

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**TENTATIVE ORDER NO. R2-2010-00XX**

**WASTE DISCHARGE REQUIREMENTS FOR:**

**CITY OF SAN JOSE  
ROBERTS AVENUE LANDFILL  
FORMER MUNICIPAL SOLID WASTE SITE  
SAN JOSE, SANTA CLARA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Water Board), finds that:

**DISCHARGER AND LOCATION**

1. Owner, operator, and discharger named: The closed Roberts Avenue Landfill (also referred to as the landfill or the site) is owned by the City of San Jose, hereinafter referred to as the Discharger.
2. Landfill location: Roberts Avenue Landfill is located at the southwestern intersection of Roberts Avenue and Story Road in San Jose (Figure 1). The site is bounded by Coyote Creek and Happy Hollow Park and Zoo (Zoo) to the west, undeveloped open space to the south, and commercial and residential areas to the north and east. The site encompasses an area of approximately 25 acres (Figure 2).

**OPERATIONAL AND REGULATORY HISTORY**

3. Operational history: The site was originally owned and operated by Remillard-Dandini Brick Company, who excavated clay pits for brick production. The excavated pits were reportedly used for private landfilling from approximately 1957 until 1961, when the Discharger converted the site into a public municipal landfill. The Discharger stopped accepting public municipal waste at the site in 1969 but continued to accept organic materials generated by the Discharger (such as tree trimmings, grass cuttings, etc.) until 1979, when the site was closed.
4. Regulatory history: No Waste Discharge Requirements (WDRs) have been previously adopted for the site.

**PURPOSE OF ORDER**

5. These Waste Discharge Requirements are being established to recognize and approve the development plan, as well as incorporate general provisions for the anticipated site development and to bring the landfill into compliance with the appropriate portions of Title 27 of the California Code of Regulations, referred to hereinafter as Title 27.

## **SITE DESCRIPTION**

6. Waste placement: Roberts Avenue Landfill is unlined and has no leachate collection or extraction system. Wastes were placed directly into the excavated clay pits formerly mined for brick production. Areas in which wastes were placed were excavated in advance of filling to a maximum depth of about 45 feet. Thus, some basal portions of the waste were placed below the present elevation of the groundwater table.
7. Waste types and amounts: The Discharger has no records of what types or quantities of waste were placed in the excavated pits; however, previous test pitting and environmental investigations at the site revealed odiferous refuse including scrap metal, construction debris, tree stumps, bricks, tires, newspapers, clothing, furniture, cardboard, toys, glass, wire, bark, tree limbs, plastic, cloth, tape, decomposed wood, and charred newspaper (Bissell & Karn, 1987) up to 35 feet below the ground surface (bgs). Based on calculations performed by URS (URS, 2007) the landfill contains an estimated 400,000 cubic yards of refuse.
8. Landfill Cap: After landfill operations ceased in 1979, the Discharger capped the refuse with 1 to 3 feet of soil, followed by 2 to 3 feet of compacted fill. An additional 3 to 14 feet of soil was placed on top of the landfill in the mid to late 1990's by the Discharger as a means of thickening the landfill cap, using non-engineered fill soils from a number of City of San Jose construction projects (URS, 2007).
9. Site development: The Discharger is planning construction of a parking lot over 11-acres of the former landfill footprint (Figure 3). The parking lot will serve the Zoo located to the west of the site, across Coyote Creek. This will involve construction of an access road, an approximately 550-space parking lot, a one-story restroom/information kiosk building with a methane barrier and venting system beneath the slab and methane gas sensors inside the buildings, parking ticket vending machines, parking lot and building light fixtures, picnic tables and benches, minimally-bubbler irrigated medians, a pedestrian/bike trail and a pedestrian bridge, a 3-foot deep stormwater detention pond at the northeast corner of the landfill footprint, all supporting underground utilities, and a passive landfill gas venting system under the paved areas (URS, 2007).

The parking lot will be constructed with four inches of asphalt concrete over ten inches of aggregate base. Landfill gas collection trenches and piping will be installed beneath the paved areas to minimize landfill gas buildup. Any runoff from the parking lot will be directed by parking lot aisle ditches and/or vegetated bioswales, such as drought-tolerant grasses, to sealed inlet locations along the eastern edge of the parking lots. The inlets will be connected to a pipe that will carry the water to the stormwater detention pond located at the northeast corner of the site, where it will be held prior to its off-site discharge (URS, 2007).

The restroom/information kiosk building will have a slab-on-grade floor with shallow footing foundations and will be constructed on top of a minimum three-foot compacted engineered fill layer; the footings will not penetrate the existing landfill cover.

The landscaping along the parking lot medians will include drought-tolerant trees and shrubs, which will be watered using an irrigation system with controlled bubblers designed to prevent excess water from percolating into the landfill. A total of six moisture sensors will be placed in the subsoil within the parking lot medians to detect excess water or mainline or lateral breaks, and will be able to shut off the system and alert the Discharger. A separation of approximately four feet will be maintained between the top of the refuse and the finished grade.

The project does not propose excavation below the landfill cap, with the exception of the pedestrian bridge bent and abutment on the east bank of Coyote Creek. The bent and abutment will be designed to seal against stormwater infiltration to avoid leachate generation, and guard against the release of methane gas by placing compacted, low-permeability soils around the perimeter of the abutments (URS, 2007).

The Post Closure Development Plan, dated March 22, 2007, was conditionally approved by Water Board staff via email on March 27, 2008, pending the receipt of a revised figure and the removal of any proposed dry wells from the development plan. The revised figure was received on May 19, 2009. The Development Plan was also approved by the California Integrated Waste Management Board, the local enforcement agency, and departments within the City of San Jose.

## **SITE GEOLOGIC AND HYDROGEOLOGIC SETTING**

10. Stratigraphy: The site is located near the center of the Santa Clara Valley, an extension of the structural depression occupied by San Francisco Bay. The alluvial sediment of the Santa Clara Valley is composed of an unconsolidated mixture of interbedded gravel, sand, silt, and clay. Regionally, the area is underlain by Holocene-aged alluvial fan deposits composed of fine-grained sand, silt and clay with minor gravel.
11. Groundwater: Regionally and locally, there are two primary aquifer systems within the Santa Clara Valley Subbasin. The shallow aquifer is unconfined and extends to a depth of approximately 200 feet. The deeper aquifer is generally confined and extends from approximately 250 feet bgs to several hundred feet bgs (SOMA, 2008). Groundwater is present beneath the site at depths ranging from 21 feet bgs in monitoring well MW-5 to the northeast, to 44 feet bgs in MW-9 near Coyote Creek to the west. The predominant groundwater flow direction is southwesterly toward Coyote Creek at an approximate gradient of 0.008 foot per foot.

12. Surface water: The landfill is located immediately east of Coyote Creek at an approximate elevation of 20 feet above the Creek. Surface runoff from the southwestern portion of the site discharges into Coyote Creek, which discharges into the San Francisco Bay. The primary sources of recharge to the regional shallow groundwater units are through direct infiltration of on-site precipitation, and through groundwater management by the Santa Clara Valley Water District (SCVWD, 2006). This is achieved through the importation of surface water, and artificial recharge through percolation ponds.
13. Geologic structure and landfill stability: The nearest active fault listed on the Santa Clara County Fault Hazard Zones map is the Evergreen Fault located approximately 3.4 miles northeast of the site. The Calaveras Fault is located approximately 7.5 miles northeast of the site, the Hayward-Rogers Fault is located approximately 10 miles northeast of the site, and the San Andreas Fault is located 13 miles southwest of the site.

## **WATER QUALITY AND SITE CONTAMINATION**

14. Ambient water quality: Water Board Resolution 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas containing high TDS (greater than 3000 mg/L TDS), high background contaminant levels, or those areas with a low yield. Shallow groundwater underlying and adjacent to the site contains TDS at concentrations exceeding 3,000 mg/L. Between 1988 and 2007, TDS concentrations in the landfill's four groundwater monitoring wells ranged between 1,400 mg/L and 18,000 mg/L. Monitoring well MW-5, which is located off the landfill footprint, approximately 100 feet to the west along Roberts Avenue, is the only well in the vicinity that has yielded any water samples with less than 3,000 mg/L TDS in recent years. Because of elevated TDS concentrations, shallow groundwater beneath the site is not considered a potential source of drinking water.
15. Impacts to water quality from the landfill: Because of the shallow depth to groundwater and the absence of a liner and leachate extraction system, some commingling of leachate generated at the landfill with underlying groundwater is observed at this site. Groundwater beneath the landfill was first analyzed in 1987 as part of the Phase I Investigation and Solid Waste Water Assessment Test Proposal for the site (SWAT program). No volatile organic compounds (VOCs) were detected in the two on-site monitoring wells (MW-1 and MW-2); however, levels of chloride, copper, iron, manganese, sulfate, surfactants, thallium and TDS were slightly above the U.S. Drinking Water Standards established at the time (Bissell & Karn, 1987).

In August 1988, two additional monitoring wells (MW-4 and MW-5) were installed and sampled for a total of four quarters as part of the SWAT program and supplemental investigation. The September 1989 monitoring event revealed that levels of iron, manganese, sulfate and TDS were still elevated in each well above the U.S. Drinking Water Standards. Chloride and/or nitrate concentrations were also elevated in wells MW-1, MW-2

and MW-4. Some low levels of VOCs were also detected in the wells, including acetone (up to 27 micrograms per liter [ug/L] in MW-4), bis (2-ethylhexyl) phthalate (up to 39 ug/L in MW-4), dichloroethene (DCE) (up to 4.2 ug/L in MW-1), and methylene chloride (up to 1,500 ug/L in MW-2) (Terratech, 1989).

In May 2006, three new groundwater monitoring wells were installed (MW-7, MW-8 and MW-9) after URS was unable to locate the four SWAT wells (URS, 2006). Groundwater samples collected from the wells revealed low concentrations of diesel range petroleum hydrocarbons (TPHd) of up to 0.134 milligrams per liter (mg/L) in MW-9, tetrachloroethene (PCE) in each well up to 2.62 ug/L, and trichloroethene (TCE) in MW-8 at 0.67 ug/L. In addition, methyl tert butyl ether (MTBE) and fuel oxygenates tert-butyl alcohol (TBA) and ter-amyl methyl ether (TAME) were detected up to 1,910 ug/L, 186 ug/L and 4.47 ug/L, respectively in MW-8, and arsenic was detected at very low concentrations in MW-9 (0.015 mg/L)

In August 2007, the Water Board issued a letter to the Discharger requiring the location and/or proof of destruction for the four SWAT monitoring wells, and two additional quarters of groundwater monitoring to better characterize the MTBE impact detected in MW-8. The subsequent investigation discovered the location of MW-5 only; the whereabouts and status of the other three wells is unknown. The two additional quarters of groundwater monitoring at the site revealed that TPHd is present in MW-9 at a maximum concentration of 230 ug/L, gasoline range petroleum hydrocarbons (TPHg) were detected in MW-8 at a maximum concentration of 220 ug/L, MTBE concentrations decreased in MW-8 from 1,910 ug/L to 340 ug/L, and TCE was detected in MW-8 at a maximum concentration of 0.69 ug/L. In addition, heptachlor epoxide was detected in MW-5 at 25 ug/L. The source of the MTBE is unknown, but can likely be attributed to a nearby, off-site source.

## **BASIN PLAN**

17. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Water Board, U.S. EPA, and the Office of Administrative Law where required.

## **BENEFICIAL USES**

18. The beneficial uses of groundwater beneath the landfill include:
  - a. Industrial process and service supply
  - b. Discharge to surface water bodies
19. The beneficial uses of Coyote Creek include:

- a. Cold freshwater habitat
- b. Non-contact water recreation
- c. Fish migration and spawning
- d. Preservation of rare and endangered species
- e. Wildlife habitat
- f. Groundwater recharge
- g. Water contact recreation

## MONITORING PROGRAMS

20. Groundwater monitoring – There is currently no groundwater monitoring program in place for the site; however, groundwater was monitored over five quarters at the site between 1987 and 1989, and over three quarters between 2006 and 2007. Monitoring wells MW-1 and MW-2 were installed in 1987 as part of the Phase I investigation (Bissell & Karn, 1987). Monitoring wells MW-4 and MW-5 were installed in 1989 as part of the SWAT program (Terratech, 1989). In 2006 URS attempted to sample the four SWAT wells but were unable to locate them, until MW-5 was discovered during the subsequent investigation required by the Water Board in 2007. As a result, three new monitoring wells (MW-7, MW-8 and MW-9) were installed (URS, 2006). All of these monitoring wells are screened through the upper hydrostratigraphic unit, which includes alluvial clay, silt and sands.
21. Leachate monitoring – There is no leachate monitoring program currently in place, nor are there any leachate extraction wells installed on the site.
22. Landfill gas monitoring: The site does not have a landfill gas collection system; however, landfill gas has been routinely monitored. Landfill gas measurements collected by Cooper in 1985 indicated that landfill gas was present within the center and around the edges of the filled areas. In 1987, as part of the Phase I investigation, five borings (Probes 4079-6 through 4079-10) were drilled to additionally evaluate the extent of landfill gas present beneath the site. The borings were sampled twice in 1987 and landfill gas was not present in any of the borings during either event, with the exception of a “possible trace” of methane in Probe 4079-6 (Bissell & Karn, 1987). Six additional gas probes (ROB-1-10, ROB-2-20, ROB-3-17, ROB-4-10, ROB-4-20, ROB-5-6) were installed in 1992; the 11 gas probes were tested quarterly starting in 1992. Nine of the 11 original probes are still in-place. Two of the probes (4079-6 and ROB-5-6) were either destroyed or buried when additional fill was brought onsite in the mid- to late-90’s. Landfill gas has not been detected above the LEL of 5% during the quarterly monitoring events to date in any of the remaining nine landfill gas monitoring probes around the site. The highest detection was 3.1% in ROB-4-20 in December 1998. All nine wells have shown no detectable concentrations of methane since September 2005, when 0.3% methane was found in ROB-4-10. Landfill gas probe locations are shown on Figure 2.

The proposed project includes landfill gas collection trenches, with perforated piping and vertical vents placed throughout the parking lot area. The existing gas probes will not be affected.

23. Surface water monitoring: Surface water quality has not been routinely monitored near the landfill. A limited surface water monitoring program in Coyote Creek, consisting of quarterly sampling at two surface water monitoring locations, was implemented as part of the SWAT program in 1988-1989. The surface water samples collected under the SWAT program did not yield any VOC detections, and surface water has not been routinely sampled since completion of the SWAT program.
24. Stormwater: Title 40 of the CFR, Parts 122, 123, and 124, require specific categories of industrial activities, including landfills, to obtain a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges. The Water Board has issued NPDES Permit No. CAS029718 (Order No. R2-2001-0024) that includes stormwater runoff control measures for new construction in Santa Clara County. Additional stormwater runoff control measures were approved later in 2001 and revised in 2005 (Order No. R2-2005-0035) for stormwater discharges within Santa Clara County. These measures (referred to as Provision C.3) requires all new and redevelopment projects that result in the addition or replacement of impervious surfaces of 10,000 square feet or more to include the following: stormwater treatment measures designed to treat an optimal volume of flow or runoff from the site, and proper installation, operation and maintenance of such treatment measures. The NPDES permit requires a detailed analysis of the project's runoff impacts when one or more acres of impervious surface are created. This project proposes a series of Best Management Practices (BMPs) to filter stormwater runoff and maintain water quality on site.

Currently, there are no stormwater drainage or erosion control systems on the landfill, and stormwater sampling is not conducted. Rainfall drains by sheet flow to the northeast portion of the site. The proposed construction will cover a majority of the top of the landfill with concrete and asphalt, with parking median areas open to allow minimal stormwater infiltration. The parking lot grading will generally maintain the current stormwater flow direction to the northeast. Parking lot runoff will be directed by parking aisle ditches or vegetated bioswales to a limited number of sealed inlets located along the eastern edge of the parking lot. The inlets will be connected to a solid high density polyethylene pipe bringing the stormwater to the stormwater detention pond located at the northeastern corner of the site. Stormwater will then be metered through controlled release and discharge to the Discharger's stormwater drainage system located along Story Road.

## **CALIFORNIA ENVIRONMENTAL QUALITY ACT**

25. CEQA: An Initial Study/Mitigated Negative Declaration (IS/MND) (Denise Duffy & Associates, April 2007) for the Happy Hollow Park and Zoo Renovation Project was completed for three separate but integrated projects. The projects include the redevelopment of the Roberts Avenue Landfill as a parking lot, the construction of the Zoo and park attractions, and the construction of a pedestrian bridge connecting the two facilities across Coyote Creek. The parking lot project entails the construction of approximately 550 paved

parking spaces, associated median islands, lighting, ticketing machines, a modified storm water design and detention pond, and planting and irrigation. The project will also include a restroom facility and picnic area.

The IS/MSD found that the development of the project could result in water quality impacts to Coyote Creek associated with construction and post-construction activities. This impact would be reduced to a less-than-significant impact with applicable NPDES permits, including preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), the use of BMPs, and use of appropriate grading and cover restrictions during construction. There were no significant environmental issues raised in the IS/MND based on the proposed site development. The Mitigated Negative Declaration (File No. PP05-142) was approved on November 20, 2007.

26. Public notice: The Water Board has notified the Discharger and interested agencies and persons of its intent to adopt WDRs for the Discharger and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
27. Public meeting: The Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

**IT IS HEREBY ORDERED** that the Discharger, its agents, successors and assigns shall meet the applicable provisions contained in Title 27, Division 2, Subdivision 1 of the California Code of Regulations and Division 7 of the California Water Code and shall comply with the following:

**A. PROHIBITIONS**

1. No additional waste shall be deposited or stored at this site.
2. The relocation of wastes to or from any waste management unit shall not create a condition of pollution or nuisance as defined in Section 13050 (l) and (m) of the California Water Code (CWC). Any relocated waste shall not be placed in or allowed to contact ponded water from any source whatsoever. Wastes shall not be relocated to any location where they can be discharged into waters of the State or of the United States.
3. Leachate or ponded water containing leachate or in contact with waste shall not be discharged to waters of the State or of the United States unless specifically authorized under an NPDES permit.
4. The creation of any new waste management units at this landfill is prohibited.
5. The Discharger shall not excavate within or reconfigure any existing waste management unit without prior Water Board approval.



6. The Discharger shall not perform any intrusive activities on the landfill surface that have the potential to negatively affect the integrity and proper function of the landfill cap, such as digging or trenching, without prior Water Board approval.
7. The Discharger shall not disc the landfill cap. Alternate methods of controlling vegetative growth, which do not affect the integrity of the landfill cap, shall be utilized.
8. Untreated or inadequately treated groundwater or leachate shall not create a condition of pollution or nuisance as defined in Section 13050 (m) of the CWC, nor degrade the quality of waters of the State or of the United States.
9. The Discharger, or any future owner or operator of the site, shall not cause the following conditions to exist in waters of the State at any place outside the waste management facility:
  - a. Surface Waters
    - Floating, suspended, or deposited macroscopic particulate matter or foam;
    - Bottom deposits or aquatic growths;
    - Alteration of temperature, turbidity, or apparent color beyond natural background levels;
    - Visible, floating, suspended or deposited oil or other petroleum products; and/or
    - Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.
  - b. Groundwater
    - Further degradation of groundwater quality; and/or
    - Increasing lateral extent or concentrations of existing groundwater impacts.

## **B. SPECIFICATIONS**

1. All reports pursuant to this order shall be prepared under the supervision of a California registered professional civil engineer, professional geologist or certified engineering geologist.
2. The site shall be protected from any washout or erosion of wastes or cover material and from inundation that could occur as a result of a 100-year, 24-hour precipitation event, or as the result of flooding with a return frequency of 100 years.
3. Internal site drainage from surface sources shall not contact or percolate through wastes during the life of the site.
4. The Discharger shall ensure that the structures that control leachate, surface drainage, erosion, and landfill gas are constructed and maintained to withstand conditions generated during the maximum probable earthquake.

5. The final cap system shall be maintained to promote lateral runoff and prevent ponding and infiltration of water.
6. The Discharger shall analyze samples from groundwater monitoring wells as outlined in the Self-Monitoring Program (SMP) (Attachment A).
7. The Discharger shall install any reasonable additional groundwater and leachate monitoring devices required to fulfill the terms of the attached and any future SMP issued by the Executive Officer.
8. Landfill gases shall be adequately vented or otherwise controlled to minimize the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water.
9. The Discharger shall maintain all devices or designed features installed in accordance with this Order, such that they continue to operate as intended without interruption.
10. The Water Board shall be notified immediately of any failure occurring in the waste management unit. Any failure that threatens the integrity of containment features or the landfill shall be promptly corrected after approval of the method and schedule by the Executive Officer.
11. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.
12. The Discharger shall maintain the landfill so as to prevent a statistically significant increase in water quality parameters at points of compliance as provided in Section 20420 of Title 27.
13. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.
14. At any time, the Discharger may file a written request (including supporting documentation) with the Executive Officer, proposing modifications to the attached SMP. If the proposed modifications are acceptable, the Executive Officer may issue a letter of approval that incorporates the proposed revisions into the SMP.

## **C. PROVISIONS**

1. The Discharger shall comply immediately, or as prescribed by the time schedule below, with all Prohibitions, Specifications and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. The Discharger must also comply with all conditions of these WDRs. Violations may result in enforcement actions, including Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or

revocation of these waste discharge requirements by the Water Board. [CWC Section 13261, 13263, 13265, 13267, 13268, 13300, 13301, 13304, 13340, 13350].

2. All technical and monitoring reports required pursuant to this Order are being requested pursuant to Section 13267 of the California Water Code. Failure to submit reports in accordance with schedules established by this Order or failure to submit a report of sufficient technical quality acceptable to the Executive Officer may subject the Discharger to enforcement action pursuant to Section 13268 of the California Water Code.
3. Electronic Reporting Format: In addition to print submittals, all reports submitted pursuant to this Order must be submitted as electronic files in PDF format. The Water Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public, during file reviews conducted at the Water Board's office. PDF files can be created by converting the original electronic file format (e.g., Microsoft Word) and/or by scanning printed text, figures & tables. Upon request by Water Board staff, monitoring results, including water level measurements, sample analytical results, coordinates, elevations, etc., shall be provided electronically in Microsoft Excel® or similar spreadsheet format. This format facilitates data computations and/or plotting that Water Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review. Laboratory reports and/or field data sheets shall not be printed, but included on a CD with the printed report and/or within the electronic PDF file to be emailed and uploaded to Geotracker. All electronic files, whether in PDF or spreadsheet format, shall be submitted via Geotracker, email (only if the file size is less than 3 MB) or on CD. CD submittals may be included with the print report. Email notification should be provided to Water Board staff whenever a file is uploaded to the Water Board's Geotracker site.

## **WATER QUALITY IMPACTS AND LANDFILL MONITORING**

### **4. PIEZOMETER INSTALLATION PROPOSAL**

COMPLIANCE DATE: March 1, 2010

The Discharger shall submit a proposal and schedule to install piezometers within the landfill footprint and screened within the waste for the purpose of monitoring groundwater and/or leachate levels. The purpose of installing the wells will be to ensure that irrigation water is not percolating through the waste, and that the irrigation system is not contributing to a rise in groundwater and/or leachate levels beneath the site. Therefore, the piezometers shall be installed prior to the installation and/or operation of the irrigation system to achieve baseline water levels.

**5. WELL INSTALLATION REPORT**

COMPLIANCE DATE: 45 days following completion of well installation activities

The Discharger shall submit a technical report, acceptable to the Executive Officer, which provides well construction details, geologic boring logs, and well development logs for all new wells installed.

**6. FINAL DEVELOPMENT PLAN**

COMPLIANCE DATE: 90 days following project completion

The Discharger shall submit a final development plan, acceptable to the Executive Officer, upon completion of the project. The plan shall include, but is not limited to, final as-built plans for the stormwater detention pond, landfill gas monitoring systems, operations and maintenance systems, irrigation systems, and methane venting systems.

**7. SEMI-ANNUAL GROUNDWATER MONITORING REPORT**

COMPLIANCE DATE: January 31 and July 31 of each year

The Discharger shall submit semi-annual groundwater monitoring reports acceptable to the Executive Officer, including groundwater levels in both monitoring wells and piezometers, no later than January 31 and July 31 of each year in accordance with the attached SMP (Attachment A).

**8. ANNUAL OPERATIONS AND MAINTENANCE REPORT**

COMPLIANCE DATE: July 31 of each year

The Discharger shall submit an Annual Operations and Maintenance Report, acceptable to the Executive Officer, by July 31 of each year in accordance with the attached SMP (Attachment A). The annual report to the Water Board shall cover the previous calendar year as described in Part A of the SMP. In addition to the requirements outlined in Attachment A, this report shall also include the following: location and operational condition of all groundwater monitoring wells and landfill gas monitoring systems, and landfill gas monitoring results. The report shall also include any details regarding repair and maintenance activities that need to be completed prior to the commencement of the next rainy season (starting October 15 of each year). This report shall also include a description and schedule for any repair and maintenance activities of the landfill gas trench and associated probes, the stormwater drainage system and detention pond and the irrigation system, and a cost analysis detailing the anticipated expense for all repairs, maintenance and monitoring during the next twelve months. Repair and maintenance estimates shall be based on rainy season inspections conducted throughout the winter as required in the SMP.

This report may be combined with the semi- annual groundwater monitoring report.

**9. POST-EARTHQUAKE INSPECTION AND CORRECTIVE ACTION REPORTS**

COMPLIANCE DATE: Within 72 hours of the occurrence of an earthquake of magnitude 6 or higher

The Discharger shall submit a technical report, acceptable to the Executive Officer, which describes implementation of the Post Earthquake Inspection and Corrective Action Plan for the landfill for any earthquake greater than Richter Magnitude 6 at or within 30 miles of the landfill. The report shall describe the results of the post earthquake inspection and any corrective actions necessary to insure landfill stability and prevent water quality impacts which may result from seismic events. .

**10. CHANGE IN SITE CONDITIONS**

NOTIFICATION DUE DATE: Immediately upon occurrence  
REPORTING DUE DATE: 30 days after initial notification

The Discharger shall immediately notify the Water Board of any flooding, ponding, settlement, equipment failure, slope failure, exposure of waste, stormwater detention pond or leachate leakage, or other change in site conditions that could impair the integrity of the landfill cap, waste or leachate containment facilities, and/or drainage control structures and shall immediately make repairs. Within 30 days, the Discharger shall prepare and submit a technical report, acceptable to the Executive Officer, documenting the corrective measures taken.

11. If any earthwork activities in association with the proposed site development should uncover the three missing SWAT (1987 and 1989) wells (MW-1, MW-2 and MW-4), they shall be properly destroyed in accordance with Santa Clara Valley Water District requirements. A report documenting the proper destruction shall be submitted to the Water Board within 30 days following the well destruction.
12. The Discharger shall maintain a copy of these WDRs and these requirements shall be available to operating personnel at all times [CWC Section 13263].
13. The Discharger shall permit the Water Board or its authorized representative, upon presentation of credentials:
  - a. Immediate entry upon the premises on which wastes are located or in which any required records are kept.
  - b. Access to copy any records required under the terms and conditions of this order.
  - c. Inspection of any treatment equipment, monitoring equipment, or monitoring methods required by this order or by any other California state agency.
  - d. Sampling of any discharge or groundwater governed by this Order.

14. In the event of any change in control/operator or ownership of land or parcel of land, or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. The Discharger must notify the Executive Officer, in writing at least 30 days in advance of any proposed transfer of this Order's responsibility and coverage to a new discharger. The notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this order's responsibility and coverage between the current discharger and the new discharger. This agreement shall include an acknowledgment that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on. [CWC Sections 13267 and 13263]. The request must contain the requesting entity's full legal name, the address and telephone number of the persons responsible for contact with the Water Board and statement. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.
15. This Order is subject to Water Board review and updating, as necessary, to comply with changing State and federal laws, regulations, policies, or guidelines; changes in the Water Board's Basin Plan; or changes in the discharge characteristics [CWC Section 13263]. The Executive Officer may specify minor changes to the SMP as necessary.
16. Where the Discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge (ROWD) or submitted incorrect information in a ROWD or in any report to the Water Board, it shall promptly submit such facts or information [CWC Sections 13260 and 13267].
17. This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Discharger from its liability under federal, State or local laws, nor do they create a vested right for the to continue the waste discharge [CWC Section 13263(g)].
18. Provisions of these WDRs are severable. If any Provision of these requirements is found invalid, the remainder of these requirements shall not be affected.
19. The Discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this order [CWC Section 13263(f)].

20. Except for a discharge that is in compliance with these WDRs, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.7) of Chapter 7 of Division 1 of Title 2 of the Government Code, and immediately notify the Water Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of Section 13271 of the Water Code unless the Discharger is in violation of a prohibition in the applicable water quality control plan [CWC Section 13271(a)].
  
21. The Discharger shall report any noncompliance that may endanger public health or the environment. Any such information shall be provided orally to the Executive Officer within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours [CWC Sections 13263 and 13267].

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on \*\*\*\*\*

---

Bruce H. Wolfe  
Executive Officer

Figures:        Figure 1 – Site Location Map  
                     Figure 2 – Landfill Site Map  
                     Figure 3 – Proposed Site Development

Attachment:    Attachment A – Self-Monitoring Program

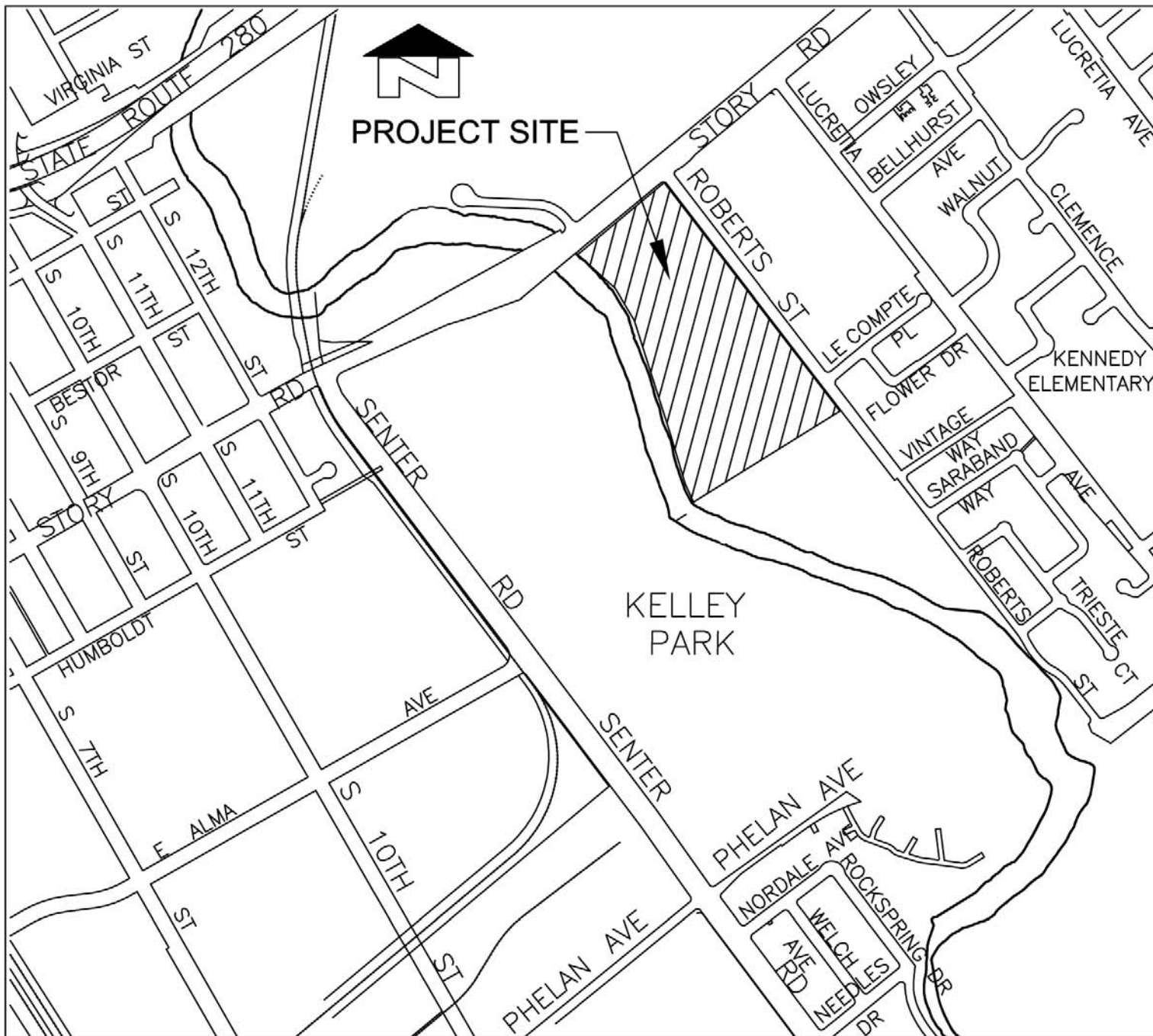


Figure 1 - Site Location Map



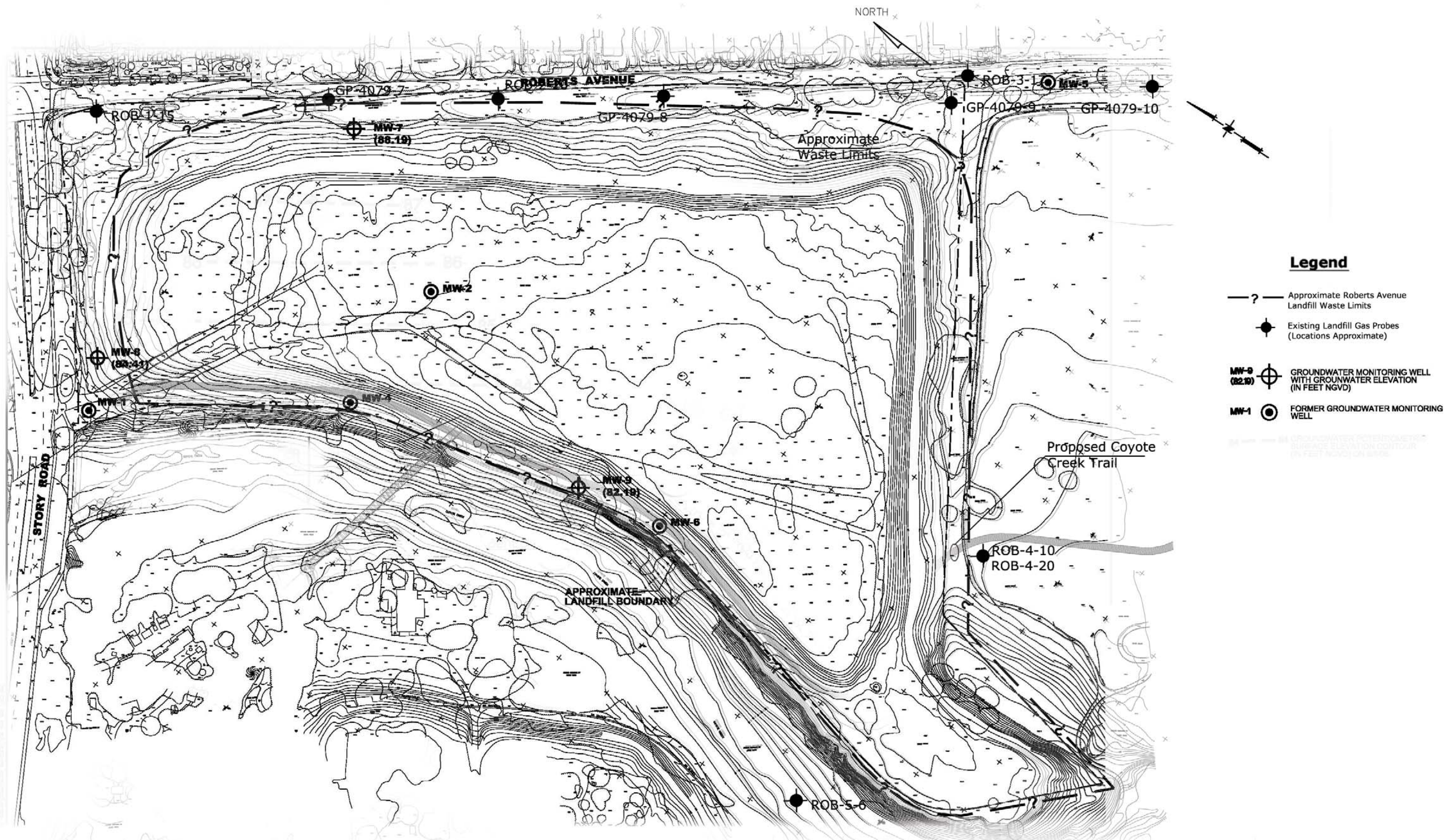
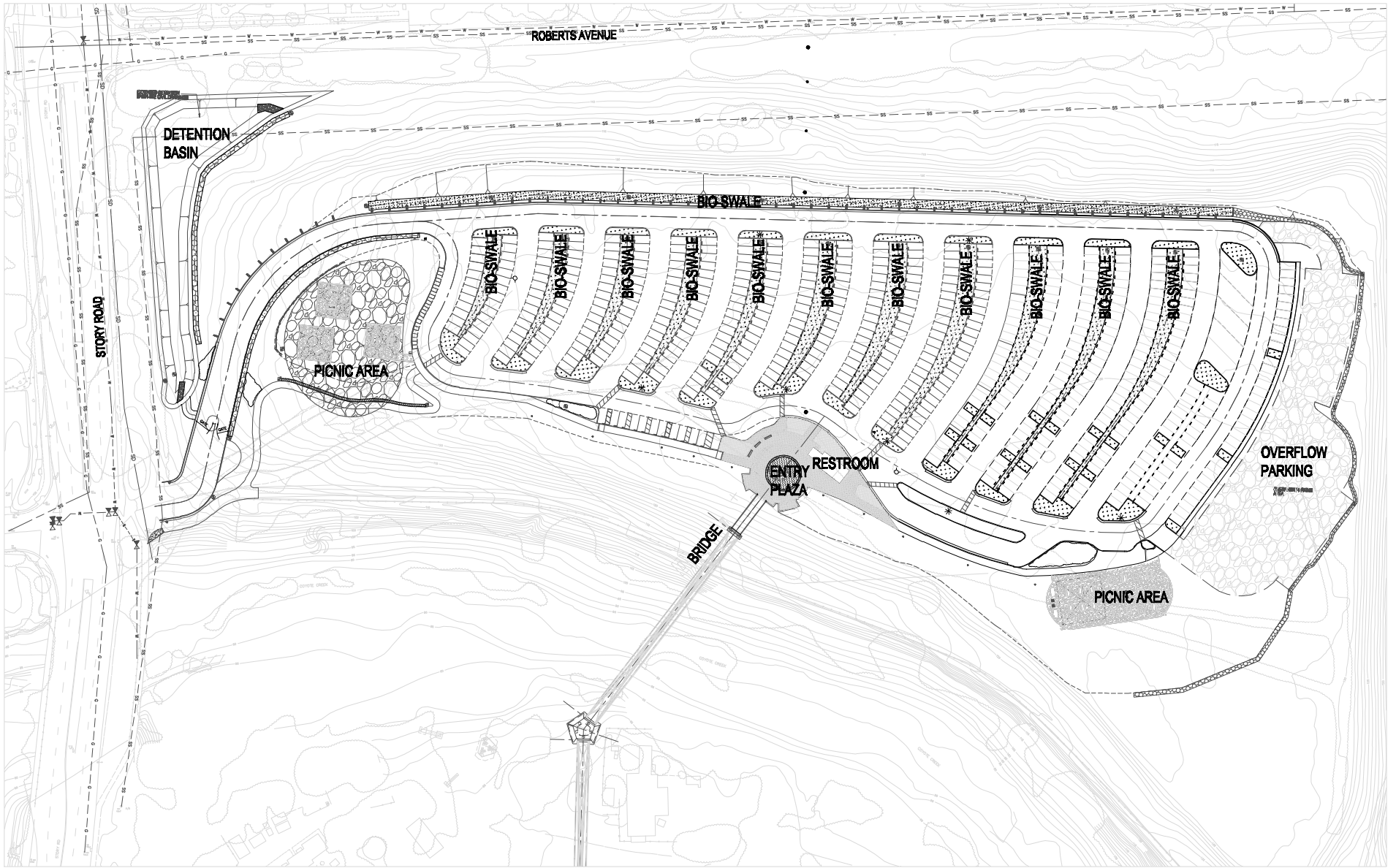
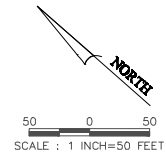


Figure 2 - Landfill Site Map



**FIG 3. PROPOSED SITE DEVELOPMENT PLAN**  
 HAPPY HOLLOW PARK AND ZOO



**ATTACHMENT A**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**SELF-MONITORING PROGRAM**

**FOR**

**ROBERTS AVENUE LANDFILL  
SAN JOSE, SANTA CLARA COUNTY**

**ORDER NO. R2-2010-00XX**

**CONSISTS OF**

**PART A**

**AND**

**PART B**

## **PART A**

### **A. GENERAL**

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Water Board's Resolution No. 73-16. This Self-Monitoring Program is issued in accordance with Title 27 of the California Code of Regulations.

The principal purposes of a self-monitoring program are: (1) to document compliance with waste discharge requirements and prohibitions established by the Water Board, (2) to facilitate self-policing by the waste dischargers in the prevention and abatement of pollution arising from waste discharges, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the dischargers in complying with the requirements of Title 27.

### **B. SAMPLING AND ANALYTICAL METHODS**

Sample collection, storage, and analyses shall be performed according to the most recent version of U.S. EPA Standard Methods and in accordance with an approved sampling and analysis plan.

Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and all reports of such work submitted to the Water Board shall be signed by a duly authorized representative of the laboratory.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

### **C. DEFINITION OF TERMS**

1. A grab sample is a discrete sample collected at any time.
2. Receiving waters refers to any surface that actually or potentially receives surface or groundwaters that pass over, through, or under waste materials or contaminated soils. In this case the groundwater beneath and adjacent to the landfill areas and the surface runoff from the site are considered receiving waters.
3. Standard observations refer to:
  - a. Receiving Waters
    - 1) Floating and suspended materials of waste origin: presence or absence, source, and size of affected area.

- 2) Discoloration and turbidity: description of color, source, and size of affected area.
  - 3) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  - 4) Evidence of beneficial use: presence of water associated wildlife.
  - 5) Flow rate.
  - 6) Weather conditions: wind direction and estimated velocity, total precipitation during the previous five days and on the day of observation.
- b. Perimeter of the Landfill
- 1) Evidence of liquid leaving or entering the waste management unit, estimated size of affected area and flow rate. (Show affected area on map).
  - 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  - 3) Evidence of erosion and/or daylighted refuse.
- c. The Landfill
- 1) Evidence of ponded water at any point on the waste management facility.
  - 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  - 3) Evidence of erosion, slope or ground movement, and/or daylighted refuse.
  - 4) Adequacy of access road.
  - 5) Standard Analysis and measurements are listed on Table A (attached).

#### **D. SAMPLING, ANALYSIS, AND OBSERVATIONS**

The Discharger is required to perform sampling, analyses, and observations in groundwater and leachate per the general requirements specified in Section 20415(e) of Title 27.

#### **E. RECORDS TO BE MAINTAINED**

Written reports shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Water Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.
2. Date and time of sampling.
3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.

5. Calculation of results.
6. Results of analyses, and detection limits for each analysis.

**F. REPORTS TO BE FILED WITH THE WATER BOARD**

1. **Electronic Reporting Format**

In addition to print submittals, all reports submitted pursuant to this Order must be submitted as electronic files in PDF format. The Water Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public, during file reviews conducted at the Water Board's office. PDF files can be created by converting the original electronic file format (e.g., Microsoft Word) and/or by scanning printed text, figures & tables. Upon request by Water Board staff, monitoring results, including water level measurements, sample analytical results, coordinates, elevations, etc., shall be provided electronically in Microsoft Excel® or similar spreadsheet format. This format facilitates data computations and/or plotting that Water Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review. Laboratory reports and/or field data sheets shall not be printed, but included on a CD with the printed report and/or within the electronic file to be emailed and uploaded to Geotracker. All electronic files, whether in PDF or spreadsheet format, shall be submitted via Geotracker, email (only if the file size is less than 3 MB) or on CD. CD submittals may be included with the print report. Email notification should be provided to Water Board staff whenever a file is uploaded to the Water Board's Geotracker site.

2. **Monitoring Reports**

Written groundwater monitoring reports shall be filed by January 31 and July 31 of each year. In addition an annual operations and maintenance report shall be filed by July 31 of each year. The semi-annual groundwater monitoring report due on July 31 of each year can be combined with the annual report. The reports shall be comprised of the following:

a. Letter of Transmittal

A letter transmitting the essential points in each report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and any actions taken or planned for correcting the violations. If the Discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the

letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

- b. Each monitoring report shall include a compliance evaluation summary. The summary shall contain:
  - 1) A graphic description of the direction of groundwater flow under/around the landfill, based upon the past and present water level elevations and pertinent visual observations.
  - 2) The method and time of water level measurement, the type of pump used for purging, pump placement in the well; method of purging, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity during purging, calibration of the field equipment, results of the pH, temperature conductivity and turbidity testing, well recovery time, and method of disposing of the purge water.
  - 3) Type of pump used, pump placement for sampling, a detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations.
  - 4) A written discussion of the groundwater analyses indicating any change in the quality or characteristics of the groundwater.
- c. A comprehensive discussion of the compliance record and status, as well as any corrective actions taken or planned that may be needed to bring the Discharger into full compliance with the WDRs and Title 27.
- d. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.
- e. Laboratory statements with the results of analyses specified in Part B must be included in each printed report on a CD. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and all reports of such work submitted to the Water Board shall be signed by a duly authorized representative of the laboratory.
  - 1) The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than U.S. EPA-approved methods or Standard Methods are

used, the exact methodology must be submitted for review and approved by the Executive Officer prior to use.

- 2) In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that are outside laboratory control limits; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.
- f. A summary and certification of completion of all standard observations and inspections of the waste management unit, the perimeter of the waste management unit, and the receiving waters.
  - g. The Annual Monitoring Report shall be submitted to the Board no later than July 31 covering the previous year. The Report shall include, but is not limited to, the following:
    - i. A graphical presentation of the analytical data [Water Board-approved alternate procedure per Title 27, Section 20415(e)(14)] for monitoring locations that have shown detectable concentrations during two consecutive monitoring events, or greater than ten percent detection frequency for any organic compound. Graphical representation must be provided for monitoring locations with metals and general chemistry analytical parameters that have an increasing trend for three consecutive monitoring events;
    - ii. A tabular summary of all the monitoring data obtained during the previous year;
    - iii. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements;
    - iv. A written summary of the groundwater analyses indicating any change in the quality of the groundwater; and
    - v. An evaluation of the effectiveness of the leachate monitoring/control facilities (if present), which includes an evaluation of leachate buildup within the disposal units, a summary of leachate control volumes removed from the units, and a discussion of the leachate disposal methods utilized.
  - h. Tabular and graphical summaries of the monitoring data obtained during the previous year; the annual report should be accompanied by a compact disc, MS-EXCEL format, tabulating the year's data.



3. **Contingency Reporting**

A report shall be made by telephone of any seepage from the disposal area immediately after it is discovered. A written report shall be filed with the Water Board within five days thereafter. This report shall contain the following information:

- a) a map showing the location(s) of discharge if any;
- b) approximate flow rate;
- c) nature of effects; i.e., all pertinent observations and analyses; and
- d) corrective measures underway, proposed, or as specified in the WDRs.

4. **Well Logs**

A boring log and a monitoring well construction log shall be submitted for each new sampling well established for this monitoring program, as well as a report of inspection or certification that each well has been constructed in accordance with the construction standards of the California Department of Water Resources. These shall be submitted within 45 days after well installation.

**G. WATER QUALITY PROTECTION STANDARDS**

- 1. **Constituents of Concern**: The Constituents of Concern (COC) for groundwater are those listed in Table 1 of this Self-Monitoring Program.
- 2. **Concentration Limits**: Concentration Limits (CLs) for each COC are shown in Table 2. The CLs were set at the Maximum Contaminant Levels (MCLs) for drinking water, where they have been established. CLs for those COCs that do not have established MCLs were set at the Water Board's Environmental Screening Levels (ESLs) for drinking water toxicity (Table F-3). The CLs are set at MCL drinking water standards and ESL drinking water toxicity levels, and therefore are protective of human health and water quality in Coyote Creek.
- 3. **Monitoring Points**: Monitoring Points for the landfill are the wells identified in Table 1 of this SMP. Monitoring well MW-5 may be used as the background water quality monitoring location, since it is outside of the landfill footprint and has not had any COC detections to date. For those wells where COCs have been detected at concentrations greater than the CLs, monitoring will be conducted to demonstrate that the levels of COCs have either stabilized or are decreasing.

**Part B**

**1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS**

A. **GROUNDWATER MONITORING:**

**Semi-Annual Report: due January 31 and July 31 of each year**

Groundwater levels shall be measured semi-annually using all available groundwater wells and piezometers. Groundwater shall be sampled and analyzed according to the schedule specified in Table 1. The Self-Monitoring Program includes semi-annual sampling of wells MW-5, MW-7, MW-8 and MW-9. Monitoring well locations are shown in Figure A-1. Semi-annual samples are to be collected in the months of May and November. Concentration Limits for groundwater sampled from the monitoring wells are shown in Table 2.

B. **SEEPAGE MONITORING:**

The landfill perimeter shall be monitored semi-annually for seepage and the results reported as part of the groundwater monitoring report. Seepage monitoring stations include any point at which seepage is found occurring from the disposal area.

C. **FACILITIES MONITORING:**

**Annual Report: due July 31 of each year**

The Discharger shall inspect all facilities quarterly to ensure proper maintenance and report annually. The facilities to be monitored shall include, but not be limited to:

1. The stormwater detention pond and any surface ponding of water elsewhere on the site
2. Methane gas sensors in onsite buildings and the landfill gas trenches
3. Irrigation systems
4. Interim and final cover system
5. All re-use areas

The Discharger shall provide photo documentation of conditions at locations that include, but are not limited to the landfill facilities listed in Part B above. Locations from which photographs are taken should be permanent stations such that they can be used in successive reports.

Attachments: Figure A-1 –Monitoring Well Location Map  
Tables 1-2

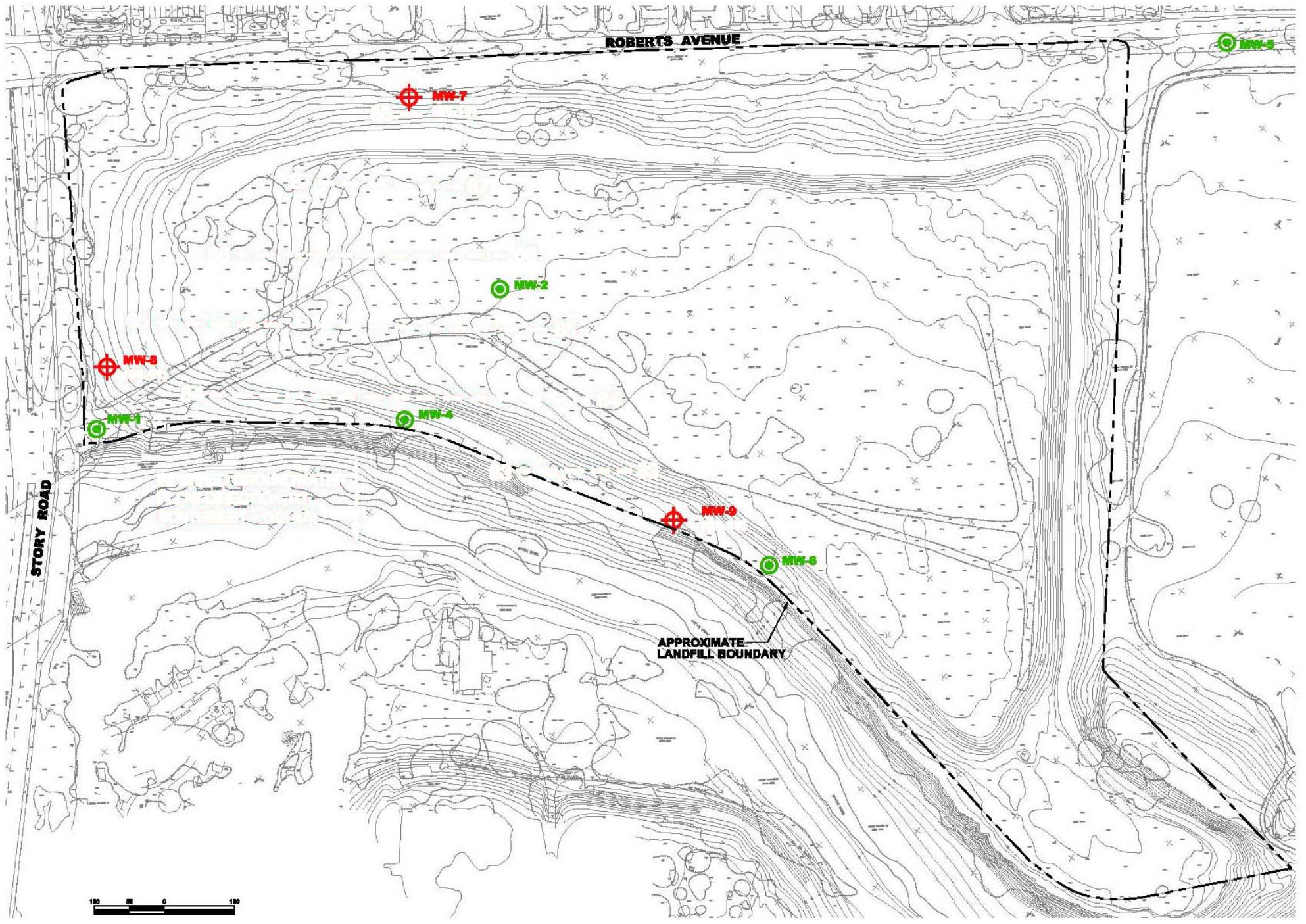


Figure A-1 - Monitoring Well Location Map

**Table 1 - Groundwater Monitoring Points, Parameters and Sampling Frequency  
 Roberts Avenue Landfill**

*Self-Monitoring Program*  
 (Wells MW-5, MW-7, MW-8 and MW-9)

| <b>Analytical Parameters</b>   | <b>Laboratory Method</b>              | <b>Sampling Frequency</b>                                   |
|--|---------------------------------------|---|
| <b>VOCs</b>  | US EPA Method 8260                    | Semi- Annual (2 <sup>nd</sup> and 4 <sup>th</sup> Quarters) |
| <b>TPH- Gasoline, Diesel and Motor Oil, and Fuel Oxygenates</b>  | US EPA Methods 8260 (GC/MS) and 8015B | Semi- Annual (2 <sup>nd</sup> and 4 <sup>th</sup> Quarters) |
| <b>General Water Quality Parameters:</b><br>pH, Electrical Conductivity, Alkalinity, Total Dissolved Solids, Total Organic Carbon, Total Kjeldahl Nitrogen, Chloramines                              | various field and laboratory methods  | Semi- Annual (2 <sup>nd</sup> and 4 <sup>th</sup> Quarters) |
| <b>Title 22 CAM 17 Metals<sup>1</sup>:</b><br>Antimony, Arsenic, Barium, Beryllium, Cadmium, Cobalt, Copper, Chromium, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc | US EPA Method 6010B/7400              | Semi-Annual (2 <sup>nd</sup> and 4 <sup>th</sup> Quarters)  |

**Table 2 - Concentration Limits for Groundwater  
 Roberts Avenue Landfill**

| <b>Constituent of Concern</b>  | <b>Maximum Contaminant Level (MCL) (µg/L)</b> | <b>Environmental Screening Levels (ESLs) (µg/L)</b> | <b>US EPA Test Method</b> | <b>Concentration Limits (µg/L)</b> |
|--------------------------------|---|---|---------------------------|------------------------------------|
| <u>Specified VOCs</u>          |   |   | 8260                      |                                    |
| MTBE                           | 13  |   |                           | MCL                                |
| PCE                            | 5   |   |                           | MCL                                |
| TCE                            | 5   |   |                           | MCL                                |
| <u>TPH and Fuel</u>            |   |   |                           |                                    |
| <u>Oxygenates</u>              |   |   |                           |                                    |
| Gasoline                       |   | 210   | 8260 (GC/MS)              | ESL                                |
| Diesel                         |   | 210   | 8015M                     | ESL                                |
| Motor Oil                      |   | 210   | 8015M                     | ESL                                |
| TAME                           |   |   |                           | NE                                 |
| TBA                            |   | 12  | 8260 (GC/MS)              | ESL                                |
| <u>CAM 17 Metals</u> (in mg/L) |   | (in mg/L)   | 6010B or 7400             | MCL                                |
| Antimony                       | 0.006   |   |                           | MCL                                |
| Arsenic                        | 0.010   |   |                           | MCL                                |
| Barium                         | 2.0   |   |                           | MCL                                |
| Beryllium                      | 0.004   |   |                           | MCL                                |
| Cadmium                        | 0.005   |   |                           | MCL                                |
| Chromium                       | 0.1   |   |                           | ESL                                |
| Cobalt                         |   | 0.14  |                           | MCL                                |
| Copper                         | 1.3   |   |                           | MCL                                |
| Lead                           | 0   |   |                           | MCL                                |
| Mercury                        | 0.002   |   |                           | ESL                                |
| Molybdenum                     |   | 0.035   |                           | ESL                                |
| Nickel                         |   | 0.1   |                           | MCL                                |
| Selenium                       | 0.05  |   |                           | MCL                                |
| Silver                         | 0.10  |   |                           | MCL                                |
| Thallium                       | 0.002   |   |                           | ESL                                |
| Vanadium                       |   | 0.015   |                           | MCL                                |
| Zinc                           | 5.0   |   |                           |                                    |

NE = Not Established