairs, California EPA; 1996.

England Geosystem, Inc. 2001. Supplemental Site Characterization. October 15, 2001.

England, Shahin & Associates. 1994. Supplemental Ground Water Investigation Unocal Tank Farm Facility. May 11, 1994.

McDaniel Lambert, Inc. 2004. Human Health Risk Assessment for the Unocal San Luis Obispo Tank Farm. Version 2.0. San Luis Obispo, CA. May 25, 2004.

Padre. 2007. Project Execution Plan for the Chevron San Luis Obispo Tank Farm Restoration and Re-Development Project. San Luis Obispo, CA: December 20, 2007.

Padre [letter]. July 17, 2009. Chevron. Information Request.

____. 2009. Landscape and Restoration for the Chevron San Luis Obispo Tank Farm: 75% Basis of Design Report.

Remediation Technology Panel (RTP). 2006. Assessment of Off-Site Migration and On-Site Surface Expressions of Hydrocarbons at the San Luis Obispo Tank Farm Site. May 9, 2006.

WSP Environment & Energy, Padre. 2008. An Analysis of the Geographic Extent of Waters of the U.S., Including Wetlands at the Chevron Tank Farm Facility, San Luis Obispo, California. August. 5, 2008.